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ABSTRACT BOOK

Anaesthesia Management Of An Adolescent Child With Hyperlipoproteinemia Undergoing Varicocelectomy: A Case Study

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INTRODUCTION/ PURPOSE: Hyperlipoproteinemia type-1A is an autosomal-recessive metabolic disease, resulting in massive accumulation of chylomicrons and triglycerides in plasma leading to recurrent abdominal pain and hepatosplenomegaly, with normal cholesterol levels and low cardiac disease risk. Literature suggests avoiding prolonged infusion of lipidic emulsions of propofol that increases triglyceride levels for anaesthesia.

CASE: A 17 year old male patient with 72 kg weight, 186 cm height, normal physical examination and medical history of hyperlipoproteinemia type-1A, testicular varicosele, cerebral and pulmonary emboli 2 years prior and inguinal hernia operation, using 100 mg/day acetylsalicylic acid (ASA) was scheduled for varicocelectomy. He had normal cell blood count (CBC), triglyceride and cholesterol levels, liver and kidney function tests and INR:0.9. ASA usage was ceased prior surgery. The patient opted for general anesthesia, and underwent surgery with sevoflurane anesthesia via no:4 laryngeal mask airway following anesthesia induction with intravenous propofol 3 mg/kg and fentanyl 50 mcg. The patients heart rate, blood pressure, peripheral oxygen saturation were monitorised perioperatively and remained stable within normal values throughout surgery (30 minutes) and anaesthesia (42 minutes). Postoperative analgesia was provided with intravenous tenoxicam 20 mg, no complications involving lung functions arised postoperatively.

DISCUSSION/ CONCLUSION: Hyperlipoproteinemia type-1A presents in infancy and early childhood with irritability, fever, lower gastrointestinal bleeding, diarrhea, vomiting, lipemia retinalis, anemia and xanthomas. Treatment involves strictly-restricted fat diet. Two case studies (1 adult, 1 child) with hyperlipidemia theorised that propofol couldn't reach site of action due to elevated trygliseride levels, resulting in inadequate concentration in the brain, becoming ineffective for anaesthesia induction. Our patient received propofol %1 in lipid emulsion for induction without any side effects. Sevoflurane was chosen for its low lipid-solubility. As our patient had normal cholesterol and triglyceride levels we avoided complications. We recommend CBC, triglycerid-cholesterol level screening before surgery in these patients while planning ahead other options than propofol.

Keywords: Hyperlipoproteinemia Type-1A, Adolescent, Propofol, General Anaesthesia, Inguinal Hernia

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Importance Of Teamwork, Colloboration And Communication For Complex Surgeries; Separation Surgery For Pygaphagus Twins

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INTRODUCTION/ PURPOSE: The anesthetic management of conjoined twins undergoing separation surgery is challenging and complex, requiring close cooperation, communication with the whole surgical team. A detailed preoperative examination and a multidisciplinary approach to surgical planning are essential[1]. In this case report, the successful anesthetic management of surgery to separate two pygopagus conjoined twins are described.

CASE: Case IPygophagus twins, 7 months old, accepted for separation surgery after a detailed medical, radiological series of examinations. They had to be anesthetized during radiological examinations as well for their cystoscopy, rectoscopy, vaginoscopy. They had colostomy after which the tissue expanders were placed, then after 3 months, they had been separated. During the operation lasting, 27 hours; U-shaped position has been given to the twins for the separation of the vertebra and spinal structures, then prone position for the separation rectum, urinary tract and gluteal region(Figure1). The preparation, positioning of the patients, teamwork, peroperative and postoperative maintenance, massive bleeding and blood transfusion, pain and infection control, rehabilitation are some of the challenging confronted(Table1).Case 2Pygophagus twins, 2 years old, had been accepted. They were malnourished, one diagnosed Prune-Belly syndrome and renal hypoplasia, and were septic at admission. They had received medical treatment for two months, during which detailed medical, radiological, surgical investigations had been done(Figure2,3). Step-separation surgery was planned and the vertebral and spinal structures were succesfully separated at the first step. The colostomies were performed and expanders were placed in the proceeding months. At 7 months of their admission, they were succesfully separated with a 20-hours operation(Figure4, Table2).

Figure 1



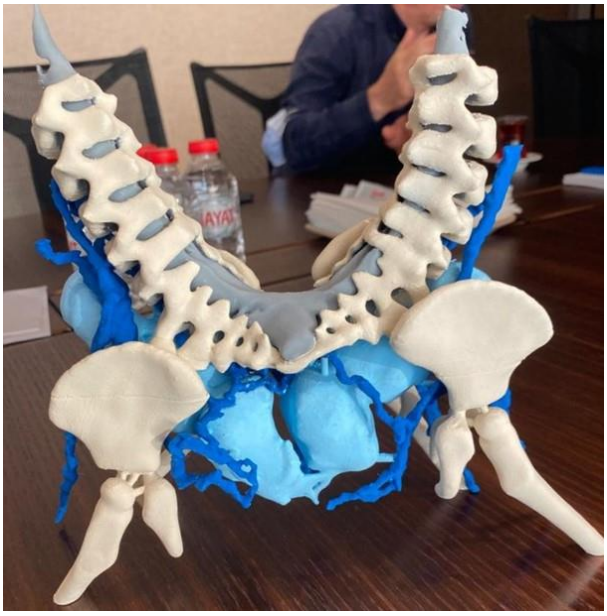
Case 1; Monitoring, intravenous lines and ventilation equipment of each twin were fixed by separating them into pink and green. Twin A pink. Twin B green

Figure 2



Case 2; Anatomic Simulation

Figure 3



Case 2; 3-D Anatomic Simulation

Figure 4



Case 2

Table 1

Twin A	**Twin B**
1250 mL Crystalloid	1180 mL Crystalloid
625 mL Fresh Frozen Plasma	700 mL Fresh Frozen Plasma
700mL Erythrocyte Suspension	300 mL Albumin %20

Case 1; Fluid Management

Table 2

Twin C	**Twin D**
2500 mL Crystalloid	2000 mL Crystalloid
600 mL Fresh Frozen Plasma	600 mL Fresh Frozen Plasma
800mL Erythrocyte Suspension	800mL Erythrocyte Suspension

Case 2; Fluid Management

DISCUSSION/ CONCLUSION: Separation of conjoined twins requires meticulous investigations, close communication and colloborations within all teams of surgery and anesthesia since the complex surgery has many challenges; additional anomalies, positioning difficulties, ambigious anatomy, pyhysiology, long hours of surgery, massive bleeding, respiratory as well as hemodynamic, metabolic problems.

Keywords: Conjoined twins, Pygophagus twins, Separation Surgery, Pediatric Anesthesia, Pediatric Anesthesia; blood transfusion

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Anesthetic Management Of VODI (Veno-Occlusive Disease With İmmunodeficiency) Syndrome

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INTRODUCTION/ PURPOSE: Veno-occlusive disease with immunodeficiency syndrome (VODI) is a rare syndrome that occurs in patients who have received chemotherapy. It is a life-threatening complication of allogeneic or autologous hematopoietic stem cell transplantation (HSCT), most commonly associated with high-intensity chemotherapies. (1) Our literature search did not revealed any report on the method of anesthesia in VODI syndrome. Here, we reported our anesthesia management experience.

CASE: A 13-year-old, 30 kg male patient was admitted for tonsillectomy procedure. Patient was diagnosed with common variable immunodeficiency (CVID) when he was 1 month old. The patient had rhinorrhea, cough, wheezing and secretory coarse rales. The patient's preoperative laboratory values were within normal limits, except for the minimal elevation in transaminase values. Intravenous immunoglobulin (IVIG) treatment was recommended for the patient in the preoperative period. Sedation was administered by intravenous (IV) 1 mg of midazolam. After anesthesia induction was achieved with IV 100 mg propofol, 0.2 mc/kg/min remifentanil infusion and 15 mg rocuronium, he was intubated with a 6.5 mm cuffed tube. Anesthesia was maintained with 8 mg/kg/h propofol and 0.25 mc/kg/min remifentanil infusion. At the end of the operation, the patient regained consciousness and extubated. The patient was discharged home on postoperative second day.

DISCUSSION/ CONCLUSION: Pathogenesis of disorder includes multiple thrombotic and inflammatory factors that initially trigger damage to the endothelial cells lining the sinusoids of the hepatic acinus. Diagnosis of veno-occlusive disease/sinusoidal obstruction syndrome (VOD/SOS) has historically been based on clinical examination by either Baltimore criteria or modified Seattle criteria. (1) The latest studies reporting VOD/SOS risk factors support the importance of patient-related factors, such as acute kidney injury, increased international normalized ratio, female sex (in children), and platelet refractoriness. (2) A pediatric patient with VODI syndrome can be safely managed with TIVA anesthesia with propofol-remifentanil infusion.

Keywords: Veno-occlusive disease; sinusoidal obstruction syndrome; anesthesia

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Anesthesia Management In A Child With Fanconi-Bickel Syndrome

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INTRODUCTION/ PURPOSE: Fanconi-Bickel Syndrome(FBS) or glycogen storage disease XI is an autosomal recessive metabolic disease with mutation in the SLC2A2 (GLUT-2)gene[1–3].It is characterized by renal tubular dysfunction, hepatorenal glycogen accumulation,hypoglycemia[4].In this case, anesthesia management in a 5-year-old girl with hepatomegaly, hypophosphatemic rickets,growth retardation,fanconi syndrome findings,feeding difficulties and pulmonary infections due to gastroesophageal reflux and who underwent Nissen fundoplication operation is presented.

CASE: A 5-year-old girl who was born 41.GH 2500g from unrelated healthy parents, was diagnosed with FBS from the age of 6 months and was brought with the complaint of feeding difficulties.In preoperative physical examination,growth-development retardation(head circumference,height and weight below the 3rd percentile),hepatomegaly,abdominal distention,genu varum deformities in the extremities were observed.In laboratory features, she had hyperlactatemic metabolic acidosis,elevated ALP and hypophosphataemia.The patient was taken to the operating room and standard ASA monitoring was performed.Induction was performed with intravenous 5mg/kg pentothal,1mcg/kg fentanyl,0.6mg/kg rocuronium and orotracheal intubation with a no:4 cuffed endotracheal tube.Ventilation was started in PCV mode with 2%sevoflurane,fio2:40%,Peep:6,Peak:20,TV:8-10ml/kg, f:26/min.Then,venous blood gas was taken and the maintenance fluid of the patient with deep hypoglycemia was planned as 10% dextrose(1/2) and Plasmalyte(1/2) solution.The patient with continuing hypoglycemia had normal Anion Gap metabolic acidosis and NaHCO3 was given.The operation started laparoscopically but due to hepatomegaly,laparotomy was started at the first hour of the operation.Postoperative single dose epidural analgesia was planned for the patient with midline incision between T6-T12.After 3 hours and 45 minutes of anesthesia,the patient was extubated.During follow-up in the recovery room,metabolic acidosis secondary to hyperlactatemia regressed with fluid resuscitation.After Nissen fundoplication and PEG were performed,the patient was transferred to the intensive care unit for follow-up.

Physical image of the patient



growth-development retardation,hepatomegaly,abdominal distention,genu varum deformities

Physical image of the patient



growth-development retardation,hepatomegaly,abdominal distention,genu varum deformities

DISCUSSION/ CONCLUSION: Fluid,electrolyte and alkaline replacement form the basis of metabolic compensation therapy in FBS,which is characterized by fasting hypoglycemia and metabolic acidosis due to tubular nephropathy[5].Perioperative metabolic decompensation management is important for the prevention of perioperative and postoperative complications.

Keywords: metabolic acidosis, hypoglisemia, fanconi-bickel syndrome, tubuler nephropathy, epidural analgesia

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Airway Management In Oronasal Fistulae Repair By Tongue Flap - A Case Report

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INTRODUCTION/ PURPOSE: Tongue flap is a treatment option for oronasal fistulae repair despite of its drawback of two-stage procedure and transient patient discomfort. Maintaining airway patency and ensuring adequate ventilation and oxygenation are the fundamental responsibilities of an anesthesiologist during the procedures. A case of pedicle tongue flap used to close oronasal fistulae was reported.

CASE: A fourteen-year-old male patient was undergone oronasal fistulae repair by tongue flap in two-stage procedure. The first challenge in airway management was extubation after tongue flap being attached to the fistula. The second challenge was intubation where tongue had occupied much of the oral cavity. The patient presented smooth emergence during first stage procedure, and flexible fiberoptic bronchoscope was used to intubate during second stage procedure.

DISCUSSION/ CONCLUSION: Airway management are considered as the most important aspect of anesthesia practice in the tongue flap procedures. Smooth emergence and extubation techniques were achieved in the first procedure. Nasotracheal intubation with fiberoptic scope were conducted successfully in the second procedure, reducing the risk of flap damage.

Keywords: Anesthesia, Airway Management, Oronasal Fistulae, Tongue Flap

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MALIGNANT HYPERTHERMIA IN 4 YEARS OLD PATIENT WITH UNDERGONE ORTHOPEDIC SURGERY

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INTRODUCTION/ PURPOSE: Malignant hyperthermia is a rare in paediatric patients (1:15.000 cases) and genetic hypermetabolic muscle disease. The characteristic phenotypical signs and symptoms of which most commonly appear with exposure to inhaled general anaesthetics. The purpose of this case report is to provide information that with enforcement the right diagnose and early appropriate management will diminish mortality, even though without mainstay therapy as dantrolene intravenous.

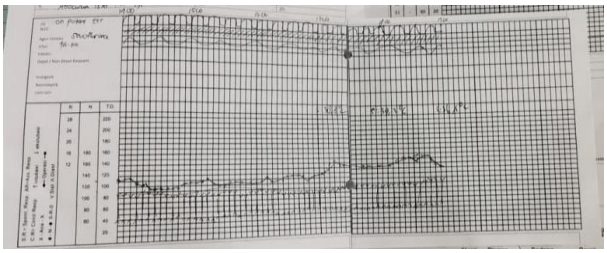
CASE: Child 4 years old with body weight 13 kg, came to Emergency Department of Saiful Anwar Hospital in 4th February 2022. Chief complaint: a left thumb of hand finger was almost cut-off by the by cycle gear at 6.30 am. He was consulted by Orthopaedic to debridement, k-wire insertion and primary closure. Assessment patients with the ASA physical status classification I paediatric 4 years old with management general anaesthesia intubation. Premedication regimens used is 10 milligrams ketamine with sevoflurane induction, analgesia with fentanyl 30 micrograms, muscle relaxant with atracurium 7 milligrams. Patient start induction at 2.00 pm, then at 5.00 pm patient suddenly increase body temperature, blood pressure and heart rate which has seen from screen monitor. Patient suspicion to malignant hyperthermia condition and subsequently undergoing the acute treatment management. A normal condition of the patient back to normal at 7.00 pm.

Strabismus appear in patient



DISCUSSION/ CONCLUSION: Patient arise signs and symptoms of malignant hyperthermia at 3 hours ongoing surgery, suspicious caused by sevoflurane induction. Subsequently sevoflurane discontinues, administered sodium bicarbonate, dextrose 25-50 gram, insulin 20 unit intravenously, put on the cooling blanket and cold infusion fluids. After 2 hours a patient came to normal vital signs. After patient extubated, strabismus was seen without prior history and another laboratory abnormal was found which leads to malignant hyperthermia are creatinine kinase increase and acidosis metabolic.

Vital sign patient



Blood Gas Analysis

HASIL LABORATORIUM PATOLOGI KLINIK

No. Registrasi	: 2202040746	Tgl. Registrasi	: 04-02-2022 20:06:17
Nama Pasien	: MUHAMMAD EDWIN ALFARIZI	No. MR	: 11530078
Jenis Kelamin	: Laki-laki	Dokter	: dr.KRISNA YUARNO PHATAMA,Sp.OT
Usia	: 4 Tahun 12 Hari	Pengirim	: RAWAT INAP / 6
Tanggal Lahir	: 23-01-2018	Alamat Pasien	: DS JERU RT.10 RW.3 SINGOSARI MALANG
Jam Selesai	: 04-02-2022 20:25:57		

JENIS PEMERIKSAAN	HASIL	SATUAN	NILAI RUJUKAN DEWASA NORMAL	KETERANGAN
KIMIA KLINIK				
Analisa Gas Darah				
• pH	7,28		7,35 - 7,45	
• pCO2	25,8	mmHg	35 - 45	
• pO2	237,7	mmHg	80 - 100	
• Bikarbonat (HCO3)	12,3	mmol/L	21 - 28	
• Kelebihan Basa (BE)	-14,6	mmol/L	(-3) - (+3)	
• Saturasi O2	99,7	%	> 95	
• Hb	10,0	g/dL		
• Suhu	37,0	°C		

Creatinine Kinase

HASIL LABORATORIUM PATOLOGI KLINIK

No. Registrasi	: 2202050283	Tgl. Registrasi	: 05-02-2022 10:35:06
Nama Pasien	: MUHAMMAD EDWIN ALFARIZI	No. MR	: 11530078
Jenis Kelamin	: Laki-laki	Dokter	: dr.KRISNA YUARNO PHATAMA,Sp.OT
Usia	: 4 Tahun 13 Hari	Pengirim	: RAWAT INAP / 13
Tanggal Lahir	: 23-01-2018	Alamat Pasien	: DS JERU RT.10 RW.3 SINGOSARI MALANG
Jam Selesai	: 05-02-2022 11:24:57		

JENIS PEMERIKSAAN	HASIL	SATUAN	NILAI RUJUKAN DEWASA NORMAL	KETERANGAN
KIMIA KLINIK				
FAAL GINJAL				
Ureum	17,7	mg/dL	16,6 - 48,5	
Kreatinin	0,29	mg/dL	< 1,2	
eGFR (CKD-EPI)				
ENZIM JANTUNG				
CK - NAC	2109	U/L	39 - 308	

Keywords: Malignant hyperthermia, pediatric patient, orthopedic surgery

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Anesthetic Management Of A Pediatric Patient With Laurance-Moon-Bardet-Biedl Syndrome

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INTRODUCTION/ PURPOSE: Laurence Moon Bardet Biedl Syndrome (LMBBS) is a rare, autosomal recessive genetic disorder (1). Although not among the diagnostic criteria, the presence of craniofacial abnormality, which is commonly observed, is one of the causes of difficult airway in these patients. We shared our general anesthesia experience with an LMBBS patient who underwent a laparoscopic peritoneal dialysis catheter placement.

CASE: An 8-year-old female patient was operated for surgery. The patient had polydactyly in the lower extremities, mental retardation, hypogonadism, and central obesity. Her height was 130cm, weight was 55kg, and BMI was 32. (Figure 1) During the airway assessment, Mallampati class IV, short thyromental distance, macroglossia were detected. Neck extension and mouth opening were sufficient. It was found that the patient had protruded and irregular incisors. In laboratory findings, it was found that BUN: 80.1 mg/dl, creatinine: 7.38mg/dl, and K: 4.4mmol/L. During the preoperative assessment, due to difficult intubation, consultation was requested from the otorhinolaryngology clinic, and approval for tracheostomy was obtained. All the necessary preoperative preparations for potential difficult airway were made. Midazolam (2mg,iv) was administered for premedication. Anesthesia was induced with propofol (2.5mg/kg) and rocuronium (0.6mg/kg). The patient was intubated using a no.5.5 endotracheal tube with cuff. Anesthesia was maintained using 2% sevoflurane, with 35%O2- 65%N2O. Hemodynamic findings were stable during the intraoperative period. For postoperative analgesia, tramadol (1mg/kg) and paracetamol (15mg/kg) were administered. Neuromuscular blockade was reversed with sugammadex (2mg/kg). Following extubation, SpO2 was 98% in room air, and the patient was transferred to pediatric intensive care unit for follow-up. The patient was monitored without any complications for one day in the intensive care unit.

Figure 1



DISCUSSION/ CONCLUSION: In our case, preoperative assessments were performed, measures against difficult intubation were taken, and no difficulties were experienced in ventilation and intubation; and the intra- and post-operative periods were completed without complications.

Keywords: Anesthesia, Bardet-Biedl Syndrome, Obesity, Morbid

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Anesthesia In Mucopolysaccharidoses Type-1

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INTRODUCTION/ PURPOSE: Mucopolysaccharidoses (MPS) are a group of chronic, progressive and multisystemic metabolic diseases characterized by accumulation of glycosaminoglycans due to a specific enzyme deficiency in lysosomes. Soft tissue storage and skeletal system are affected in patients with MPS-I, frequent respiratory and ear infections, enlarged tongue, tonsils and adenoids ,short neck with limited mobility, hypoplastic mandible, temporomandibular joint ankylosis, atlantoaxial instability are frequently present.(1,2,3) We presented our experience of managing the difficult airway in MPS Type-1.

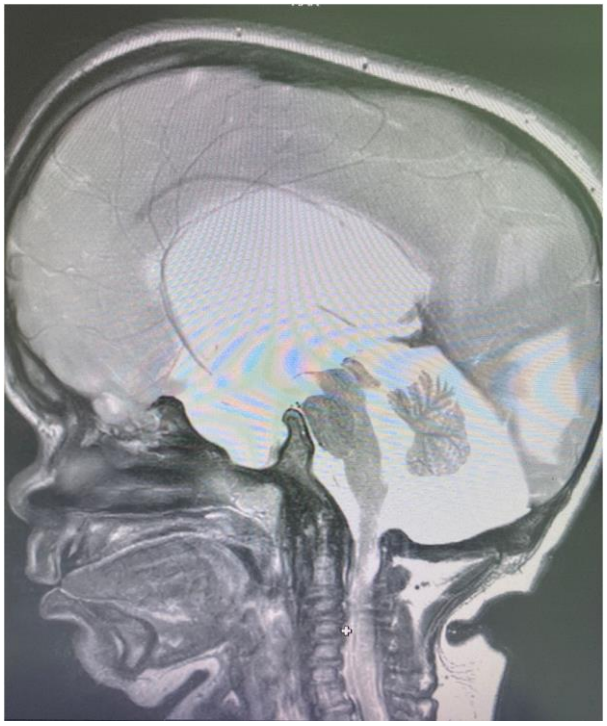
CASE: Our patient is a 12-year-old Type-1 MPS (Hurler Syndrome) girl. After a history of epileptic seizures, diffuse hydrocephalus was observed in her brain tomography and V-P shunt operation was planned.On physical examination, Pulse: 98/min TA:110/43mmHg, sPO2:99, 25 kg, 115 cm, syndromic face, macroglossia, short neck, flattened nasal root, visually impaired due to GAG accumulation, unable to speak. She has obstructive apnea syndrome, chronic otitis media.Her laboratory was normal, mild mitral stenosis was detected in ECO. The airway assessment was Mallampati class 4. Per-op basic monitors were connected, induction was provided with fentanyl 1mcg/kg, propofol 2 mg/kg, rocuronium 0.6 mg/kg after preoxygenation.The patient was intubated with a 5.5 endotracheal tube using a videolaryngoscope (CMAC, Karl Storz, Tuttlingen, Germany). Anesthesia maintenance 50/50% O2/air, 2% sevoflurane, remifentanil infusion were used. At the end of the operation, 2 mg/kg sugammedex was administered and extubation was achieved. Post-operative period was uneventful and she was discharged on the second post-operative day from PACU.

figure 1



Facial features of Hurler syndrome

figure 2



Brain CT; enlarged tongue, adenoid hypertrophy, nasopharyngeal narrowing

DISCUSSION/ CONCLUSION: MPS patients are always at high risk of complications in terms of anesthesia. 20% of deaths due to MPS are directly related to airway obstruction or difficult intubation. 75% of them have undergone at least one surgical procedure in their lifetime. To conclude, anesthesia risks can be reduced in MPS patients with a very good preoperative preparation, difficult airway management with videolaryngoscopy, and careful hemodynamic follow-up.(1,2,3,4)

Keywords: mucopolysaccharidoses, hurler's syndrome, difficult airway, videolaryngoscopy

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Anesthesic Management For Radical Nephrectomy İn The Pregnant Patient: Case Report

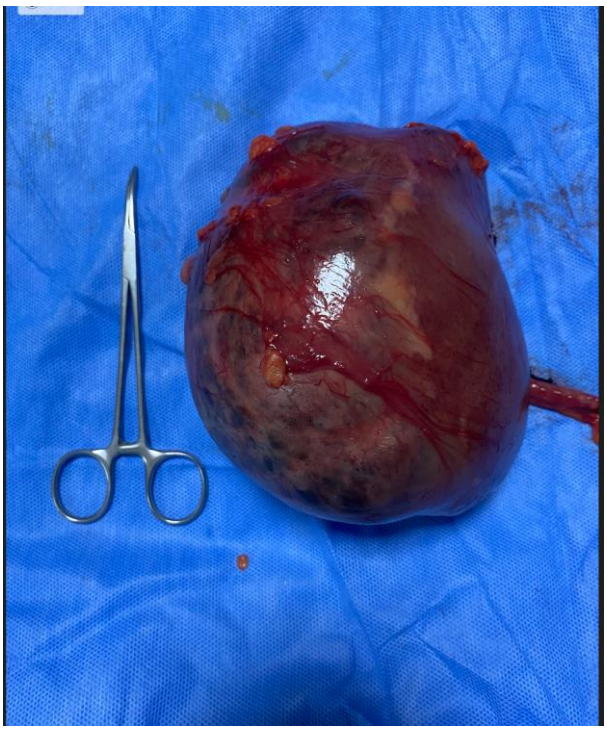
Didem Özen[1], Nursen Karaca[1]

[1]*Ege University*

INTRODUCTION/ PURPOSE: Nearly 1-2% of pregnant women get operated due to nonobstetric causes. Besides intraoperative surgical risks; type of anesthesia, pregnancy duration, taken medicines, surgical position and hemodynamic status can also create additional risks for maternal-fetal health. Therefore management of anesthesa is important. In this case report we aim to present a pregnant patient who underwent radical nephrectomy under general anesthesia.

CASE: 30 year old, 23 weeks pregnant (160cm,74kg) patient, due to renal cell carsinom, radical nefrectomy was planned. There was no additional comorbitidy in preoperative evaluation of the patient except for hypotyroidism. After standart monitorizaton and preoxygenation; 10 mcg/kg atropine, 5 mg/kg thiopental sodium, 1 mcg/kg fentanyl and 0.6 mg/kg rocuronium was applied under cricoid compression, to the patient, who's fetal well-being was approved by obstetrician preoperatively. The patient was intubated after induction. Anesthesia was provided with remifentanyl infusion, 2% sevoflurane in the mixture of 50%-50% 02-air. Aiming to preserve aortocaval decompression and uteroplacental perfusion, operation table was turned 15° to left. Left lateral decubitus and the roof position was given when the patient became hemodynamically stable. Thereafter, hypotension was observed (MAP<60 mmHg) and intravenous bolus crystalloid ve 5 mg ephedrine HCl was applied. Hemodynamic instability wasn't seen afterwards. The surgery took 120 minutes, 10 mg/kg paracetamol, 10 mg/kg tramadol was applied as analgesia and was extubated without any inconvenience. In the postoperative period, the patient was evaluated daily by obstetrician, fetal well-being was observed and the patient was discharged from the hospital on the fourth day. The patient's normal follow-up continues at 33 weeks of gestation.

1



kidney

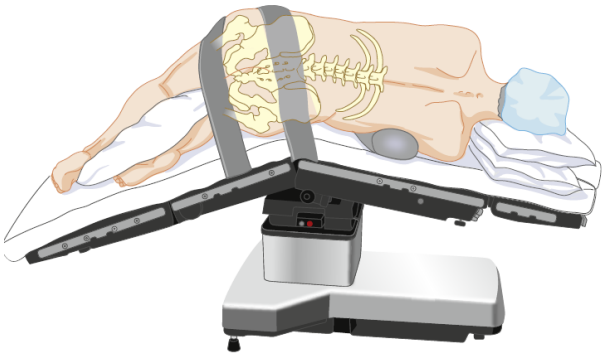


table position

DISCUSSION/ CONCLUSION: Even though general and regional anesthesia is applied in operations due to nonobstrectic reasons during pregnancy, it isn't possible to eliminate all the risks. Therefore, in this patient group, preoperative evaluation, optimal anesthesia planning and postoperative close monitoring is significant for maternal and fetal health.

Keywords: Anesthesic management, non-obstetric surgery, pregnancy, radical nephrectomy.

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Clinical Analysis Of Sugammadex Use For Tracheobronchial Foreign Body Removal In Children

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INTRODUCTION/ PURPOSE: The aim of this study to evaluate the efficacy and safety of sugammadex in reversing neuromuscular block in pediatric patients undergoing rigid bronchoscopy with controlled mechanical ventilation.

MATERIALS and METHOD: We retrospectively reviewed the records of tracheobronchial foreign body removal by rigid bronchoscopy in 99 children between January 2015 to February 2020. The demographic data, clinical, radiological and bronchoscopic findings were examined. All patients underwent rigid bronchoscopy under general anaesthesia. The neuromuscular block was monitored. At the end of the procedure, 2 mg. kg-1 sugammadex was used to antagonise the effect of neuromuscular blocker. After sugammadex, recovery of neuromuscular function time, complications during and after bronchoscopy were also recorded

FINDINGS: Foreign body aspiration was confirmed in 61 patients (57%). Of the 34 patients who had a prolonged history of recurrent pulmonary disease, 17 (50%) were found to have FB. After sugammadex, the mean recovery time of the T4/T1 ratio of 0.9 was 93.8 ± 15 seconds. No evidence of residual curarization and no complication were observed.

DISCUSSION / CONCLUSION: We consider that the use of sugammadex is a safe, effective and alternative technique with early recovery, rapid return of airway reflexes and lower risk of residual curarization in paediatric patients undergoing rigid bronchoscopy.

Keywords: Rigid bronchoscopy, controlled ventilation, pediatric patients, sugammadex.

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ERECTOR SPİNAE PLANE BLOCK IN A NEWBORN PATIENT WHO WAS OPERATED FOR ESOPHAGUS ATRESIS

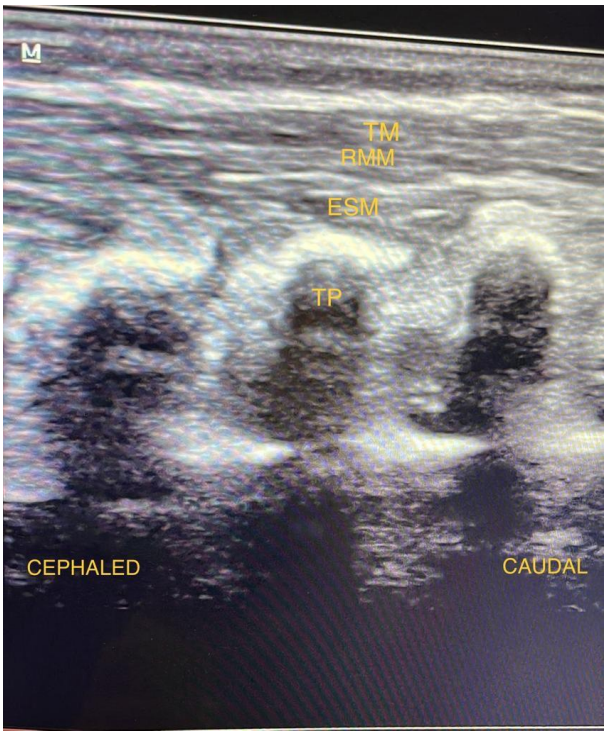
Dılara demır[1], sebnem hacer turk[1], sevgı kesıcı[1], kubra ozturk[1], fıgen uysal[1], mustafa altınay[1], ayse surhan cınar[1]

[1]*sisli etfal research and traınıng hospıtal*

INTRODUCTION/ PURPOSE: Esophageal atresia (EA) is one of the most common congenital anomalies. The operation for EA usually performed by thoracotomy and the patients are followed up under mechanical ventilation support during the postoperative period. Due to inadequate pain management or high-dose opioid use, pulmonary complications and prolongation of the duration in mechanical ventilation can be observed. Here, we present a case of a patient who underwent thoracotomy for EA with Erector Spine Plan (ESP) block for analgesia.

CASE: Written parenteral informed consent was obtained for a 2 days-old, 2190 g, 46 cm tall, newborn girl. She was intubated after induction of anesthesia. ESP was performed with 0.5 ml/kg 0.25% bupivacaine. At the 10th minute after the block, the patient's heart rate decreased from 120 to 102 beats/minute. Intraoperative hemodynamics remained stable and we did not need to use opioid. At the end of the operation the patient was transferred to the neonatal intensive care unit as intubated. The patient was followed up with midazolam administration for sedation in the post-operative period without need for analgesia (FLACC<1). She was extubated at the 48th hours postoperatively.

ERECTOR SPİNAE PLANE BLOCK



Our block applying.

DISCUSSION/ CONCLUSION: ESP block is preferred in the management of analgesia in pediatric thoracic surgeries due to ease of application and low complication rate compared to paravertebral and thoracic epidural blocks. In this case, ESP block provided hemodynamic stability and adequate analgesia without using opioid. In addition, the risk of pulmonary complications is reduced by shortening the duration of mechanical ventilation.

Keywords: erector spine plane block, multımodal analgesia, newborn, regıonal anesthesia

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PEDIATRIC GASTROINTESTINAL ENDOSCOPY CASES IN DOKUZ EYLUL UNIVERSITY FACULTY OF MEDICINE HOSPITAL: A RETROSPECTIVE STUDY

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[1]*DOKUZ EYLUL UNIVERSITY FACULTY OF MEDICINE HOSPITAL ANESTHESIOLOGY AND REANIMATION DEPARTMENT*

INTRODUCTION/ PURPOSE: It has become increasingly common for anesthesiologists to provide procedural sedation and monitored anesthesia care outside the operating room(1). Gastrointestinal(GI) endoscopic procedures is used for diagnosing and treating diseases of digestive system in children as well as in adults. This procedures can cause anxiety, fear and pain in children. With anesthesia, pain is prevented, amnesia is provided and the procedure can be performed sufficiently (2,3). The aim of this study was to evaluate the procedures performed under anesthesia in pediatric patients in the endoscopy unit outside the operating room at Dokuz Eylül University(DEU) Faculty of Medicine Hospital.

MATERIALS and METHOD: Procedures performed in pediatric patients between November 2019-June 2022 in the endoscopy unit were reviewed retrospectively. Age, gender, procedure, the American Society of Anesthesiology(ASA) scores, drugs used were obtained.

FINDINGS: There were 327 patients (%50.5 male). Mean age was 11(1-18). Enoscopy was the most performed procedure(%54.1). ASA1 patient count is 179(%54.7) (Table 1). During 308 procedures, propofol was used with midazolam and fentanyl; in 14, propofol was used with midazolam; in five, propofol was used with fentanyl and ketamine. Types of anesthesia included moderate conscious sedation in all patients. No major complications were observed. Minor complications included desaturation, nausea and vomiting. Bleeding was treated in two of the cases.

Table 1

	n (%)
Male	165 (50.5)
Female	162 (49.5)
ASA I	179 (54.7)
ASA II	80 (24.5)
ASA III	68 (20.8)
Endoscopy	177 (54.1)
Colonoscopy	38 (25.1)
Endoscopy and colonoscopy	82 (25.1)
ERCP	20 (6.1)
EUS	3 (0.9)
PEG	3 (0.9)
Double balloon enteroscopy	3 (0.9)

Characteristics of patients and procedures (n=327)

DISCUSSION / CONCLUSION: Anesthesiologist-provided procedural sedation/anesthesia has been succesful and secure in DEU Hospital for gastrointestinal endoscopy procedures outside the operating room in children and provides a high level of care.

Keywords: pediatric endoscopy, procedural sedoanalgesia, non operating room anesthesia

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ANESTHESIA MANAGEMENT IN A BABY WITH CRI DU CHAT SYNDROME UNDERGOING CONGENITAL HEART SURGERY

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[1]*Sağlık Bilimleri Üniversitesi Başakşehir Çam ve Sakura Şehir Hastanesi İstanbul*

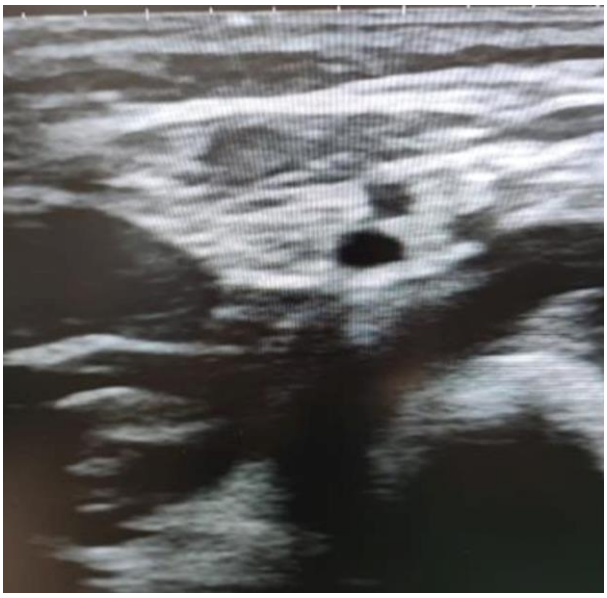
INTRODUCTION/ PURPOSE: Cri du Chat Syndrome (CdCS) is a rare chromosomal disorder resulting from a deletion in the short arm of chromosome 5. Most characteristic features include a high pitched monochromatic cry, facial dysmorphism, cryptorchidism, mental retardation and cardiovascular pathologies.(1) In this report, we aimed to present the anesthetic management of a patient with CdCS undergoing ventricular septal defect (VSD) operation.

CASE: A 3-month-old male (4,5 kg, 53 cm) with CdCS was admitted for VSD. Preoperative vital signs were normal. Anesthetic induction was established by intravenous administration of ketamine, fentanyl and rocuronium. Difficult intubation was anticipated due to his micrognathia and therefore a video laryngoscope was used from the beginning.(Resim 1) An uneventful orotracheal intubation was performed at first attempt. Bicuspid uvula were observed. Under the guidance of ultrasonography (USG), location of the undescended testicle was successfully shown for safe femoral artery and vein cannulation. (Resim 2) VSD surgery was completed uneventfully. The duration of surgery was 225 min and total anaesthesia time 300 min. Still intubated, he was postoperatively transferred to the pediatric cardiovascular surgery intensive care unit. He was extubated on the 2nd postoperative day, discharged to the pediatric cardiology floor on the 6th day and sent home on the 22nd day.

Resim 1



Resim 2



DISCUSSION/ CONCLUSION: Patients with CdCS have clinical characteristics that can complicate anesthetic management.(2) Difficult intubation and difficult vascular cannulation should be expected in such cases. We think that our use of USG for arterial and venous catheterization to distinguish testes, as well as our anesthesia plan for airway difficulty due to possible abnormalities of the larynx and vocal cords, made a difference in our case. We conclude that utilization of videolaryngoscopy and USG can increase the success of intubation and vascular cannulation respectively.

Keywords: cri du chat syndrome, difficult intubation, cryptorchidism

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The Early Detection of Perirenal Extravasation of Irrigation Fluids Used in Intrarenal Surgery via Near Infrared Spectroscopy Monitorization; a Case Report

Melike Demir[1], Sengül Özmert[1]

[1]*Ankara Şehir Hastanesi*

INTRODUCTION/ PURPOSE: This report aims to present the anesthesia management of a RIRS(Retrograde Intrarenal Surgery) case in which NIRS was used to evaluate the effect that increased intraabdominal pressure caused by the perirenal extravasation of irrigation fluids had on renal oxygenation.

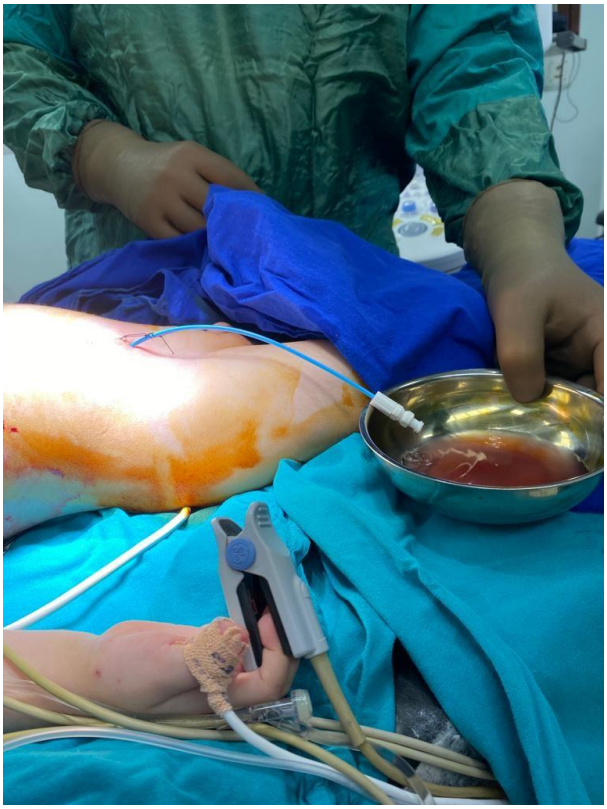
CASE: A 4.5 year old, 11 kg male patient with a Staghorn cystine stone and diagnosed with hypotonia-cystinuria syndrome located in his right kidney was preoperatively evaluated for RIRS. Standard anesthesia monitoring and bilateral NIRS monitoring were administered. Despite achieving adequate depth of anesthesia the patient showed tachycardia and hypertension 40 minutes into the operation. This was soon followed by an increase in pulmonary pressure and a 75th minute decrease in the right kidney NIRS. Generalized hard distension was palpated upon abdominal examination. Right basal breath sounds were found to be diminished however there were no signs of rales or rhonchi. The surgical team were given notice and the operation was ceased at the 80th minute. A total of 9000 cc irrigation fluid was administered to the patient throughout the whole operation. Intraperitoneal free fluid was reported and an intraperitoneal drainage catheter was placed. A total of 500 cc serous fluid was drained. Upon this procedure pulmonary pressure, SBP and DBP decreased while NIRS increased. NIRS monitorization continued for 8 hours in the ICU in order to observe renal perfusion. NIRS values returned to normal within the 1st postoperative hour. Intraoperative extravasation resolved without sequelae within the first postoperative day.

NIRS



This was soon followed by an increase in pulmonary pressure and a 75th minute decrease in the right kidney NIRS

intraperitoneal drainage catheter



Intraperitoneal free fluid was reported and an intraperitoneal drainage catheter was placed (Figure 2).

NIRS and hemodynamic monitorization

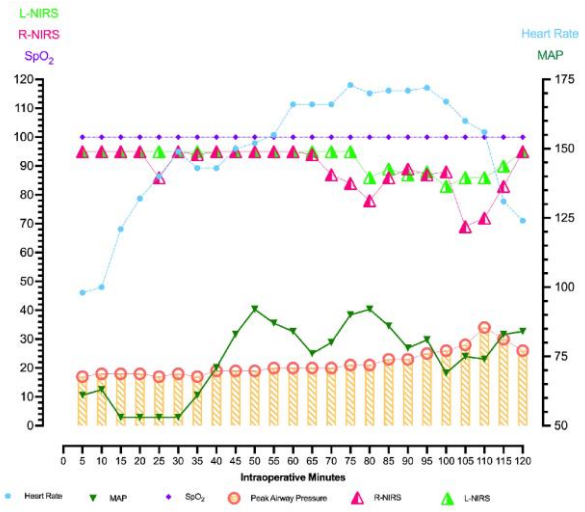


Table of intraoperative NIRS and hemodynamic monitorization

DISCUSSION/ CONCLUSION: Renal NIRS may assist with the early detection of hemodynamic deteroriation and help predict renal damage.NIRS monitorization protocol may be administered for perioperative patients with high renal risk. We have determined the effects increased intraabdominal pressure due to the excessive use of irrigation fluids, and perirenal extravasation from prolonged RIRS operations, has on renal oxygenation via use of NIRS and hemodynamic monitorization.

Keywords: Near infrared spectroscopy, renal blood flow, surgery, pediatrics, anesthesiology

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Anaesthetic Management for Fronto-orbital Advancement Procedure in Children Undergoing Craniosynostosis Repair: A Case Series

Gabriela Montolalu[1], Arief Cahyadi[1]

[1]*Anesthesia and Intensive Care Department, Faculty of Medicine, Universitas Indonesia*

INTRODUCTION/ PURPOSE: We aim to compare our experience in managing 5 children with syndromic craniosynostosis who underwent fronto-orbital advancement (FOA)

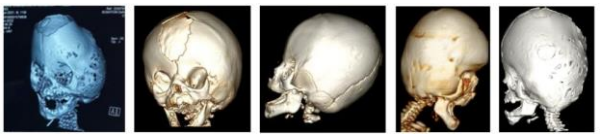
CASE: -

Clinical presentation



(from left to right) baby T, baby I, baby N, baby R, baby F

3D Head CT scan



(from left to right) baby T, baby I, baby N, baby R, baby F

Cases of FOA procedure in Cipto Mangunkusumo hospital in 2021-2022

	Baby boy T	Baby girl I	Baby girl N	Baby boy R	Baby girl F
Age and body weight	11 m.o, 9 kg	9 m.o, 5.6 kg	10 m.o, 8.3 kg	6 m.o, 7.8 kg	2 y.o, 8.4 kg
Comorbidity	Crouzon syndrome	Apert syndome	Crouzon syndrome	Apert syndome	Crouzon syndrome
Possible airway difficulty and management	direct laryngoscope, CL 2	cleft palate; direct laryngoscope, CL 2	laryngomalacia type 1; video laryngoscope, POGO 80%	cleft palate, laryngomalacia type 1 and 3; video laryngoscope, POGO 70%	direct laryngoscope, CL 1
Length of surgery	6 hours 30 minutes	7 hours 15 minutes	5 hours	5 hours 45 minutes	7 hours 15 minutes
Blood loss	110 ml	110 ml	100 ml	500 ml	450 ml
Hemodynamic status and inotropic/vasopressor use	stable	stable	stable	unstable; norepinephrine 0.05-0.2 mcg/kg/min and dobutamine 2.5-5 mcg/kg/min	unstable; norepinephrine 0.05-0.07 mcg/kg/min and dopamine 5-8 mcg/kg/min
Emergence	early	early	early	delayed	delayed

All patients were induced with general anaesthesia and central venous catheter insertion for major venous access and as blood sampling route when required.

DISCUSSION/ CONCLUSION: Craniosynostosis often presents as an isolated lesion (80%). When appearing as a syndromic lesion, craniosynostosis usually involves multiple congenital anomalies; tasking us with a challenge in managing its airway and obtaining vascular access. In our patients, the airway management were unproblematic. Baby N and R were identified with laryngomalacia but the intubation was smoothly done using video laryngoscope. Airway difficulties are originally predictors for delay emergence but it alone should not hinder us from early extubation(baby N). The age for correction surgery is still debated. Smaller babies with lower body weight presents more challenge in airway management and less tolerance to blood loss, while bigger infants have more ossified bone (longer procedure, more possible bleeding). Pearson et al1 suggest an ideal age of 8-12 months for FOA. Most of our patients are within this age group, except baby R with good body weight and development; and infant F who received delayed treatment. Bleeding is an obvious concern in this procedure.3 Our patients experienced blood loss up to 15-80% estimated blood volume. Complexity of the lesion, surgeon, and patient's age are all predictive factors to calculate the need of blood product. Though prior knowledge states older infants have more risk, study by White et al4 shows that an age of 18 months or younger is at risk of more significant blood loss. Conflicting results are also found in our patients as both baby R (6m.o.) and infant F (2y.o.) had >400ml blood loss. Restrictive transfusion protocol allows us for a lower transfusion threshold. This correlates with improved outcome in hemodynamic parameter, PICU length of stay, mechanical ventilation days, but still requires further investigation in FOA patients.5

Keywords: fronto-orbital advancement, craniosynostosis, anaesthetic management

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USG Guided Deep Cervical Block Application for a Patient to be Performed Cervical Decompression Due to Chiari Malformation

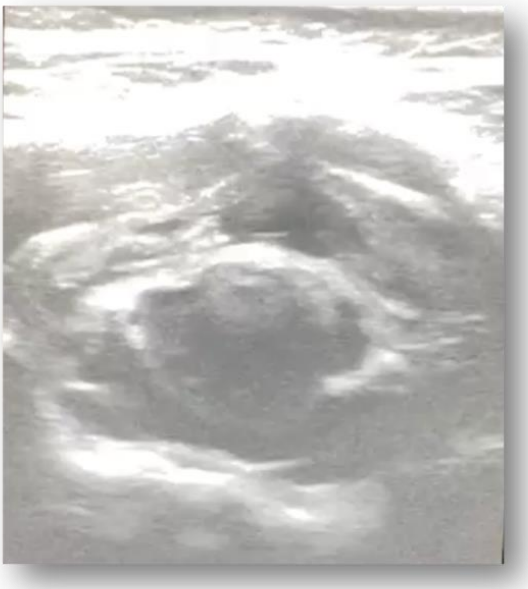
Ergün Mendeş[1], Özal ADIYEKE[1], Onur SARBAN[1], Funda Gümüş ÖZCAN[1]

[1]*Başakşehir Çam ve Sakura City Hospital*

INTRODUCTION/ PURPOSE: Chiari malformation is a condition in which brain tissue extends into the spinal canal. In symptomatic cases, the surgical option is decompression surgery in order to widen the foramen magnum. The procedure is performed by a midline vertical linear incision from the posterior fossa. Innervation of posterior fossa is provided by greater occipital nerve (medial branch of C2 dorsal primary ramus), lesser occipital nerve (lateral branch of C2 dorsal primary ramus)and third occipital nerve (superficial medial branch of C3 dorsal ramus).Local anesthetic injection at C3 level, between the prevertebral fascia and the cervical transverse processes, spreads towards C2 and C4 levels. In this case report, we aimed to present the Deep Cervical Plexus Block (dCPB), which we applied at the C3 level for postoperative analgesia.

CASE: 6-year-old female patient with a weight of 20 kg, who does not have any other comorbidity was taken to the operation room for surgery due to Chiari malformation. General anesthesia was administered to the patient with routine anesthesia induction. After the patient was placed in the prone position, transverse processes were observed from the C3 level with the help of a 12 mHz linear USG probe.Subsequently, dCPB block was applied bilaterally, observing its spread between C2 and C4, with 5 mL of 0.25% bupivacaine. Postoperative paracetamol was routinely administered four times in 24 hours (10mg/kg per dose). The Face, Legs, Activity, Cry and Consolability (FLACC) scale scores of the patient at 1st, 6th, 12th and 24th hours in the postoperative period were recorded.

USG Image of C3 vertebra



FLACC Scale Scores of the Patient

	1st hour	6th hour	12th hour	24th hour
FLACC Score	2	1	2	3

DISCUSSION/ CONCLUSION: Our patient did not need additional analgesics in the postoperative period, and the FLACC scores questioned in the first 24 hours were evaluated as 3 and below. Therefore, we think that Ultrasound-guided dCPB can be used for postoperative pain control in posterior fossa surgeries.

Keywords: posterior fossa surgery, neurosurgery, deep cervical plexus block, Chiari malformation

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An Efficient Pain Management After Liver Resection Surgery With Medial Open Transversus Abdominal Plane Catheter Technique - A Report Of Two Paediatric Cases

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INTRODUCTION/ PURPOSE:Effectıve paın control ıs essentıal to enhance recovery among paedıatrıc patıents undergoıng open lıver surgery. conventıonal ıntravenous opıoıds or thoracıc epıdural analgesıa are not wıthout negligible complıcatıons ın vıew of potentıal post-hepatectomy lıver faılure and hemostatıc derangement. we descrıbe a medıal open transverse abdomınal plane (motap) catheter technique to allevıate paın after open lıver resectıon ın 2 paedıatrıc patıents.

case: attached table summarısed relevant hıstory of 2 paedıatrıc patıents who had underwent extended rıght hepatectomy as well as ıntraoperatıve analgesıc gıven. ın both patıents; upon closure of surcıcal ıncısıon, surgeons helped to create a potentıal space at medıal most of transverse abdomınal plane (tap) underneath posterıor rectus sheath bılaterally. epıdural catheters were placed wıthın these spaces, tunneled downward to the skın, coıled and anchored wıth transparent adhesıves. muscle layers were sutured closely formıng a watertıght compartment to ensure good local analgesıa spread. a bolus of 0.2% levobupıvacaıne 0.25ml/kg/sıde were admınıstered prıor to emergence from anaesthesıa. catheters then connected to cadd legacy pump for postoperatıve ınfusıon of 0.1% levobupıvacaıne at rate of 0.1 – 0.3ml/kg/hour. they were extubated and nursed ın pıcu. clonıdıne was prescrıbed to facılıtate weanıng from regıonal analgesıa. catheters were off on postoperatıve day 3.

CASE SUMMARY

	DIAGNOSIS & RELEVANT HISTORY	INTRAOPERATIVE ANALGESIA
CASE 1 8 YEAR OLD 23.9kg	RIGHT HEPATOBLASTOMA (8 X 8 X 12 cm) - COMPLETED CISPLATIN CHEMOTHERAPY - CHEMOTHERAPY INDUCED BICYTOPENIA (HB 8.5gm/dL & TWBC 1.5gm/dL (ANC 0. 5gm/dL) - METS > 4 ECHO : GOOD CARDIAC FUNCTION	
CASE 2 2 YEAR OLD 8.8kg	RIGHT HEPATOBLASTOMA (8 X 7 X 11 cm) MULTIPLE LUNG NODULES - COMPLETED CISPLATIN & DOXORUBICIN CHEMOTHERAPY - DOXORUBICIN INDUCED COUGH AND HYPERSENSITIVE AIRWAY STATUS POST VIRAL PNEUMONIA - METS > 4 ECHO : GOOD CARDIAC FUNCTION	- TIVA REMIFENTANYL - TOTAL IV MORPHINE 0.1MG/KG - IV KETAMINE 0.2MG/KG IV DEXAMETHASONE 0.2MG/KG

DISCUSSION/ CONCLUSION: behman et al 2014 had developed motap analgesıa technıque for subcostal ıncısıons. tradıtıonal bılateral oblıque subcostal transverse abdomınal plane (tap) block has been strongly recommended by dıeu a. et al 2021 for management of paın followıng rooftop ıncısıon for open lıver surgery ın adult patıents. conductıng tap block wıth a catheter ın-sıtu preoperatıvely may ınterfere surgıcal ıncısıon and performıng sımılar technique postoperatıvely wıth possıble state of hemostatıc derangement ıs relatıvely contraındıcated. therefore motap catheter by surgeon at closure of ıncısıon ıs excellent technique. ın conclusıon, motap catheter technique provıdes good regıonal analgesıa alternatıve for optımal paın management ın paedıatrıc patıents after open lıver resectıon.

Keywords: MOTAO, INTERFASCIAL CATHETER

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Our Anesthesıa Experıence In Pedıatrıc Patıents Wıth Chest Wall Deformıtıes

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INTRODUCTION/ PURPOSE: The most common chest wall deformity in children is reported to be pectus excavatum (1). Often for cosmetic reasons and rarely for treatment of dyspnea and arrhythmias, a minimally invasive surgery known as NUSS procedure is performed for correction of pectus excavatum (2,3). Postoperative length of hospital stay and complications are predicted to increase in patients with poor pain management (3). We represent our experience with four children having pectus excavatum and undergoing NUSS procedure whose pain management was successful due to our utilization of several peripheral block techniques.

CASE: Patients, all male andASA I, were hemodynamically stable and intubated uneventfully. Several regional blocks were bilaterally performed under general anesthesia postoperatively. Case 1, 18 year-old patient, had serratus anterior plane block (SAPB). Case 2, 16 year-old patient had intercostal nerve block. Case 3, 15 year-old patient had intercostal nerve block. Case 4, 16 year-old patient had erector spina plane block (ESP). After 24 hours, patients' pain were evaluated.

DISCUSSION/ CONCLUSION: Patient comfort, length of hospital stay, postoperative early mobilization and complications can be improved by taking a multidisiplinary approach and providing efficient postoperative pain management (4). ESP block is shown to be effective and safe in children for postoperative analgesia (5). SAPB was reported to significantly decrease postoperative pain and need for opioids (6). A study has shown that pediatric patients who had intercostal nerve block after undergoing NUSS procedure were in need of less opioid drugs (7). In our experience, patients who had intercostal nerve blocks were more satisfied with their pain management compared to those having SAPB and ESP block. No complications were seen postoperatively. Their hospitalization days were less than our clinic's average. We conclude that for better recovery, regional anesthesia can be utilized as part of multimodal analgesia for pediatric patients undergoing otherwise highly painful chest deformity correction surgeries.

Keywords: Multimodal analgesia, NUSS procedure, Pediatric regional anesthesia, Pectus excavatum

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Ketamine Alone Or Ketamine As An Adjunct To Fentanyl To İmprove Post-Adenotonsillectomy Analgesia İn Children

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INTRODUCTION/ PURPOSE: we aim to evaluate the effects of ketamine used instead of or as an adjuvant to fentanyl on early postoperative pain scores in children undergoing tonsillectomy.

MATERIALS and METHOD: We conducted a double blind prospective randomized study including 60 children, aged between 2 and 7 years, scheduled to undergo adenotonsillectomy. Patients were randomly assigned to one of three groups: group G1 received 2 µg/ kg of fentanyl, group G2 received 0.5 mg/ kg of ketamine and group G3 received an association of fentanyl 1µg/ kg and 0.25 mg / kg of ketamine. We recorded postoperative analgesic requirements and side effects were recorded. Pain was assessed in the post anesthesia care unit by the face, legs, activity, cry, consolability (FLACC) pain scale. We evaluated requirement for additional analgesics, postoperative nausea and vomiting. Kruskal-Wallis test was used to compare the unidirectional ordered data between groups. Least-significant difference (LSD) was used to compare the data between two groups.

FINDINGS: Sixty children aged between 2 and 7 years scheduled to undergo adenotonsillectomy were included. Twenty patients were randomly assigned to one of three groups. Better control of pain was noted in group G3, with a significant difference at 30 min compared to both groups G1 (p=0,008) and G2 (p=0.036). The need for additional analgesia and side effects in the PACU were comparable for the three groups.

DISCUSSION / CONCLUSION: According to the results of the current study, ketamine associated with fentanyl provides a satisfactory early analgesia and can even replace fentanyl during tonsillectomy.

Keywords: Ketamine, fentanyl, adenotonsillectomy, analgesia, children

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Anaesthetıc Management Of An Infant Underwent Hepatoblastoma Surgery

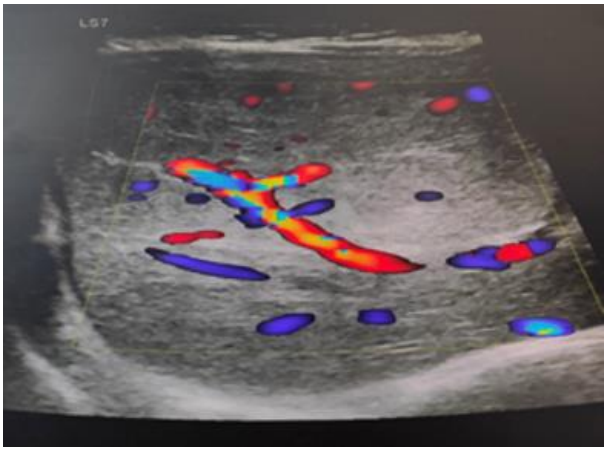
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INTRODUCTION/ PURPOSE: maın treatment method of the hepatoblastoma cases ıs surgıcal excısıon. anesthesıa management of those are debılıtatıng because of prolonged surgery tıme, ımpaıred hepatıc blood flow, acute hemodynamıc changes, lıver ıschemıa, deterıoratıon of hemostatıc mechanısms due to the sıze of the resected lıver tıssue, and hemorrhage are the maın problems complıcatıng the anesthesıa management.we aımed to present the challenges of anesthesıa management ın 7 month-old baby wıth hepatoblastoma who was planned for lıver resectıon.

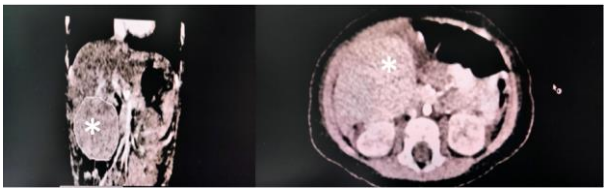
CASE: a 7-month-old, gırl baby, weıghıng 7 kg was scheduled for lıver resectıon wıth the dıagnosıs of hepatoblastoma. the mass lesıon was sprınged the rıght hepatıc veın posterıorly and the ınferıor branch of the rıght hepatıc artery extends ınto the mass (fıg ı-ıı).after sevoflurane ınhalatıon ınductıon, muscle relaxatıon and analgesıa were provıded wıth 0.6 mg.kg-1 rocuronıum and 0.2 µg.kg-1.mın-1 remıfentanıl. patıent ıntubated wıth no:4 cuffed tube, and etco2 was monıtored. radıal artery cannulatıon, a urınary catheterızatıon and central venous access was achıeved. sevoflurane and remıfentanıl doses were adjusted to maıntaın stable anesthetıc condıtıons.durıng the operatıon (190 mın.), the rıght hepatıc artery and portal veın were clamped for 70 mınutes. hemodynamıc balance was maıntaıned by early start to transfusıon of a total of 55 ml of erythrocyte suspensıon durıng the surgery. postoperatıve analgesıa was provıded wıth 1 mg of morphıne (ıv) and 4 ml of 0.25% bupıvacaıne (at ıncısıon sıde).

FIGURE-1



DOPPLER MODE LIVER ULTRASONOGRAPHY IMAGE

FIGURE-II



COMPUTED TOMOGRAPHY IMAGES OF THE MASS, ASTERISKS INDICATE THE MASS IN CORONAL AND AXIAL PLANES

FIGURE-III



THE APPEARANCE OF A MASS THAT COMPLETELY FILLS THE LEFT LOBE OF THE LIVER

DISCUSSION/ CONCLUSION: hepatıc resectıon surgerıes can be debılıtatıng ın terms of anesthesıa management due to the dıfficulty of maıntaınıng hemodynamıc balance and the hıgh rısk of hemorrhage. comorbıd factors and genetıc dıseases accompanıed hepatoblastoma too. ıt ıs ımportant to maıntaın hemodynamıc stabılızatıon by predıctıng hemorrhage ın very small babıes operated for a gıant lıver tumor.

Keywords: hepatoblastom, infant, blood management, anesthesia management

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The Response Of İnternal Carotid Artery Blood Flow Velocity To Fluid Challenge Under General Anesthesia İn Pediatric Patients With Moyamoya Disease: A Prospective Observational Study

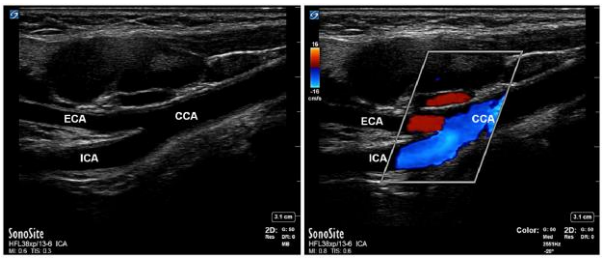
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INTRODUCTION/ PURPOSE: To assess changes in the carotid artery blood flow velocity in response to fluid challenge, blood pressure, and cardiac output under general anesthesia in pediatric patients with moyamoya disease.

MATERIALS and METHOD: This observational study included pediatric patients with moyamoya disease undergoing general anesthesia for encephaloduroarteriosynangiosis. Each patient underwent an ultrasound assessment thrice as follows: after anesthetic induction (T1), after fluid challenge (10 ml/kg, T2), and at the end of surgery (T3). The primary outcome was the change in the internal carotid artery blood flow velocity after fluid challenge, and was assessed using a paired t-test. The secondary outcomes comprised changes in the internal, external, and common carotid artery blood flow peak velocities after fluid challenge and the factors influencing these changes, namely systolic blood pressure, diastolic blood pressure, stroke volume index, and cardiac index.

figure 1



FINDINGS: We enrolled and analyzed 30 patients with a mean age of 7.2 years. At T2, the systolic (P=0.003) and mean blood pressure (P=0.017), stroke volume index (P=0.008), and cardiac index (P=0.140) were higher than those at T1. However, both internal carotid artery blood flow velocities did not change after volume loading (P=0.798, mean difference and 95% confidence interval (CI), -1.1 and -10.3 to 8.0 for right, P=0.164, mean difference and 95% CI, -5.2 and -12.7 to 2.2 for left). The internal carotid artery blood flow velocity was correlated with the cardiac index, stroke volume index, and mean and diastolic blood pressure, with low significance.

DISCUSSION / CONCLUSION: The internal carotid artery blood flow velocity did not increase in pediatric patients with moyamoya disease under general anesthesia, despite fluid challenge and corresponding changes in the blood pressure and cardiac output. Intraoperative hemodynamic management to improve the cerebral blood flow in these patients requires further investigation.

Keywords: Internal carotid artery, Moyamoya disease, Children, general anesthesia

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Anesthesia Management Of Patients With Spinal Muscular Atrophy: A Case Series...

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INTRODUCTION/ PURPOSE: Spinal Muscular Atrophy (SMA) type 1 is a neurodegenerative disease of lower motor neurons characterized by progressive proximal limb and bulbar muscular atrophy. Guidelines recommend percutaneous endoscopic gastrostomy tube placement (PETG) when bulbar symptoms impair oral nutritional uptake. Minor surgical procedures like PETG may also pose various anesthetic risks, such as laryngospasm in patients with SMA type 1. This study aims to evaluate the anesthesia techniques and perioperative complications of patients with SMA type 1 who underwent procedures with general anesthesia at our institution.

MATERIALS and METHOD: This retrospective study aims to evaluate perioperative outcomes of SMA type 1 patients who underwent procedures with anesthesia between January 2021 and January 2022 at our hospital. We reviewed surgical and anesthetic records to identify perioperative management techniques and complications.

FINDINGS: We evaluate 15 SMA type 1 patients with various respiratory statues (Table 1). One patient (6.66%) was on invasive ventilation and four patients (26.66%) were on noninvasive ventilation. The mean age was 18 months. Propofol and ketamin were both used for induction anesthesia in all cases without adverse effects (Table 2). We didn't use muscle relaxant. There were one minor complication (laryngospasm) and no major complication. The mean length of hospital stay was 2 days.

Table 1

Table 1: Preoperative patient characteristics

Patients	Value* (n=15)
Age (month)	18.26 (min.12 max.28)
Male/Female gender	7/8
Weight (kg)	9.2 (min.8 max.12)
ASA physical status 2/3	13/2
Preop Ventilation status **.Normal** **.Noninvazive ventilation (CPAP/BIPAP)** **.Invasive ventilation**	 10 4 1

*: Values are number or median
ASA, American Society of Anesthesiologists

Table 2

Table 2: Anesthetic management and intraoperative characteristics

	Value* (n=15)
Airway management . Mask anesthesia or LMA . Endotracheal intubation . Preexisting tracheostomy	 14 0 1
Anesthesia type .Intravenous .Inhalation	 15
Induction agent .Propofol + ketamin	15
.Propofol .Ketamin	
Anesthesia maintenance .Inhalational . Intravenous (TIVA)	 2 13
Muscle relexant .Induction .Maintenance	 0
Surgical time (minute)	23 (min.20 max.30)
Peroperative complications	1
Hospital stay	2

*: Values are number or median
TIVA, Total intravenous anesthesia

DISCUSSION / CONCLUSION: The potential for bulbar dysfunction and muscle weakness in patients with SMA type 1 present challenges for anesthesiologists. General anesthesia may worsen respiratory function and lead to complications. Alternative methods should be considered to minimize airway manipulation and preserve spontaneous breathing. Our patients with SMA type 1 had uneventful perioperative outcomes following general anesthesia with total intravenous anesthesia (TIVA). However, the small number of patients in our series makes it difficult to evaluate in this population. The use of propofol and ketamin for TIVA seem to be a beneficial technique in patients suffering from SMA type 1.

Keywords: Anesthesia, Spinal Muscular Atrophy

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Noonan Syndrome: A Case Report Of Dıfficult Intubatıon

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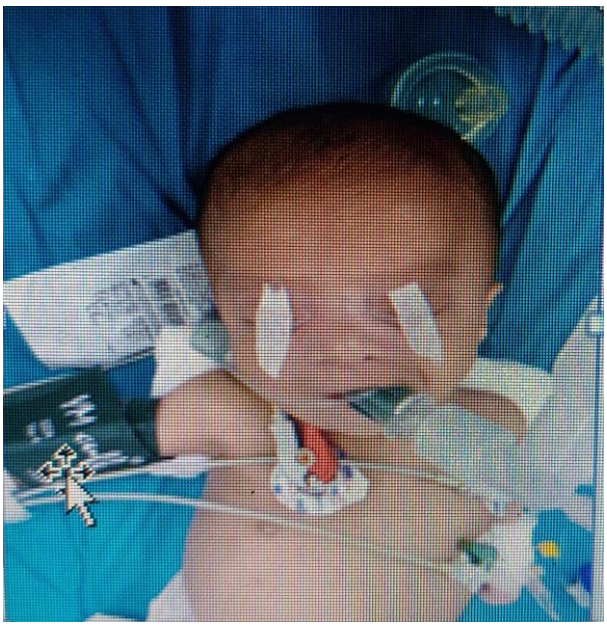
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INTRODUCTION/ PURPOSE: Noonan syndrome is a clinicopathology defined by Noonan and Ehmke in 1963 with short stature, mane-neck, congenital heart diseases and a phenotype similar to Turner syndrome.Our purpose in describing our case was to emphasize that the intubation process is difficult in children with Noonan syndrome who will undergo surgery.

CASE: Our difficult intubation experience at the beginning of pyeloplasty surgery was reported in our case who was two months and 15 days old with the syndrome and pulmonary stenosis. Hydronephrosis due to bilateral ureterovesical stenosis was observed with abdominal ultrasound in a male baby born 2460 grams and 42 cm from a healthy 35-year-old mother. Afterwards, additional tests were diagnosed as Noonan syndrome. The 2-month and 15-day-old baby was consulted to the anesthesia clinic for preoperative evaluation with the plan of left pyeloplasty surgery by the pediatric surgery clinic.In his physical examination, besides dysmorphic findings such as hypertelorism, depressed nasal root, epicanthus, low ears; pulmonary murmur and echocardiography showed severe infundibular pulmonary stenosis, hypertrophic cardiomyopathy, mitral regurgitation, and patent foremen ovale.

DISCUSSION/ CONCLUSION: Patients with Noonan syndrome may present a challenging case process for anesthetists in terms of difficult airway, malignant hyperthermia and bleeding diathesis.The successful intubation performed by Bajwa et al. in a similar pediatric case with pulmonary stenosis was promising for us. Although the 9-year-old patient is considered an advantage compared to our case, very limited neck movements due to established atlanto-occipital fusion pose a serious risk for difficult intubation (8). However, it has been reported that the airway is more difficult and multiple laryngoscopy attempts are frequently encountered in a one-year-old and younger age (9).In our case, the hypoxia that occurred during the difficulty of intubation deepened in the presence of pulmonary stenosis.

Phenotypic facial appearance of a patient with Noonan syndrome



Phenotypic facial appearance of a patient with Noonan syndrome

Keywords: Difficult intubation, hydronephrosis, Noonan syndrome.

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Perioperative Management Of Anticholinergic Effect Of Antipsycotics: A Case Report

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INTRODUCTION/ PURPOSE: The purpose of this case pesentation is to take attention to anticholinergic effects of antipsychotics.

CASE: Patient who is 14 years 9 months old,170cm and 67kg, was admitted to OR for appendectomy. In preoperative evaluation, patient had schizophrenia and using antipsychotics (Aripiprazole 5mg/day ,Risperidone 3mg/day) and anticholinergic (Biperiden 2mg). Patient was premedicated with 2mg midazolam. Anesthesia induction was made with 2mg/kg propofol, 0.6mg/kg rocuronium and 1mcg/kg fentanyl. During induction, vitals were normal (spo2:99%, hr:78/min, bp:102/66mmHg). Anesthesia was maintained with sevoflurane %2 and N2O(MAC:1). Fluid therapy was maintained with Isolyte 100ml/h. During operation, patient had sinus tachcardia (hr:132/min) and hypotension (bp:78/46, spo2:99%). To ensure that underlying cause is not inadequate anesthesia depth, BIS score was checked and was 30. Fluid challange was made and there was no response. We thought underlying reason of sinus tachycardia is antipsychotics and anticholinergics. Metoprolol 2mg was given. It was seen that vitals were improved (HR:82/min, BP:99/57 mmHg). No additional problems were encountered. Patient was extubated with 2mg/kg sugammadex and observed in ICU. Patient was transferred to surgical ward.

DISCUSSION/ CONCLUSION: Schizophrenia is a rare neurodevelopmental disease. Antipsychotics are used in treatment of psychoses. Antipsychotics are classified as typical and atypical. Typicals may cause extrapyramidal side effects while atypicals affects other receptors. Antipsychotics should be continued perioperatively as their withrawal may result psychotic symptoms. Anticholinergics are combined with antipsychotics to treat extrapyramidal symptoms. Combined with their anticholinergic effects, tachycardia may be encountered perioperatively with hypotension. As patient was treated with atypical antipsychotics combined with anticholinergics, reason of sinus tachycardia was thought due to those side effects.In this case, we wanted to draw attention to effects of antipsychotics combined with anticholinergics. In management of patients under antipsychotics, side effects should be evaluated and necessary precautions should be taken perioperatively.

Keywords: antipsychotics, schizophrenia, anesthesia

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Delayed Extubation In Cleft Surgeries Reduces Incidence Of Post Extubation Laryngospasm And Reintubation

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INTRODUCTION/ PURPOSE: Anesthesia for cleft surgery in pediatric patients can lead to adverse airway events like postextubatıon desaturatıon, laryngospasm and need for emergency reıntubatıon. thıs can create panıc sıtuatıion ın operatıon theatre whıch can lead to sıgnıfıcant morbıdıty or mortalıty. thıs study was conducted to assess whether delayed extubatıon can reduce ıncıdence of postextubatıon laryngospasm and need for reıntubatıon ın pedıatrıc cleft surgery patıents.

MATERIALS and METHOD: Single centre, single experıenced observer. retrospectıve analysıs, n=110 patıents undergoıng cleft surgery under general anesthesıa at bembde hospıtal ın 2021 and 2022.for all patıents, premedıcatıon, ınductıon, ıntubatıon, maıntaınance and reversal protocols were sımılar.group a – 27 patıents (standard extubatıon)- cleft surgerıes performed ın 2021group b- 83 patıents (delayed extubatıon)- cleft surgerıes performed ın 2022observatıons- age, sex, type of surgery, postextubatıon laryngospasm, need for reıntubatıon.ın group b extubatıon was delayed by 5 mınutes post reversal, ıf requıred 1/10th of ınductıon dose of propofol was gıven ıntravenously.

FINDINGS: Group a – 4 patıents (14.81%) developed severe laryngospasm and requıred reıntubatıongroup b – 1 patıent(1.2%) developed severe laryngospasm whıch dıd not requıre reıntubatıonaspıratıon- 0bleedıng -0death- 0

DISCUSSION / CONCLUSION: In pedıatrıc patıents undergoıng cleft palate or lıp surgery under general anesthesıa, delayıng extubatıon for 5 mınutes post reversal can sıgnıfıcantly reduce the ıncıdence of severe postextubatıon laryngospasm and need for emergency reıntubatıon. delayıng extubatıon does not ıncrease the ıncıdence of bleedıng or regurgıtatıon and aspıratıon.

Keywords: Postextubatıon laryngospasm, reıntubatıon, cleft, anesthesıa

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Anesthesia For Treacher Collins Syndrome : A Case Report

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INTRODUCTION/ PURPOSE: Aim: Syndromes with craniofacial abnormalities can be a great challenge to anesthesiologist in terms of airway management. This case of Treacher Collins syndrome (TCS) shows how an improvised conventional approach can still be a very good and gold standard approach when other newer techniques are not available.

CASE: We report the perioperative airway management in a 7-year-old boy suffering from TCS who was scheduled for elective eye surgery under general anesthesia.

7 years child with TCS



DISCUSSION/ CONCLUSION: Discussion: TCS is a rare congenital disorder of craniofacial development occurring in 1 in 50,000 live birth. Patients with TCS's upper airway obstruction may worsen as they grow. Hence, they require several surgeries throughout their lives to correct specific facial abnormalities. Anesthetic and airway management of patients with TCS can be challenging for anesthesia providers, especially in ambulatory settings.It presents with some of the most difficult challenge to anesthesiologist in regard to airway management. The syndrome is characterized by maxillary, zygomatic, and mandibular dysplasia. In a majority of cases, the palate is high, arched and occasionally cleft (28%) and in severe cases, the zygomatic arches may be completely absent. Ophthalmic abnormalities include downward slanting of the palpebral fissures (89%) with notching of the lower eyelids (69%) and a paucity of lid lashes medial to the defect (69%). Other clinical features of TCS include alterations in the shape, size and position of the external ears,frequently associated with atresia of the external auditory canals and anomalies of the middle ear ossicles.Conclusion: Modified airway approaches, along with meticulous preoperative screening and multidisciplinary planning and communication, may make it possible to perform ambulatory surgery on patients with TCS, whose condition typically represents a significant challenge to anesthesia providers

7 years child with TCS during surgery



Keywords: difficult airway; intubation; Treacher Collins syndrome

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One Lung Ventilation (OLV) With Fogarty Catheter In A Pediatric Case With Neuroblastoma

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INTRODUCTION/ PURPOSE: To present the endobronchial intubation successfully performed with the aid of a Fogarty catheter in a seven-year-old patient who will undergo OLV for neuroblastoma.

CASE: A 7-year-old girl with a weight of 17.5 kilograms was being followed up for Stage 4 Neuroblastoma. On Thoracic magnetic resonance imaging(MRI) , there was a soft tissue lesion of thoracic origin extending to the right half of the T8 vertebra corpus. Standard monitoring and general anesthesia induction were applied to the patient. Right endobronchial intubation was performed under a video laryngoscope with the 5.0 numbered cuffless portex tube. A fiberoptic flexible bronchoscope (FOB) with an outer diameter of 3.7 mm was inserted through the tube, and a single-lumen 5 French (Fr) Fogarty catheter was advanced through the tube until it reaches the right main bronchus in the vicinity of the FOB. The Fogarty balloon was inflated with 1.5 mL of air and auscultation confirmed that the right lung could not be ventilated. Then the portex tube was cut from the top of the Fogarty catheter and removed. FOB and intubation tube were removed, keeping the position of the Fogarty catheter fixed. The patient's trachea was re-intubated with a 5.5-cuffed portex tube. The operation lasted for 215 minutes. The patient was extubated and transferred to the pediatric surgery service after 3 hours of monitoring in the recovery unit.

DISCUSSION/ CONCLUSION: In the pediatric age group, it was concluded that the OLV technique, which is based on directing the Fogarty catheter, which is passed through the cuffless endotracheal tube using a standard single port spacer, to the bronchus under the guidance of fiberoptic bronchoscope, is as successful as other methods and is an effective method with a cost advantage in our country.(1,2)

Keywords: One-lung ventilation (OLV); Bronchoscopy; Fogarty catheters; Bronchial blocker; Pediatric

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Anesthetic Management And Passive Cooling During The Pediatric Cytoreductive Surgery And Hyperthermic İntraperitoneal Chemotherapy For Rhabdomyosarcoma

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INTRODUCTION/ PURPOSE: Hyperthermic intraperitoneal chemotherapy (HIPEC) with cytoreductive surgery (CRS) has potential complications, perioperative management requires specific attention. We present the anesthetic management and passive cooling method in a case of a 5-year-old child with relapsing thoracic rhabdomyosarcoma.

CASE: It was decided to perform CRS-HIPEC on a 5-year-old male patient with a history of multiple surgeries, chemo, and radiotherapy due to extensive metastatic relapsing of rhabdomyosarcoma. After the intubation, in addition to the standard monitorization, central venous and invasive artery pressures; cardiac output via the PWTT method were monitored. Perioperative analgesia was provided with remifentanil infusion. The patient was allowed to cool down passively throughout the surgery and HIPEC. The highest esophageal temperature recorded during HIPEC was 38°C, rectal temperature was 38.4°C. At the end of the surgery, the patient's esophageal temperature was 35.7°C, and rectal temperature was recorded as 36°C. During HIPEC, the intra-abdominal pressure (IAP) rose to a maximum of 15 cm/H2O. Post-procedure IAP was 7 cm/H2O. Except for the rash, no complications developed. Total anesthesia time was 17 hours, and surgical time was 15 hours.

DISCUSSION/ CONCLUSION: Anesthesia management during CRS-HIPEC is challenging due to the risk of hypo-hyperthermia, fluid shift, coagulation problems, renal dysfunction, and SIRS, and there is no guideline for children on this subject, and the data are based on a small number of case reports. We intended to show that, despite the lengthy operation and HIPEC, complications could be avoided by preventing rapid temperature fluctuations with the passive cooling approach we employed differently than in previous cases in line with anesthesia management.

Keywords: HIPEC, Pediatric Anesthesia, Rhabdomyosarcoma, Passive cooling

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Splenectomy In An Extremely Low Birthweight Infant

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INTRODUCTION/ PURPOSE: Splenic rupture is a rare event in preterm and term infants. We report a case of splenic injury in a premature neonate after umblical catheterization, highlighting the importance of a early recognition of this rare but potentially fatal intra-abdominal injury.

CASE: A male infant was born at 24 weeks gestation and with a birth weight of 500 g. by c-section which developed respiratory distress syndrome soon after birth and was entubated in neonatal intensive care unit (NICU). Five hours after umblical catheterization apnoea and sudden hypotension was noted with abdominal distension. Pediatric surgeons decided to perform emergency laparotomy suspecting splenic rupture. His hemoglobin (Hb) was 14.5 gr/dL, hematocrit (Hct) was 43.1%, platelet (Plt) was 162,000 µL-1. The operating room was heated to 25 °C, infusion pumps and vasoactive drugs were prepared before anesthesia induction. Electrocardiogram, oxygen saturation and non-invasive BP were monitored. For venous access, preoperatively placed peripheral venous catheters were used. The induction was done with 1 µg kg-1 of fentanyl, 0.6 mg kg-1 of rocuronium, 8% sevoflurane. The anesthesia was maintained with 2-2.5% sevoflurane in 50-50% O2-medica-air and ventilated manually with Mapleson F system. The fluid infusion was done using %2 Dextrose Ringer's lactate 10 mL/hour. Since the laparotomy revealed a large laseration in spleen, splenectomy was performed. The infant received a transfusion of packed red blood cells (RBC) during the operation. Control hemogram showed a Hb level of 10.1 gr/d Land the patient was transfered to NICU.

DISCUSSION/ CONCLUSION: Splenic rupture is a rare occurrence in the newborn, probably because of the high and well-protected location of the spleen beneath the diaphragm. Nevertheless, it should be suspected in infants presenting with an acute drop in Hb and Hct, abdominal distention, and evidence of hemoperitoneum. Early recognition is very important to increase the chances for recovery.

Keywords: premature, newborn, splenectomy, splenic rupture, neonatal anesthesia

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Anaesthetic Challenges In Robert's Syndrome Child Undergoing Palate Repair Surgeries

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INTRODUCTION/ PURPOSE: Robert's syndrome is a rare, autosomal recessive genetic disorder. these patients predominantly have tetraphocomelia, craniofacial malformations, congenital cardiac defects and cleft lip- palate deformities. they add to the challenges in anaesthetic management of these cases. we report our experience in anaesthetizing a 13-year-old female-child twice, initially for suspension palatoplasty with lip repair and later for fistula closure with alveolar bone grafting under general anaesthesia within a time span of six months.

CASE: A 13-year-old, weighing 23 kg, known case of roberts syndrome presented with cleft palate for suspension palatoplasty. she had severe bilateral limb reductions of upper and lower extremities with flexion deformity of lower limbs. she had oligodactyly with absent thumb. she had deformed face with prominent maxilla, down slanting palprebral fissure, hypertelorism, high arched palate and nasal twang to voice. her ultrasound abdomen and echocardiogram did not reveal any other anomalies. we anticipated challenges in airway management, intravenous access and blood pressure measurement. she refused needle prick and so inhalational induction was done preserving spontaneous ventilation. south pole endotracheal tube size 6.5 (based on ultrasound calculation) was placed under video laryngoscopy. vein on hand and radial artery were cannulated under ultrasound guidance because of limited access. local anesthetic infiltration along with fentanyl and paracetamol was used for perioperative analgesia. intraoperative blood loss was 75 ml and 100 ml; surgical duration was 215 mins and 95 mins respectively. postoperative period was uneventful.

DISCUSSION/ CONCLUSION: The challenges faced in managing robert's syndrome are difficult airway (both mask ventilation and intubation), difficult vascular access, difficulty in blood pressure measurements and difficulty in correct endotracheal tube size selection. ultrasound and videolaryngoscopy can be helpful to overcome these challenges

Keywords: Roberts syndrome, Cleft palate, Cleft lip

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The Effect of Sevoflurane Inhalation Induction on Intraocular Pressure Measurement in Children

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INTRODUCTION/ PURPOSE: Reliable and accurate measurements of the intraocular pressure (IOP) in children often require sedation or anesthesia. Anesthetic agents may increase or decrease IOP to a variable degree. We investigated the effects of sevoflurane inhalation anesthesia on IOP in children.

MATERIALS and METHOD: IOP measurement in pediatric patients with glaucoma were evaluated retrospectively. Sevoflurane inhalation anesthesia was administered with a mask to the patients without premedication. All patients were followed up by standard monitorization. During inhalation anesthesia, mask ventilation was interrupted and 2th(T1), 5th(T2) and 10th(T3) minutes intraocular pressure was recorded. Systematic and proportionate deviations between the IOP measurements were analyzed.

FINDINGS: In the study, IOP was measured in 25 children with glaucoma by using a Perkins hand-held tonometer. The mean age of the children was 2.71±1.95 years. The mean differences in IOP between T1-T2 and T1-T3 for the right eye (-1,80±5,08 mmHg, -0,8±5,33 mmHg, $p<0,05$) and left eye decrease (-1,16±5,73 mmHg,- 0,76±5,65mmHg, $p<0,05$) were observed and there was statistical significance. Measurement differences in T1-T3 were less than T1-T2.

DISCUSSION / CONCLUSION: IOP reduction was observed in inhalational anesthesia with sevoflurane. However, a difference in IOP of 1 or 2 mmHg is clinically irrelevant. This study suggests that sevoflurane inhalation anesthesia is a well-tolerated and safe method for IOP measurements in children.

Keywords: child patients; glaucoma; intraocular pressure; anesthesia

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Anesthetic Management of a Patient with Crisponi Syndrome: A Case Report

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INTRODUCTION/ PURPOSE: Crisponi syndrome is a rare, autosomal recessively inherited multisystemic disease (1) Its physical characteristics consist of dysmorphic body findings like camptodactyly and large face with broad nose. However; other abnormalities such as paroxysmal muscle contractions, tetanic spasms, and hyperthermia attacks of over 42 degrees C are the main concerns from the anesthesiologic aspect since these findings are compatible with malignant hyperthermia (1,2). We present perioperative care of a 14-year old male patient with Crisponi Syndrome undergoing reconstructive surgery for joint flexion contractures in his left hand.

CASE: A 14 year-old male patient with Crisponi Sydnrome (Figure 1), who exhibited several hyperthermia attacks exceeding 42 centigrade degrees and unintentional muscle contractions in the past, was admitted to our institute's hand surgery department for D2-D3 contracture release on his left hand. Upon arrival to the operating room intravenous line was secured. Standard induction with midazolam 0.05 mg/kg IV, fentanyl 2 mcg/kg IV, propofol e mg/kg IV and rocuronium 0.5 mg/kg IV was provided, and the anesthesia was maintained with sevoflurane inhalation, afterwards. During the surgery; intraoperative hemodynamic and ventilatory parameters were stable. Temperature did not exceed 36.8 centigrade degrees, and end tidal CO2 was under 36 mmHg. After safe extubation, the patient was transported to pediatric intensive care unit (PICU). And after an uneventful one day postoperative follow up in PICU, the patient was transferred to the ward.

Figure 1



Facial characteristics and camptodactyly.

DISCUSSION/ CONCLUSION: Malignant hyperthermia like syndromes are one of the main challenges of anesthesiology practice, and Crisponi Syndrome may be easily confused with such syndromes. Anesthetists may avoid using volatile agents since Crisponi Syndrome patients present with hyperthermia episodes and paroxysmal muscle contractions which is also compatible with malignant hyperthermia findings. However, general anesthesia with volatiles seems to be safe in such cases. Yet, there is sparse data in the literature regarding to this Syndrome.

Keywords: Pediatric anesthesia, Crisponi syndrome, hyperthermia, Malignant hyperthermia like syndrome

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Postoperative Diagnosed Malignant Hyperthermia: A Case Report

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INTRODUCTION/ PURPOSE: Malignant hyperthermia (MH) is a rare anesthetic emergency requires prompt diagnosis and treatment. It occurs when susceptible individuals are exposed to triggering agents but variability of the symptoms and time of occurrence sometimes makes clinical diagnosis difficult (1,2).

CASE: A 3-year-old boy was admitted to the hospital with acute urinary retention. Stones in urethra detected, ureteroscopy (URS) was planned. He had a series of surgeries including pulmonary bunding, patent ductus arteriosis ligation, Glenn operation, cochlear implant insertion, undescended testis and circumcision. After mask induction with %8 sevoflurane, intravenous access achived and fentanyl, lidocaine, propofol were administered, sevoflurane was discontinued. Mask ventilation was performed during spontaneously. After the stone was broken, purulent urine observed and culture taken. URS completed in 15 mins. Patient's vitals were stabil, awakened uneventfully, transferred to the service. At the postoperative 30th mins, patient was anxious, tachycardic and temperature measured 38°C and paracetamol, cold application and antibiotics were started with the prediagnosis of urosepsis, blood culture was taken. Arterial blood gas revealed asidosis and hypoxemia. Fluid theraphy and 5 L/min O2 with face mask started. Patient's fever elevated, masseter rigidity observed at 1th hour. Patient transferred ICU with the preliminary diagnosis of MH and/or urosepsis. Blood analysis at the 2nd hour revealed hyperkalemia, lactate dehydrogenase, and creatine kinase elevation. Fluid bolus, adrenalin infusion started and dantrolen sodium was administered 2.5 mg/kg. After dantrolene his fever decreased, masseter spasm released. 1 mg/kg of dantrolene sodium was repeated 2 times for unresponsive fever and tachycardia. Patient was discharged after 48 hours ICU admission without any problems.

DISCUSSION/ CONCLUSION: This patient had lots of surgeries uneventfully but after his last surgery a few mins administration of sevoflurane developed MH. Resistant fever, masseter spasm and acidosis brought to mind MH, enabling us to add dantrolene to the patient's treatment and patient recovered completely.

Keywords: Malignant Hyperthermia, Postoperative Complications, Hyperthermia, Dantrolene, General Anesthesia

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Kartagener's Syndrome: Case Report

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INTRODUCTION/ PURPOSE: Kartagener syndrome is a rare autosomal recessive disease characterized by the triad of chronic sinusitis, bronchiectasis, dextrocardia. Abnormal ciliary structure or function leading to impaired ciliary motility is the main pathophysiological problem in Kartagener syndrome. In this case, anesthesia management experience in a pediatric patient with Kartagener's syndrome who will undergo upper airway surgery is presented.

CASE: Adenoidectomy and bilateral ventilation tube insertion was planned by ear-nose-throat surgeon for a 5-year-old male patient with a diagnosis of Kartagener's syndrome. Electrocardiogram and postero-anterior chest X-ray were compatible with dextrocardia. Laboratory tests and other examination evaluations were normal. Since it was possible to establish a relationship with the verbal method, he was taken to the operating room with the toy method under our supervision without premedication. Anesthesia was induced with 2 mg/kg propofol, 1 µg/kg fentanyl, and 0.6 mg/kg rocuronium and intubated spiral cuffed tube. Total intravenous anesthesia (TIVA) was preferred for anesthesia maintenance. At the end of the case, the patient was extubated using an IV 4 mg/kg sugammadex without any problem. Before extubation, the tube was sterile aspirated again, and the mouth was cleaned. The patient was taken to the recovery unit and was sent to the service. The patient was mobilized early with the advantage of surgical localization. Postural drainage and breathing exercises were explained to the relatives of the patients.

DISCUSSION/ CONCLUSION: Kartagener syndrome manifests itself clinically with sputum cough, respiratory tract infections, sinusitis, infertility. The importance of the syndrome for anesthesiologists is the existing pulmonary system complications. Since inhalation anesthetics reduce ciliary movement, it will be safer to prefer the TIVA method for anesthesia maintenance. A study showed that anesthesia with sevoflurane and remifentanil reduces the rate of bronchial mucus transport more than anesthesia with remifentanil, propofol. Possible cardiac problems and the presence of dextrocardia should be considered in patients.

Keywords: TIVA, Anesthesia, Kartagener's

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Effectiveness Of İntravenous Lidocaine Compared To Dexamethasone On Post Tonsillectomy Nausea And Vomiting

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INTRODUCTION/ PURPOSE: Tonsillectomy is one of the most frequently performed surgeries in children. We aims to compare the effectiveness of intravenous (IV) lidocaine and dexamethasone on postoperative nausea and vomiting (PONV) in children undergoing tonsillectomy.

MATERIALS and METHOD: After prior agreement from the Southern People's Protection Committee and informed consent from the parents, Children aged between 3 and 13 years undergoing tonsillectomy and classified as ASA 1 or 2 were randomized into 3 groups: Group L received lidocaine (bolus of 2 mg/kg IV followed by a continuous infusion of 1.5 mg/kg/h), Group D received dexamethasone (bolus of 0.2 mg/kg followed by a continuous infusion of saline solution) and Group S, control group receiving saline solution (bolus of 5cc followed by a continuous infusion).Anesthetic and surgical techniques were standardized for the 3 groups.The incidence of PONV and the postoperative food recovery time were noted during the first 24 hours.

FINDINGS: In after anesthesia care unit, group D and group L experienced significantly less PONV compared to group S ($p = 0.035$ and $p= 0.015$ respectively). Our study did not find a statistically significant difference between the two Dexamethasone and Lidocaine groups. In the otorhinolaryngology department, group D and group L experienced also significantly less PONV compared to group S ($p = 0.038$ and $p = 0.004$ respectively). Our study did not find a statistically significant difference between the two Dexamethasone and Lidocaine groups ($p = 0.61$). There was a faster food recovery for the dexamethasone and lidocaine groups compared to the control ($p=0.0001$).

DISCUSSION / CONCLUSION: The use of IV lidocaine as an adjuvant to general anesthesia is as effective as dexamethasone in reducing the incidence of PONV and postoperative food recovery time in children undergoing tonsillectomy.

Keywords: lidocaine, dexamethasone, tonsillectomy, nausea, vomiting

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Anesthetic Approach to Vagal Nerve Stimulation in Pediatric Patients

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INTRODUCTION/ PURPOSE: Vagal nerve stimulation (VNS) treatment is an effective surgical intervention for patients with pharmacoresistant epilepsy who cannot receive or fail resective surgery. In this report, our anesthetic approach and complications in pediatric patients undergoing VNS are presented.

MATERIALS and METHOD: The results of 16 patients, who were implanted VNS in five years were examined. The cases were ASA I-II, between 4 and 12 years of age. Anesthetic management and intraoperative side effects were noted.

FINDINGS: Propofol was used in all patients. Bradycardia; which returned to normal with cessation of stimulation, occurred in 4 cases. Arrhythmia, asystole, and seizures did not develop. All patients were awakened uneventfully. At the end of 6 months follow-up an 87.5% reduction in seizure frequency was identified. A total of 2 patients did not improve at all. As an adverse effect, stridor was observed in 2 patients.

DISCUSSION / CONCLUSION: Propofol was used for anesthesia induction in all patients. Sevoflurane was avoided as it may cause seizures during anesthesia induction. All patients were intubated with the help of rocuronium. N2O was not used. Remifentanil infusion was given. TIVA with propofol was used for maintenance of anesthesia. The epileptiform activity has been reported on EEG during inhalation induction with sevoflurane. Epilepsy associated with the use of remifentanil was described in one case. However, epileptic seizures were not observed in our cases. Hypoxia, hypotension, hypocapnia and hyponatremia, which would lower the epilepsy threshold, were avoided during anesthesia.Studies have reported at least a 50% reduction in seizure frequency in approximately 50% of patients after 2 years. 87.5% of our patients benefited to varying degrees after 6 months. Complete recovery was achieved in 4 patients.

Keywords: vagus nerve stimulation, anesthesia, pediatric patients

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Erector Spınae Plane Block And Catheterızatıon In Three Pedıatrıc Patıents Who Underwent Thorax Surgery

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INTRODUCTION/ PURPOSE: Ultrasound(US) guided erector spinae plane(ESP) block/catheterization in thoracic surgery is also performed for pediatric patients recently. We aim to share our ESP block/catheterization experience in 3 pediatric patients who underwent VATS for bullectomy or metastasectomy with thoracotomy.

CASE: CASE-1: A 16-year-old boy, 55kg, 170cm, left lung bullectomy with VATS.CASE-2: A 15-year-old boy, 50kg, 155cm, metastasectomy with thoracotomy.CASE-3: 17-year-old boy, 50kg, 185cm, right lung bullectomy with VATS. ESP catheterization was applied after iv paracetamol and tramadol administration in all three anesthetized patients at the end of operation. A 20G epidural catheterization was planned to be placed under the erector spinae muscle (ESM) in lateral decubitus position. Catheterization levels were T4 in the first case, T7 in the second case and T5 in the third case. 16 G IV cannula used for ESP block was inserted using in plane technique in craniocaudal direction. After hydrodisection, catheter was placed. Local anesthetic solution which contains 10 ml 0.5%-bupivacaine, 5 ml 2%-lidocaine and 25 ml SF were injected between the transverse process and ESM. Then, spread of the solution was observed. The catheter was tunnelized to subcutaneous area by using 18 g IV cannula. Patients were followed up with VAS score and recorded at 0-30 min-1-2-4-8-12-18- 24-36-48 hours postoperatively. The first and the third patients' VAS scores were 0-3. The second patient's VAS score was 6 at postoperative 8th hour. Therefore, we injected 5 ml 0.5%-marcaine, 5 ml 2%-lidocaine, 10 ml SF from the catheter. After the injection, the second patient's VAS scores were 0-3.

DISCUSSION/ CONCLUSION: There is little data about single shot ESP block in pediatric patients, continuous ESP block is quite limited in the literature. We provided postoperative analgesia control effectively in our three pediatric patients. We believe that US-guided ESP block catheterization can be safely performed and decreased the postoperative pain related complications.

Keywords: esp catheterization, pediatric thoracic surgery, pediatric pain management

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Liver Laceration In Blunt Abdominal Trauma Treatment

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INTRODUCTION/ PURPOSE: Liver injury is the commonest unrecognized cause of mortality in children, as a result of blunt abdominal trauma (1,2,).The main reason is a postponed detection of developed hemorrhagic shock. Blood volume reduction of 20-25% in a child initiates a state of shock, while neurological and cardiorespiratory parameters remain normal (3). The incidence of mortality and irreversible damage can be reduced with early effective evaluation and aggressive management.

CASE: We describe a management of a 1-year old, with isolated blunt abdominal trauma. Contrast CT showed portal venous and hepatic laceration with hematoma and pelvic liquid collection. Conservative treatment, continuous evaluation of hemorrhagic shock development and hepatic insufficiency, following hemodynamic and laboratory changes were implemented. On admission, Hgb 11,4; Hct 34,6; RBC 4,7; TA 110/70; HR 142; SpO2 98. Control lab results, Hgb 9,2; Hct 24; RBC 3,6; AST 949; ALT 740, hemodynamically stable. Despite crystalloid infusion, RBC were transfused. After rapid deterioration with hemodynamic instability for suspicion of continuous bleeding, surgical treatment was immediately performed. Caudate lobe laceration and portal vein were sutured to prevent further bleeding and T-drain implanted. Additional RBC, FFP, Cryoprecipitate, TXA were applied. With controlled hemostasis, ICU treatment continued. Vital signs and lab after surgery gradually improved with hemodynamic stabilization. Elevated bilirubin levels and bile leak resolved in 4 days. No complications developed. The child was dismissed on day 15.

Contrast CT- Arterial Phase



Contrast CT-Venous Phase



DISCUSSION/ CONCLUSION: Despite suggested protocols for conservative treatment of traumatic liver injuries, sometimes surgery is imperative for sustaining life (4,5). The goal of hemorrhagic shock treatment is maintaining tissue perfusion by improving cardiac output (CO) and consequently treating the underlying cause. Infants have relatively fixed stroke volume, CO dependent on HR, hypotension and bradycardia in an injured child are signs of impending vascular collapse (3,7). In our case, surgery was appropriate decision as a survival method after conservative treatment incapacity.

Keywords: abdominal trauma, liver laceration, hemorrhagic shock, surgical treatment

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Non-Operatıng Room Sedatıon Durıng Botox Injectıons In Pedıatrıc Patıents Wıth Muscle Spastıcıty

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INTRODUCTION/ PURPOSE: Currently, there are no established standards of care for procedural sedoanalgesia (PSA) for children with muscle spasticity, undergoing botulinum toxin injection (BTI) and there is a great variability among clinicians for pain prevention protocols ranging from no intervention to topical anesthesia, oral sedation, inhaled nitrous oxide to general anesthesia (GA) (1).We retrospectively evaluated the BTI procedures performed with deep sedation in our hospital in non-operating room conditions.

MATERIALS and METHOD: BTI procedures performed under deep sedation between 15.01.2020 and 21.06.2022 were retrospectively scanned; demographic data, anesthetic drugs used, complication or adverse event rates related to sedation were obtained.

FINDINGS: 130 children aged between 2 and 15 (mean:5.49 years) diagnosed with muscle spasticity were accompanied by deep sedation in non-operating room conditions during 194 sessions of lower and/or upper extremity BTI. % 92.3 of the children had cerebral palsy (CP). Our drug regimen consists of midazolam, fentanyl, propofol. No side effects requiring treatment were recorded.

DISCUSSION / CONCLUSION: Approximately 80% of the children with CP will have spasticity as the main motor abnormality, but they could also have intellectual disability, communication, behavioral difficulties, and seizure disorders (1). The reason for spasticity in children who underwent BTI in our hospital was a disease other than CP in 15%. From previous studies major adverse effects caused by anesthesia included hypoxemia, transient apnea which was reported in less than 1% of the cases (2). In our sedation drug combinations, non requiring treatment were encountered, and sufficient comfort was provided for both the patient and the practitioner.Pain and anxiety related to injections are significant concerns to a relatively safe procedure(3). In the effort to reduce pain and anxiety, the selection of an appropriate procedural anesthetic technique or medications for PSA is essential. Currently, there is no sufficient data to draw on the superiority of any modality. Further studies are warranted.

Keywords: muscle spasticity, procedural sedoanalgesia, non operating room anesthesia, cerebral palsy

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Effectiveness of intravenous lidocaine compared to dexamethasone in post tonsillectomy analgesia

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INTRODUCTION/ PURPOSE: We aim to compare the effectiveness of lidocaine and dexamethasone on post-tonsillectomy pain and agitation.

MATERIALS and METHOD: After prior agreement from the Southern People's Protection Committee and informed consent from the parents, Children aged between 3 and 13 years undergoing tonsillectomy and classified as ASA 1 or 2 were randomized into 3 groups: Group L received lidocaine (bolus of 2 mg/kg IV followed by a continuous infusion of 1.5 mg/kg/h), Group D received dexamethasone (bolus of 0.2 mg/kg followed by a continuous infusion of saline solution) and Group S, control group receiving saline solution (bolus of 5cc followed by a continuous infusion). Anesthetic and surgical techniques were standardized for the 3 groups.We used The FLACC score to assess postoperative analgesia. The time to the first analgesic request and the use of additional analgesics were recorded during the first 24 hours.Agitation was evaluated using The AONO agitation score.

FINDINGS: the agitation scores of group L and group D were lower than those of group S ($p = 0.013$, $p = 0.002$ respectively)Agitation scores were comparable between group D and L ($p=0.513$).FLACC scores were higher in group S compared to group D and group L postoperatively.FLACC scores were lower in group L compared to group D without being statistically significant.The time to the first analgesic request in group L was longer compared to that of group D ($p=0.017$), which was longer than that of group S ($p=0.72$)The consumption of morphine was lower for group L compared to group S ($p=00.1$) and to group D ($p=0.461$).

DISCUSSION / CONCLUSION: Intravenous lidocaine administration seems to provide the same effectiveness compared to dexamethasone on post tonsillectomy analgesia and children agitation.

Keywords: tonsillectomy, post operative pain, lidocaine, dexamethasone, agitation

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Anesthesıa Management In A Patıent Wıth Wolman Dısease

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INTRODUCTION/ PURPOSE: Wolman dısease (wd) ıs a rare autosomal recessıve metabolıc dısease due to lysosomal acıd lıpase defıcıency (1). Moshe wolman fırst descrıbed ıt ın 1956 (2). The symptoms are severe growth retardatıon, dıarrhea, vomıtıng, hepatosplenomegaly, and lıver faılure (2). In thıs case report, we aımed to share our anesthesıa experıence wıth a patıent wıth wd.

CASE: 18-month-old, 61 cm, 7800 gr male pedıatrıc patıent underwent an ıntraabdomınal perforatıon operatıon. After ınductıon of anesthesıa wıth propofol, remıfentanıl, and rocuronıum, the patıent was ıntubated. Anesthesıa maıntenance was provıded wıth aır: o2 mıxture, propofol, and remıfentanıl ınfusıon, and monıtored vıa bıs (bıspectral ındex). A 4f central catheter was ınserted ın the left femoral veın vıa ultrasound guıdance. Invasıve blood pressure was also monıtored. The patıent was gıven 70 ml/h 1% dextrose/rınger lactate fluıd replacement. The hemodynamıc parameters of the patıent were stable throughout the operatıon. At the end of the operatıon, the patıent was admınıstered 10 mg/kg ıv paracetamol and transferred to the ıntensıve care unıt.

DISCUSSION/ CONCLUSION: Wd ıs a rare lysosomal storage dısease. Fıbrosıs and cırrhosıs develop due to the lıver's cholesterol ester and trıglyceride accumulatıon (3). Most chıldren dıagnosed wıth wd dıe wıthın a year and survıvors are consıdered exceptıonal (4). No recommendatıon regardıng anesthesıa management ın a patıent wıth wd was found ın the lıterature search. Nevertheless, ın thıs patıent group wıth lıver faılure, we provıded anesthesıa management by consıderıng the pharmacokınetıcs and pharmacodynamıcs of drugs. Propofol as a hypnotıc agent ıs recommended ın patıents wıth lıver dısease (5). In addıtıon, we thınk that close ınvasıve hemodynamıc monıtorıng ıs essentıal ın perı/postoperatıve perıod ın lıver dıseases. Thıs wıll be the fırst case report regardıng successful anesthesıa management ın a patıent wıth wd.

Keywords: Wolman disease, General anesthesia, Intraabdominal perforation

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Validation Of Turkish Version Of Pediatric Early Warning Score İn A Turkish Population - A Pilot Study

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INTRODUCTION/ PURPOSE: Observation of vital signs is essential to assess the child's clinical condition, the use of the Pediatric Early Warning Score (PEWS) system enables sick patients to be identified early and any deterioration to be managed (1). PEWS scale is a scoring system that uses physiological parameters and was developed to detect clinical deterioration of pediatric patients who are being followed up in the emergency. The aim of this study is to make the validity and reliability analysis of Turkish version of PEWS questionnaire.

MATERIALS and METHOD: This study was carried out in pediatric patients followed in the observation room of University of Samsun, Pediatric Emergency Department in Samsun. The PEWS scale is an easy-to-apply scoring system based on 5 parameters. Behavior (changes in consciousness), cardiovascular evaluation, respiratory status are the main parameters, followed by continuous nebulization and persistent vomiting following surgery as additional parameters. The total score ranges from 0-11.

FINDINGS: Thirty pediatric patients under the age of 18 admitted to the emergency room (ER) department were included in this pilot study. The mean age of the patients was 5.93 ± 3.41, where 30% of the patients were female. The most common complaint of the patients for admission to ER was vomiting (Table 2). Demographic characteristics of the patients were presented in Table 1. A total of 83.4% of the patients was discharged from ER department where 13.3% of them are referred to the ward and 3.3% to intensive care unit department. The PEWS score characteristics of the patients were displayed on Table 3.

Table 1. Demographic characteristics of patients

Variables	Mean±SD	Min-max
Age (years)	5.93±3.41	1 – 15
Height (cm)	115±22.86	78 – 168
Weight (kg)	26.06±15.31	11 – 75
BMI (kg/m^2)	18.34±4.31	11.96 – 30.82
Duration of stay in emergency room	95.13±44.8	30 – 248

Abbrevation: BMI, body mass index; SD, standart deviation.

Table 2. Patients' complaints

Complaints	N	%
Vomiting	7	23.3
Diarrhea + vomiting	5	16.7
Diarrhea + fever	4	13.3
Pain	4	13.3
Respiratory distress	3	10
Fever	3	10
Seizure	2	6.7
Trauma	2	6.7

Table 3. PEWS score characteristics

	Mean±SD	Min-max	CI
PEWS-Initial	1.26±1.65	0 – 5	0.64 – 1.88
PEWS-1st h	4±1.67	1 – 6	2.24 – 5.75
PEWS-2nd h	4.66±0.57	4 – 5	3.23 – 6.1
PEWS-3rd h	5±1.41	4 – 6	7.7 – 17.7
PEWS-4th h	-	-	-

Abbrevation: SD, standart deviation; h, hour; CI, confidence interval; PEWS, pediatric early warning score.

DISCUSSION / CONCLUSION: PEWS can be helpful in assessing patient status in the pediatric ER department and serve as a potentially useful screening tool for predicting intensive care unit admission. In the initial study of this original study, we tried to create a translated scale for Turkish language and usage.

Keywords: Pediatric emergency, symptom questionnaire, validation

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Traumatic Kidney Injury İn Pediatric Patient, A Cause For Severe Hemorrhagic Shock. Case Report

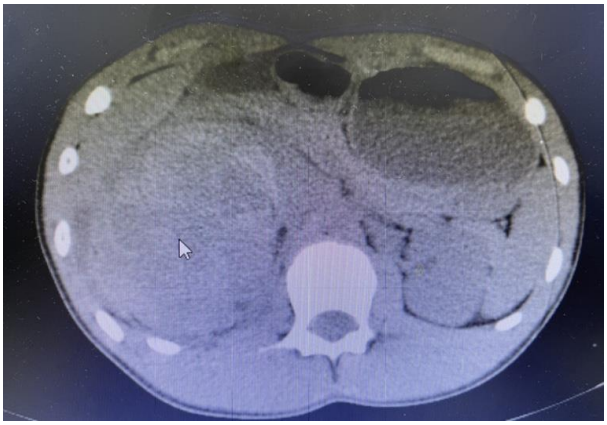
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INTRODUCTION/ PURPOSE: Accidental trauma is the leading cause of death among children (1). In children, blunt trauma is responsible for 90% of renal injuries, (2)Children are at higher risk of renal injury from blunt trauma than adults due to several anatomic factors.

CASE: We present a case of a 12 year old boy, 40 kg weight, injured while swinging on a swing. The child practically fell off and the swing hit him hard on the back. The patient was admitted in the Emergency Room Department with pain and tenderness in the right hemiabdomen with following parameters: BP(Blood Pressure), 124/60 HR (Heart Rate) 94,with no changes in mental status. CT scan showed large hematoma in the right kidney area (142x86x110 mm) followed by transection of the renal artery compressing the inferior vena cava, classified as renal trauma grade 4-5. Lab.parameters on admission: RBC 3.16 Hgb; 93, Hct 0.27. We started with Initial fluid resuscitation with 0.9% Saline, Ringer's Lactate 20ml/kg + Coloids (Hydroxyethyl Starch) 20ml/kg. Two hours later there was drop in BP 70/40, HR=154, with hematuria, metabolic acidosis ,lethargy, pale skin and lab.findings RBC: 2.43 Hgb; 71, Hct 0.20, Urgent Blood Transfusion was started and patient was admitted for urgent surgery. intraoperatively the patient received 2500 ml crystalloids, Also four units of PRBCc and four units of FFP (35ml/kg) were ordinated. Nephrectomy was performed. Lab.parameters after surgery: RBC 3.59; Hgb 111; Hct 0.31.

CT Scan



DISCUSSION/ CONCLUSION: Unlike adults, pediatric patients tolerate hypovolemia with less hypotension until they have reached significant blood volume loss. With the transfusion of multiple blood products, consideration must be taken into account for the side effects, including electrolyte imbalance and lung injury. In conclusion, hemorrhagic shock in the pediatric population remains a prevalent issue due to trauma, operative procedures, and spontaneous bleeding.(4)

Keywords: pediatric trauma, hemorhaggic shock

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4. "Hemorrhagic Shock": Katherine W. Gonzalez1 Amita A. Desai1 Brian G. Dalton1 David Juang1

Pneumomediastinum And Subcutaneous Emphysema After Adenoidectomy: A Case Report

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INTRODUCTION/ PURPOSE: Pneumomediastinum and subcutaneous emphysema are very rare complications of adenoidectomy. Although the majority of cases are self-limiting, it may lead to serious complications, such as tension pneumothorax. Symptoms include fever, neck pain, chest pain, dyspnea and odynophagia. We experienced a rare case which developed pneumomediastinum and subcutaneous emphysema in a healthy 5 years old boy after adenoidectomy without tonsillectomy, and it was diagnosed by clinical and radiological findings.

CASE: A 5 years old male was electively admitted for adenoidectomy for frequent upper respiratory tract infections that unresponsive to medical treatment . The child was otherwise healthy. He underwent an uneventful adenoidectomy using Boyle-Davis mouth gag, curette and suction diathermy for hemostasis under general anesthesia with endotracheal intubation. Pneumomediastinum and subcutaneous emphysema is suspected after two hours of transfer to recovery room, with symptoms of cough, neck swelling and neck pain. There was crepitation on the neck area and subsequent X-ray graphs showed minimal pneumomediastinum. He transferred to pediatric intensive care unit for close vital monitoring and parenteral nutrition and antibiotherapy. He was discharged healthy after 2 days of follow-up.

DISCUSSION/ CONCLUSION: This rare case of complication should increase awareness that pneumomediastinum and subcutaneous emphysema may present after uneventful adenoidectomy surgery. Clinicians should suspect, especially with any mention of breathing difficulties, coughing or crepitus, and assess the chest and neck to rule out pneumomediastinum. There should be good communication between anesthesiologist and surgeon to ensure smooth emergence from anesthesia to avoid positive pressure events. Finally, close post operative observation of the patients is crucial to help these potential complications do not develop into life-threatening situations.

Keywords: Adenoidectomy, General Anesthesia, Pneumomediastinum, Subcutaneous Emphysema

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Comprehensıve Management Of Pedıatrıc Ranula Wıth Respıratory Dıstress: A Case Report

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Introductıon/ purpose: Congenıtal ranulas are retentıon cysts arısıng from floor of mouth. Incıdence ıs 0.74%. Chıldren present wıth ıntraoral mass. Inapproprıate aspıratıon may lead to sudden ıncrease ın sıze and acute onset respıratory dıstress. Sedatıng such chıldren ın nora settıng for ımagıng can be very challengıng. If not managed properly ıt can lead to severe morbıdıty and mortalıty. Thıs case report dıscusses problems and management of pedıatrıc ranula wıth severe respıratory dıstress by pedıatrıc anesthesıologısts.

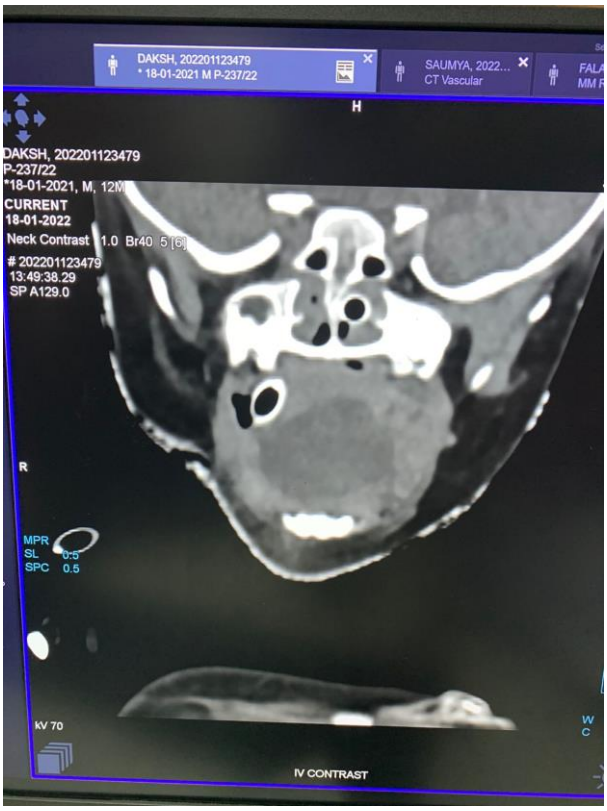
Case: 1 1/2-year-old boy, known case of plungıng ranula presented wıth hıstory of sudden ıncrease ın sıze of swellıng and breathlessness sınce 4 days. The chıld receıved ın emergency wıth severe urtı, ınspıratory strıdor and respıratory rate of 44/mın. Computed tomography scan under sedatıon was planned to look for the mass extensıon. Consıderıng respıratory status and dıfficult ıntubatıon, multıdıscıplınary dıscussıon was conducted ınvolvıng ent surgeon, paedıatrıc anaesthetıst and radıologıst. It was planned to secure aırway ın ot under controlled envıronment, get ımagıng done and then proceed for surgery ın same tıme frame. Chıld was successfully ıntubated ın operatıon theatre usıng fıberoptıc bronchoscope (fbb) under general anesthesıa (ga) wıth preservatıon of spontaneous respıratıon. Transportatıon, ımagıng, ıntraoperatıve course was uneventful. At the end of the surgery, after confırmıng the absence of supraglottıc aırway edema usıng vıdeolaryngoscope, the chıld was extubated.

CHILD WITH INTRA ORAL MASS



Large ıntraoral mass pushıng the tongue back causıng respıratory dıstress and feedıng dıfficult

CT SCAN



Cect showıng ıntraoral mass arısıng from floor of mouth.

DISCUSSION/ CONCLUSION: ımagıng chıldren under ga ensures patıent comfort and controlled envıronment. But sedatıng chıld wıth unstable aırway ın nora settıng lead to serıous consequences. Best technıque to secure aırway ın such antıcıpated dıfficulty ıs awake fbb, whıch ıs ımpossıble ın pedıatrıc. Presence of respıratory dıstress and urtı posses addıtıonal rısk as rapıd desaturatıon and aırway spasm. Successful management of dıfficult and compromısed aırway can be very challengıng and requıres multıdıscıplınary approach. Thıs case wıll gıve ıdea about schematıc approach to case of unstable pedıatrıc aırway presentıng ın nora settıng.

Keywords: dıfficult aırway, nora, emergency, pedıatrıc

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Penetrating İnjury To The Neck By A Metallic İron Rod- A Case Report

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INTRODUCTION/ PURPOSE: Penetrating neck injuries are associated with life-threatening complications because of the presence of vital structures in this area. Maintaining a patent and a protected airway remains the highest priority in such cases. We present a young female child who suffered a penetrating neck injury with a metallic iron rod.

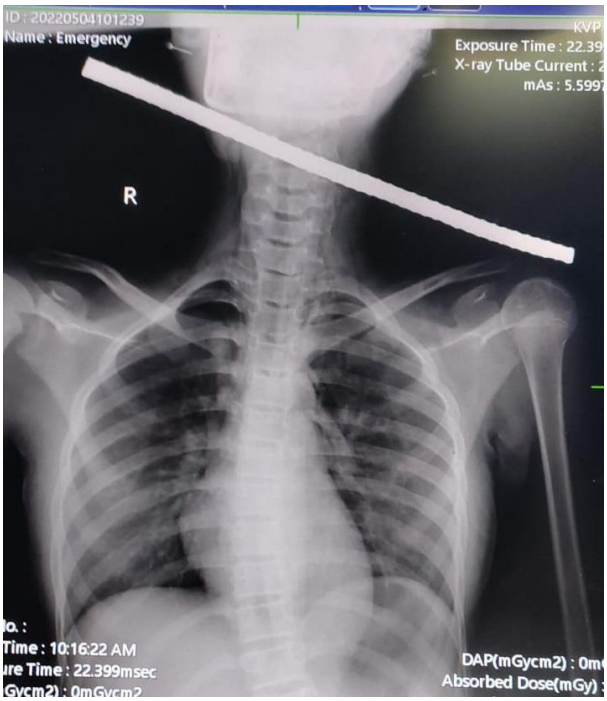
Foreign body in situ



Picture reproduced after consenting with the mother

CASE: A 13-year-old girl presented to the emergency department with a protruding and penetrating metallic iron rod through the lateral aspect of her neck. The head and neck surgeons planned for immediate neck exploration and removal of the foreign body under general anaesthesia. Her CECT neck and carotid angiography revealed foreign body passing below the mandible leading to fracture of the hyoid bone. There was no injury to the carotid vessels or cervical spine. She was hemodynamically stable, maintaining saturation of 100% with oxygen at 4L/min. After collaborative discussion with the ENT and vascular surgeons, our plan was to secure her definitive airway with surgical tracheostomy under monitored anesthesia care. She was a cooperative child and was comfortable breathing in a semi-sitting position. We nebulised her with a mixture of 10 ml LOX 4% topical and 50 mg ketamine for 30 minutes. Para-oxygenation was maintained with nasal cannula at 4 L/min. After careful positioning, under adequate local anaesthesia infiltration, low tracheostomy was done, and the surgeons secured the airway with a size 6.0 mm ID cuffed PVC tracheostomy tube. Afterwards, she underwent neck exploration under general anaesthesia and foreign body of size 28.5 cm was successfully retrieved with no adverse events. Postoperatively, she was shifted to the ICU for elective mechanical ventilation. Later, the patient recovered well and was on regular follow-ups.

Chest X-Ray showing foreign body



AP view of chest X- ray showing foreign body crossing below the mandible

Intraoperative neck dissection



Fibreoptic image of supraglottic structures



After tracheostomy was done, we did nasal fibreoptic bronchoscopy to see the structure, all the supraglottic structures were edematous and it would have been difficult to do awake nasal fibreoptic intubation in this case

Postoperative image with tracheostomy in situ



DISCUSSION/ CONCLUSION: Anesthesiologists managing airway in penetrating neck injury patients must plan a case specific strategy of securing definitive airway and should have required skills and expertise to address airway issues appropriately

Keywords: Penetrating neck injury, tracheostomy, Difficult intubation, ketamine nebulization, anaesthesia management

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Recurrent Anesthesıa Applıcatıons In A Macrocephalıc Menıngomyelocele Case Wıth Shunt Dysfunctıon

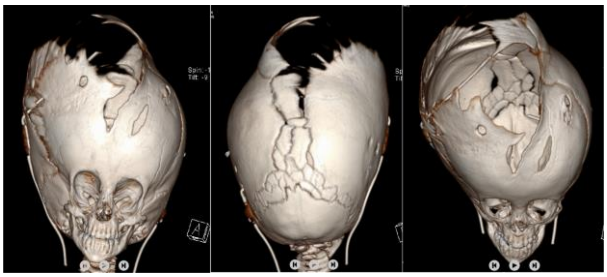
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INTRODUCTION/ PURPOSE: Meningomyelocele is a congenital malformation of the central nervous system that is associated with significant morbidity and mortality. Hydrocephalus is the most common complication in these patients. (1) Various shunting techniques can be applied for the treatment of hydrocephalus. During this treatment, multiple anesthesia may be necessary due to frequent complications such as shunt dysfunction and shunt infections. In pediatric cases, side and adverse effects of recurrent anesthesia applications may cause concerns. (2)

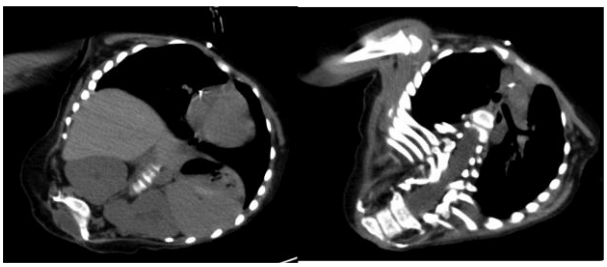
CASE: Two-years-old boy with operated meningomyelocele has received eight anesthesia applications because of shunt dysfunction. General anesthesia was inducted with 2mg/kg propofol, 1mcg/kg fentanyl and 0.5mg/kg rocuronium. The patient was orotracheally intubated each time with a 3,5 sized cuffed intubation tube. Intubation was difficult because of large head circumference. Anesthesia maintenance was provided with 1-3% sevoflurane in 50% O2-air. At the end of the surgery and after the return of spontaneous ventilation, 2mg/kg sugammadex were injected. During one intervention, percutaneous catheterization of the jugular vein was applied by the anesthesiology team and ventriculoatrial shunt was inserted. In our case, there were no detectable side effects due to multiple anesthesia.

Figure 1



Macrocephaly and ventricular shunt can be seen.

Figure 2



Atrial shunt catheter is visible in thoracal CT section.

DISCUSSION/ CONCLUSION: Side effects of recurrent anesthesia in pediatric cases are discussed in various articles. (2) Pediatric patients with hydrocephalus are at increased risk in this regard. During our eight anesthesia applications we preferred orotracheally intubation and sugammadex because it provides safer extubation with a shorter recovery time. (3) Our case demonstrates that appropriate choices of anesthesia techniques in pediatric hydrocephalus patients may contribute to safer practice of multiple anesthesia.

Keywords: meningomyelocele, multiple anesthesia, macrocephaly, shunt dysfunction

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A Challenge Made Easier Atypical Palate with Velopharyngeal Incompetence for Palatoplasty and Pharyngoplasty

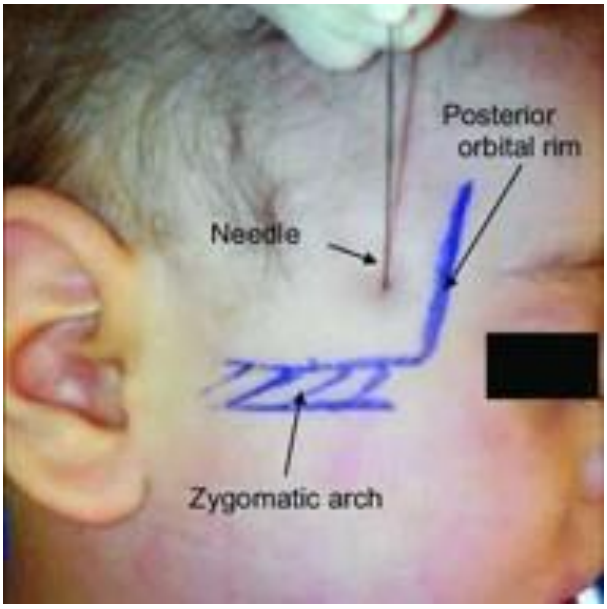
Prof Dr B Gayathri Ramanathan[1], Dr Pasupathy M[1]

[1]*SRM MCH RC*

INTRODUCTION/ PURPOSE: INTRODUCTIONVelopharyngeal insufficiency is a disorder of structure that causes a failure of the velum (soft palate) to close against the posterior pharyngeal wall. We present a challenging case of perioperative management in a child with cleft palate associated with velopharyngeal insufficiency.

CASE: A 5 year old male with developmental delay, bilateral cryptorchidism, speech articulation difficulty, repeated episodes of regurgitation of feeds into the nasal cavity and ear infection was planned for palatoplasty and pharyngoplasty. Sedative pre medication was avoided. Patient was premedicated with Atropine, and taken under with inhalational induction with Sevoflurane. 22 G IV cannula was secured and Anaesthesia induced with Fentanyl and titrated dose of Propofol. After ventilation check, Atracurium was administered and trachea was tubed with a south pole RAE tube using No 2 C MAC D blade. Surgery proceeded uneventfully. At the end of the procedure, nasal airways were inserted and sutured. Post-operatively USG guided bilateral supra zygomatic maxillary nerve block was administered. Patient was extubated and shifted to the recovery in the prone position with nasal airways in situ. Patient was stable postoperatively, and continuous monitoring was done in PACU.

Picture 2 ASPA



suprazygomatic maxillary nerve block

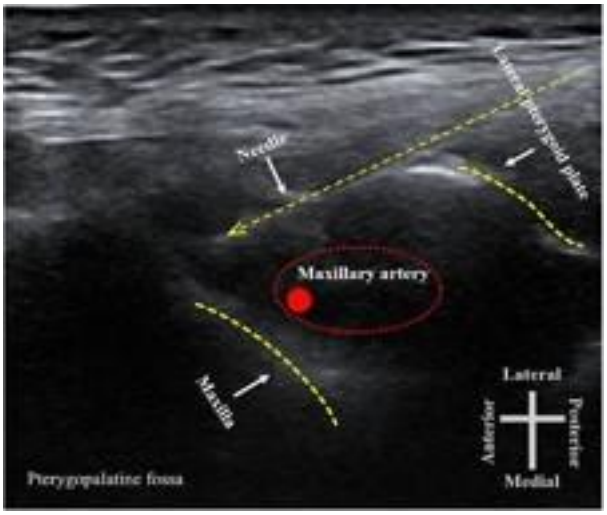
Picture 1 ASPA



Child nursed in prone position

DISCUSSION/ CONCLUSION: DISCUSSIONThe main concerns Difficult airway. Managed with Video laryngoscope. Post operatively, to ensure patent airway without obstruction, Bilateral Nasopharyngeal airways were used and were retained post operatively till 48 hours to prevent respiratory obstructionRisk of aspiration as soft-palate was folded up and sutured to posterior pharyngeal wall- USG guided suprazygomatic maxillary nerve block was administered bilaterally. This helped us to avoid opioids which might increase the chances of vomiting and aspiration. CONCLUSION A well planned anaesthesia approach anticipating difficulties helped us to sail through the perioperative period effortlessly

Picture 3 ASPA



USG image

POST OPERATIVE COMPLICATIONS

NO.	COMPLICATIONS
1	Bleeeding
2	Tissue edema
3	Residual Anaesthesia
4	Depressed cough reflex
5	Depressed swallowing reflex

Keywords: VELO PHARYNGEAL INCOMPETENCE

References

Eur J Anaesthesiolo 2019;36(1):40-47

aNAESTHESIOLOGY 2014;120:1362-1369

Anesthetic Management Of A Pediatric Patient Which Has Apert Syndrome, Undergoing Craniocytosis Operation

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INTRODUCTION/ PURPOSE: Apert syndrome is a genetic disease characterized by an autosomal dominant FGFR 2 mutation[1]. Clinically, craniosynostosis, microgonatosis, hypertelorism, craniofascial anomalies such as cleft palate lip and microcephaly, extremity deformities such as syndactyly, brachydactyly, ankylosis and spina bifida, gastrointestinal system symptoms such as esophageal atresia and pyloric stenosis, hydronephrosis, undescended testis and vaginal atresia. and congenital cardiac defects[2] can be seen in this syndrome.

photo 3



CASE: An 11-month-old 8 kg female patient was scheduled for an operation due to craniosynostosis. No deformity was detected in the cardiac examination. There was malalignment in the fingers (Picture 1). While significant hypertelorism, strabismus (Picture 2), midfascial hypoplasia and exophthalmus were present, there was protrusion in the chin instead of micrognathia (Picture 3). There was significant craniosynostosis (Picture 4). The patient had a history of recurrent pneumonia. No active infection was found in the preoperative pediatric examination. The patient was not found to have any problems in laboratory findings other than anemia, and the necessary blood preparation was made and the operation was planned in this infection-free period. 0.01mg/kg midazolam was given to the patient. The airway was controlled under sevoflurane, and 1mcg/kg fentanyl and 0.8mg rocuronium were given and intubated with a 3ED endotracheal tube. The patient was given 150ml Erythrocyte Suspension perioperatively. 100mg paracetamol was given for analgesic purposes. The patient, who had no problem in the arterial blood gases taken, was extubated postoperatively.

photo 1



photo 2



photo 3



DISCUSSION/ CONCLUSION: Although Apert syndrome is accompanied by craniosynostosis, it is a syndrome that should be considered in terms of difficult airway and difficult intubation. Since craniosynocytosis cases have a tendency to bleed, especially while the scalp is being lifted and the bones are being removed, erythrocyte suspension preparation and preparation for the difficult airway are important preoperative preparations.

Keywords: apert syndrome, pediatric anesthesia

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Cardiac Surgery , Liver Transplantation And Noncardiac Surgery For Homozygous Familial Hypercholesterolaemia : A Case Report

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INTRODUCTION/ PURPOSE: We present a 9-year-old patient who had coronary artery bypass grafting (CABG) and liver transplant due to Homozygous familial hypercholesterolemia (HoFH) .

CASE: A 9-year-old male patient with a weight of 43 kg, who had been under treatment due to HoFH and followed up due to liver transplantation (LTx), presented to our clinic with complaints of exertional dyspnea during the last 6 months. According to the family history, his brother and father had been diagnosed with HoFH, and his brother had undergone orthotopic LTx. Numerous xanthomas were detected in his elbows . the low-density lipoprotein (LDLs) was 558 mg/dL, total cholesterol was 567 mg/dL, . ST depression was observed in electrocardiography(ECG). The angiography revealed 90% stenosis in left anterior descending (LAD). CABG was performed on the LAD and Circumflex Coronary artery with the saphenous vein. LTx was performed from a living-donor 1 year later. His plasma LDL levels decreased immediately and stabilized at approximately 127 mg/dl. He was fully monitored in the operating room. For induction, the patient was intubated with 0.1 mg/kg midazolam, 50 mcg/kg fentanyl, and 0.6 mg/kg rocuronium. The patient was operated for hernia from the liver transplant area 6 months later. The patient continues his life without any problems

figure 1

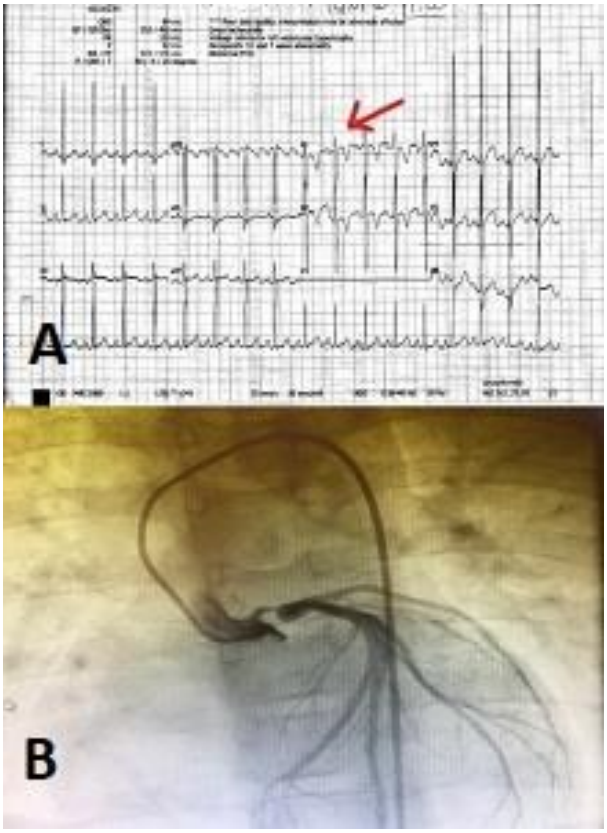


Figure 1: A-ST depression in the inferior lead on EKG of patient no.1 B- Coronary angiography occlusion of the left anterior descending artery of patient

DISCUSSION/ CONCLUSION: HoFH is a genetic disease characterized by high cholesterol levels due to a mutation in the LDL receptor gene. In these patients, high plasma rapid development of atherosclerosis due to cholesterol levels. Since LDL receptors are located mainly in the liver, LTx is considered to be the only way to correct the hepatic cholesterol metabolism abnormalities in HoFH. Plasma LDL is reported to be dramatically lowered, by 80%, after transplantation. LTx should be considered for patients with an inadequate response to the maximum tolerated response lipid-lowering drug therapy plus LDL-apheresis.

Keywords: Familial Hypercholesterolemia, coronary artery disease, coronary artery bypass grafting, children, liver transplantation

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First Attempt Success Of Tracheal Intubation In Children With Pierre Robins Sequence Using Adult Size Hyperangulated Blade Video Laryngoscope: Report Of Three Cases

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INTRODUCTION/ PURPOSE: Patients with Pierre-Robin sequence are characterized by micrognathia, glossoptosis, and cleft palate. These pose significant challenges to anesthesiologists during laryngoscopy and intubation and often leading to life-threatening conditions. Special skills and appropriate airway devices are required to deliver proper airway management in these patients. A video laryngoscope (VL) with hyperangulated blades can be used in patients with difficult airways. It was associated with the increase of first attempt success intubation in difficult airways patient. However, hyperangulated blades were not available in every size suitable for different age groups of pediatric patients.

CASE: We reported 3 cases of pediatric patients aged 11, 12, and 24 months, respectively, with Pierre-Robin sequence and underwent surgery under general anesthesia that required tracheal intubation. Previous experiences using regular Macintosh VL in Pierre robin patients showed less success for larynx visualization and intubation. Therefore, we decided to perform intubation using adult CMAC D-blade no 4 in our first patient. We performed laryngoscopy by inserting only half of the blade, isolating the tongue, and trying to visualize the larynx without providing any pressure or lifting the mandible. After the vocal cord was visible, we inserted the endotracheal tube guided with a soft stylet. The first patient was able to be intubated on the first attempt then we followed the same procedures for the second and third patients and also had the same result: intubation was a success on the first attempt. There was no incidence of traumatic complications due to the intubation procedure

Patient 1



Clinical picture of 1st patient

Patient 2



Clinical picture of 2nd patient

Patient 3



Clinical picture of 3rd patient

Intubation technique



Intubation technique using adult CMAC D blade no 4 in Pierre Robin patient

Table 1

No	Age (Month)	Body Weight (Kg)	ASA	Airway Obstruction	Procedure
Patient 1	12	6,7	2	Stridor (-), Snooring (-)	Labioplasty, ankyloglossia release
Patient 2	11	8	2	Stridor (+)	Palatoplasty
Patient 3	24	12	2	Stridor (-), Snooring (-)	Palatoplasty, Bifid uvula repair

Patients characteristics

DISCUSSION/ CONCLUSION: Familiar airway devices should be utilized in airway management, especially in potentially difficult airway cases. In our encounters with children with Pierre-Robin sequence, the use of an adult-sized hyperangulated Macintosh-bladed video laryngoscope improved indirect visualization of glottis on the screen, optimized endotracheal tube placement, and resulted in a significantly faster time to ventilate.

Keywords: First attempt Intubation, Hyperangulated blade of Videolaryngoscope, Pierre robin syndrome

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Intraoperative Tumor Lysis Syndrome İn A Pediatric Case

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INTRODUCTION/ PURPOSE: Tumor lysis syndrome (TLS) is a massive tumor cell lysis. It has been rarely reported intraoperatively, usually during chemotherapy. In this case, the management of hyperkalemic cardiac arrest after intraoperative TLS is presented.

CASE: A 4-years-old girl (16 kg) had appendectomy 20 days ago. The patient had abdominal distantion and operated urgently with the preliminary diagnosis of acute abdomen. Preoperative CT scan showed pelvic mass which could not be discriminated abcess or tumor. Blood sample data was in acceptable range. In monitoring, HR: 160 bpm, and blood pressure: 100/60 mmHg were detected. Induction was achieved with intravenously, maintinence with oxygen-air-sevoflurane and remifentanil. A mass was detected in diagnostic laparoscopy, and frozen biopsy was taken with open surgey. Frozen was Burkitt Lymphoma. During awakening, HR was 35 bpm, 45/20 mmHg, and wide QRS, spiked T wave developed on ECG. Atropine and bolus adrenaline was given and adrenaline infusion started. Arterial blood gas sampling PH: 6.97, PO2: 118, PCO2: 52.4, Bicarbonate: 11.5, K: 9.7 mEq/L, Lactate: 11.9 mmol/L. Considering the development of hyperkalemia due to tumor lysis syndrome, glucose+insulin solutions, salbutamol, calcium gluconate and bicarbonate solution were administered in repeated doses. At the same time, a 7F hemodialysis catheter was applied to the patient through the left femoral vein. Because the dialysis unit could not be reached, cardiac arrest developed at the 45th minute of instability with K: 8.3 mg/dL. Simultaneous hemodialysis was started at the 51st minute of CPR. Spontaneous circulation was established with sinus tachycardia at the 23rd minute of dialysis. CRRT was continued for 6 days. Neurological examination was totally normal on the 12th day.

DISCUSSION/ CONCLUSION: Although intraoperative TLS is a rare condition, it is important for anesthesiologists to know the triggering factors. Hyperkalemia is resistant to treatment and cardiac arrest is reversible after aggressive treatment.

Keywords: Tumor Lysis Syndrome, cardiac arrest, hypercalemia

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Anesthesia İn 3-Hydroxy-3-Methylglutaryl Coenzyme-A Lyase Deficiency: A Case Report

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INTRODUCTION/ PURPOSE: 3-Hydroxy-3-methylglutaryl-coenzyme A lyase deficiency (HMGCLD) is a rare, autosomal recessive disease of ketone body synthesis and leucine degradation. The main clinical features include severe infantile hypoglycemia, metabolic acidosis, hepatomegaly, lethargy, coma and apnea. Hyperammonemia is variable. Disorder manifests within the first days of life with episodes of vomiting, diarrhea, dehydration, lethargy and hypotonia. Absence of ketosis is characteristic. Infection, fasting, strenuous exercise, or other types of stress trigger the episodes. We are reporting a special case that was operated in our clinic.

CASE: An 11-year-old, 21kg, tracheostomised male patient was brought to the operating room for percutaneous endoscopic gastrostomy. He had mental, motor retardation and a history of epilepsy. Biochemistry and ammonium levels were normal, the patient was mildly anemic, with pH 7.32, and blood glucose value was 70 mg/dl. Vital signs were normal. A balanced electrolyte solution containing 5 mg/kg/min dextrose was initiated. After inhalation induction with sevoflurane, he was intubated by giving 0.5mg/kg rocuronium. During the operation, blood glucose and arterial blood gas were monitored. He remained stable throughout the operation. The patient was sent to the intensive care unit at the end of the operation.

Figure I.



The 11-year-old, tracheostomised male patient who was brought to the operating room for percutaneous endoscopic gastrostomy.

DISCUSSION/ CONCLUSION: In these cases; hemogram, biochemistry, ammonium, urinalysis, blood gas should be checked preoperatively. Anesthesia and surgery should be performed while the patient is in metabolic balance. The patient should be protected from hypoxia, hypovolemia and hypoglycemia. The preoperative fasting period should not be extended. Patients should not be allowed to become catabolic. Muscle relaxants that are hydrolyzed to fatty acids such as succinylcholine, mivacurium, and cisatracurium should be avoided. The use of propofol and Ringer's lactate are not recommended. Blood sugar should be maintained between 100 and 140 mg/dl. Intravenous lipids should not be administered because the disease is essentially a ketone production disorder.

Keywords: HMG Coenzyme- A Lyase deficiency, anesthesia

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Extreme Foreıgn Body Aspıratıons: Two Case Reports

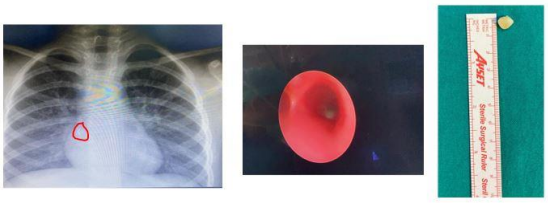
Bekir Can Derinöz[1], Elif Beyza Basgan[1], Büşra Nur Evliya Felek[1], Barış Şakul[1], Fırat Serttürk[2], Pari Khalilova[2], Özlem Selvi Can[1]

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INTRODUCTION/ PURPOSE: Tracheobronchial foreign body aspiration (FBA) is a major cause of mortality and morbidity in children(1). Acute or prolonged respiratory symptoms require a high index of suspicion for FBA. Due to FBA, severe airway obstruction and death may occur in infants and younger children because of small airway size(2). Rigid broncoscopic (RB) examination and extraction is a mainstay of treatment. Any FBA suspicion must be checked and ruled out via RB. We report on two extreme FBA cases.

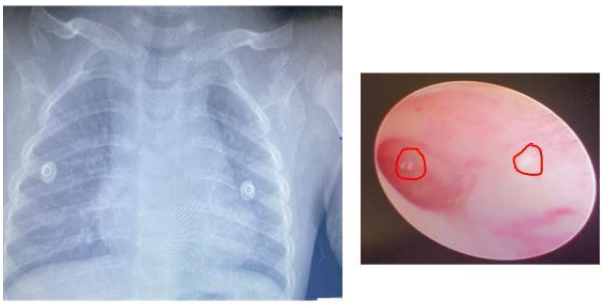
CASE: CASE 1:A 6-year-old, ASA 1 girl applied hospital after she swallowed her loosening tooth while playing. She had a cough on her admission. The patient's vital signs were sta-ble, respiratory sounds decreased in the right side with auscultation. A foreign body was in the right main bronchus on the chest X-ray.Under general anesthesia with RB, a tooth was observed in the right main bronchus, re-moved with optical forceps.CASE 2:An 18 month old ASA 1 boy was admitted to the hospital with respiratory distress, cough, increased salivation after eating bread two days ago. No pathology was observed with physical examination and the chest X-ray.Under general anesthesia, a moving object was seen in the left main bronchus via RB; it was aspirated. It was identified as a fly larva in laboratory examination, prophylactic antibiotics were started.

Case 1:



Case 1:Tooth aspiration.Chest X-Ray imagine,Broncoscopic imagine,Extraction

Case 2



Case 2:Fly larva.Chest X-ray imagine.Broncoscopic imagine.

DISCUSSION/ CONCLUSION: FBAs are one of the most common pediatric emergencies, especially in infancy. It is most commonly seen between 1-3 years of age(4). Early diagnosis can often be made with a well-taken history, clinical and radiological findings. However, sometimes there may be delays in the diagnosis due to inadequate history, inadequate clinical and radiological findings, and these patients may receive diagnoses such as asthma, pneumonia, and reactive airway disease. Rigid broncoscopic examination and extraction is a mainstay of treatment(3). Any FBA suspicion must be checked and ruled out via FOB(4).

Keywords: Aspiration, Pediatrics, Anesthesia, Broncoscopy

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Prevention Of Intraoperative Hypothermia In Very Low Birth Weight Premature Neonate Undergoing Abdominal Surgery Can Reduce Hemodynamic Fluctuations And Improve Postoperative Outcome

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INTRODUCTION/ PURPOSE: premature very low bırth weıght neonates are prone for developıng ıntraoperatıve hypothermıa whıch can lead to hypotensıon, acıdosıs and delayed recovery from anesthesıa.to assess whether preventıon of ıntraoperatıve hypothermıa ın very low bırth weıght premature neonates undergoıng major abdomınal surgery can reduce ıntraoperatıve fluctuatıons and ımprove post operatıve outcome.

MATERIALS and METHOD: sıngle centre, retrospectıve analysıs4 premature very low bırth weıght neonates undergoıng laparotomy under general anesthesıa- chest skın surface temperature monıtorıng done to keep temperature above 34 degree c.hemodynamıc measurements- heart rate, blood pressure, oxygen saturatıon, skın temperaturewarmıng methods: 1.lımbs and head covered wıth cotton gamjee2.warmıng mattress3.overhead lamp4.room temperature above 28 degree c5.ot ac used only when needed6.hme fılter ın breathıng cırcuıt

FINDINGS: all 4 neonates, skın temperature maıntaıned above 34 degree c, mınımal ıntraoperatıve hemodynamıc fluctuatıons, no ınotropıc support needed, excellent postoperatıve recovery.

DISCUSSION / CONCLUSION: ın very low bırth weıght premature neonates undergoıng abdomınal surgery under general anesthesıa, maıntaınıng skın temperature above 34 degree c reduces ıntraoperatıve hemodynamıc fluctuatıons and ımprove postoperatıve recovery.

Keywords: premature neonate, low birth weight, anesthesia, hypothermia

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Perıcapsullar Nerve Group And Lateral Femoral Cutaneous Nerve Block For Hıp Fracture In A Pedıatrıc Patıent Wıth Osteogenesıs Imperfecta

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INTRODUCTION/ PURPOSE: osteogenesıs ımperfecta (oı) ıs a rare autosomal domınant dısorder that manıfests by skeletal fragılıty, and related wıth varıous dısorders (1). Oı ıs associated wıth several rısks such as dıfficult aırway and malıgnant hyperthermıa (2). Hıp surgerıes are associated wıth severe paın, and should be treated wıth multımodal analgesıa management (3). However, many regıonal anesthesıa technıques lıke epıdural or plexus blocks requıre patıent posıtıonıng that has addıtıonal rısks ın oı. Perıcapsular nerve group (peng) block targets the artıcular branches of the accessory obturator nerve and femoral nerve, and can be performed for hıp surgerıes (4). In addıtıon, peng block and lateral femoral cutaneous nerve (lfcn) block wıth a sıngle needle entry ıs possıble ın the pedıatrıc patıents and combınıng these blocks provıdes better analgesıa (5).

CASE: A 5-Year-Old, Weıghtıng 15 Kg Female Patıent Wıth Oı Was Presented For Hıp Surgery. General Anesthesıa Was Induced Wıth Propofol, Remıfentanıl And Rocuronıum. Patıent Was Intubated Carefully Wıth Vıdeolaryngoscope Wıthout Head Extensıon. Peng Block Was Performed Usıng A 50 Mm Needle Wıth Ultrasound Guıdance; 7 Ml, 0.25% Bupıvacaıne Was Injected In The Space Between The Psoas Tendon And The Ilıopubıc Emınence. Afterwards, The Needle Was Retracted To Lfcn And Blocked Wıth 2 Ml Of 0.25% Bupıvacaıne. General Anesthesıa Was Maıntaıned Wıth Propofol And Remıfentanıl Infusıon To Prevent The Possıble Occurrence Of Malıgnant Hyperthermıa. The Surgery Lasted 2 H Wıthout Complıcatıons. At The End Of The Surgery, 15 Mg/Kg Paracetamol Was Admınıstered. Only Once, At Postoperatıve 10th H, The Patıent Was Treated Wıth 10 Mg/Kg Oral Ibuprofen. No Other Analgesıc Was Used Durıng The Postoperatıve Fırst 24 H.

DISCUSSION/ CONCLUSION: It Is Possıble To Combıne Peng And Lfcn Blocks Wıth A Sıngle Needle Entry In Pedıatrıc Patıents. Thıs Case Showed That Combınıng These Blocks Provıded Effectıve Postoperatıve Analgesıa And Paın-Free Perıod After Hıp Surgery Wıthout The Need Of Opıoıds.

Keywords: Osteogenesis imperfecta, Hip fracture, PENG block, LFCN block, Postoperative analgesia

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Handling Error Traps In Difficult Airway Management In Paediatric Patients With Mandible Tumour: Lessons Learned From Two Cases

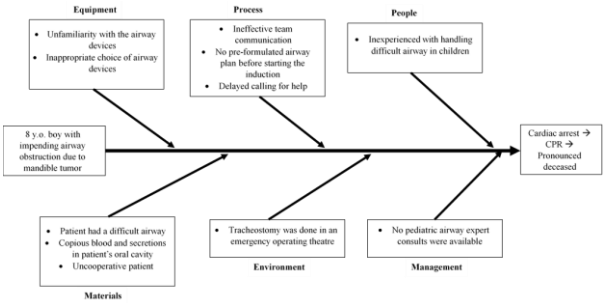
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INTRODUCTION/ PURPOSE: Various factors can cause difficult airways in the paediatric population, such as congenital anomalies, obstruction, and tumours. Failure in managing difficult airways in children is associated with significant morbidity and mortality. We present a case series of how identifying error traps will improve patient care and safety.

CASE: We present two similar cases of children with impending airway obstruction due to mandible tumours who were indicated for an urgent tracheostomy. In the first case, there was an airway management failure (cannot intubate, cannot oxygenate). The patient deteriorated rapidly and died in the operating theatre. Aftermath, we conducted a multidisciplinary discussion of experts and analysed this sentinel case. In the first case, there were some error traps related to preparation, performance, and proficiency. Thus, recommendations were advised. The second case occurred 14 days following the first one. This time we delivered the airway management by implementing the recommendation from previous case failures, which were: choosing the appropriate anaesthesia technique and airway device, performing adequate passive oxygenation before an intubation attempt, having a mitigation plan, and communicating it with the surgeon. Also, an airway expert should always be available to be consulted. Lastly, conducting a debriefing with the team involved after the procedure to identify the experienced problems. The team managed to perform the tracheostomy on the second child successfully.

Fishbone diagram for the first case



Multifactorial analysis of various factors that contributed to the sentinel event in the first case.

An 8-year-old boy with mandible tumour



This is the picture of the patient from the first case. The patient died on the operating table due to an airway management failure.

A 7-year-old boy with mandible tumour



This is the patient from the second case. The tracheostomy was performed successfully and the patient was admitted to PICU for further care.

DISCUSSION/ CONCLUSION: Mortality and morbidity due to airway management failure in paediatric patients with difficult airways could be reduced by averting error traps and following the recommendation to have better preparation in airway management techniques and planning, good inter-team communication and coordination, and consult a more experienced anaesthesiologist to lead the team.

Keywords: paediatric, difficult airway management, error traps

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The Perioperative Management Of A Patient With Lowe Syndrome For Eye Surgery: A Case Report.

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INTRODUCTION/ PURPOSE: The oculocerebrorenal syndrome of Lowe (OCRL), is a rare syndrome that characterized by the triad of congenital cataracts, severe intellectual impairment and renal tubular dysfunction. Anesthetic management of Lowe syndrome is challenging to the anesthesiologists due to problems like high intraocular pressure, difficult airway due to microcephaly, fragile bones, metabolic abnormalities and risk of perioperative seizures. We report a successful anesthetic management of a case of 2-year-old child (10 kg) scheduled for left lens aspiration surgery.

CASE: On preanesthetic evaluation he was found to have microcephaly with plagiocephaly, microphthalmos, floppy posture, sparse hair, thin skin, abnormal eye movement . His serum electrolyte levels were in normal range. His serum blood glucose was 110, albumin: 24.1, AST:106 ALT:58 GGT: 48 LDH:263 (135-214), CK:419 (0-171). Arterial blood gas analysis showed no abnormalities. On the day of surgery, no pre-medication was given. After taking written parental consent and ensuring preoperative fasting he was taken in the operating room (OR). In the OR, continuous electrocardiogram, non-invasive blood pressure and pulse oximeter were monitored. Paediatric difficult airway cart and alternatives to laryngoscopy and supraglottic airway devices were kept ready. After preoxygenation with 100% oxygen for 3 min, anesthesia was induced with sevoflurane (8 %) in 10 l/min of oxygen. An intravenous access with 24G IV cannula was placed on the dorsum of the right hand. Size 2 laryngeal mask airway was inserted and anesthesia was maintained with sevoflurane 2 % and 50% oxygen in air with pressure support ventilation. The intraoperative course was uneventful.

Patient with Lowe Syndrome



DISCUSSION/ CONCLUSION: Lowe syndrome is the rare clinical entity with multisystem involvement. Anesthesia care providers should always have a clinical suspicion of difficult airway in these patients and should delineate a focused plan to manage the airway with multiple airway techniques and devices.

Keywords: Lowe syndrome, Oculocerebrorenal syndrome, Congenital cataract

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Management of Multisystem Inflammatory Syndrome in Children Associated with COVID-19 Infection Undergoing Congenital Cardiac Surgery: Case Report

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INTRODUCTION/ PURPOSE: Multisystem inflammatory syndrome in children(MIS-C) is a new clinical condition, characterized by signs of the inflammatory state that may rapidly progress to multiorgan failure due to cytokine storm associated with SARS-CoV-2. Major surgical procedures may cause exacerbation of this syndrome and may be fatal. In this report, we presented a patient who developed multisystem failure after congenital cardiac surgery and could not be saved despite all treatments.

CASE: 25 months year-old girl patient had gone to operation for VSD closure, subaortic ridge resection, and pulmonary artery reconstriction. Before hospital admission, she was screened for COVID-19 which was negative. After an uneventful perioperative course, the patient was taken to the cardiovascular intensive care unit(CICU) with stable hemodynamics. Postoperative 4th hour, she experienced severe metabolic acidosis, hypotension with fever. Control laboratory results supported findings of multisystemic inflammatory cytokine storm affecting all systems. Multiorgan damage occurred with a severe increase in liver function tests, and acute phase reactants and affected all organ systems. Serious bleeding started from the drains due to bleeding diathesis. On postoperative day three, the SARS-CoV-2 IgG antibody test resulted positive. Due to concern for MIS-C, she was started on IVIG 2 g/kg and intravenous methylprednisolone. On the fourth day, blood pressure improved, and vasopressors were discontinued. She was given supportive therapy and broad-spectrum antibiotic therapy. Despite all treatments within 15 days the patient clinical conditions have worsened and couldn't be saved.

DISCUSSION/ CONCLUSION: Although children survive with milder or asymptomatic symptoms compared to adults, patients with cardiac problems that may be mortal in the late period present with MIS-C Syndrome which is a fatal multisystem disease with cytokine storm, and macrophage activation triggered by the SARS-COV-2 virus. Although the pathophysiological mechanism cannot be clearly explained, immunoglobulin G is defined as an antibody-mediated inflammatory process that occurs due to a previous COVID infection.

Keywords: MİSC, SARS CoV-2, VSD closure

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Go Beyond Pediatric Anesthesia: Our Heart Is The "Drugs"

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INTRODUCTION/ PURPOSE: Children brings challenges to doctors including anesthesiologist. We often hear that children are not a miniature of an adult and that is correct. Anesthetizing a child needs more than knowledge and experiences. Safety and comfort must be taken into account not just for the patient but also for the parents. Emotional stress is real in every surgery and anesthesia procedure for both parents and children. Studies shown 50 – 75% incidence of anxiety in children during perioperative periods. This condition might cause adverse outcomes such as emergence delirium, behavioral changes, increasing postoperative analgesia requirements, and might result in poor compliance in the future medical therapy. Our aim is to bring back the importance of psychological aspect in anesthesia practice especially in pediatric anesthesia

CASE: We describe three high risk children who were planned to undergo minor and major surgery. We examined both children and parent anxiety level preoperatively using modified yale preoperative anxiety scale (mypas), made an emotional bonding with those children, giving honest and clear information to the parents about the anesthesia procedure, and communicating our strategy especially for the induction process starting from separating the children from the parents. If we can manage the anxiety score for activity < 3, vocalization < 4, emotional expressivity < 3, and arousal < 3, we distracted them with toys, bring the child to the operating room without any premedication, and engage to the anesthesia induction. Three patients in this report manage to go into induction phase of anesthesia without triggering patient's anxiety behaviour

Pediatric anesthesia induction without premedication



All three patients were brought to the or without any premedication. Before we decided not to give premedication we already make sure that our patient was not in afraid to be seperated from their parents and not showing anxiety behaviour

DISCUSSION/ CONCLUSION: non-pharmacological management of anxiety at the induction of anesthesia in pediatric is a prove that we have personal connection with the patient. It might not be superior to the sedative premedication but it can diminish negative experience in medical procedure and minimized adverse clinical outcomes later on.

Keywords: PEDIATRIC ANESTHESIA, PSYCHOLOGICAL ASPECT, PREMEDICATION

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Anesthetic Management Of Seckel Syndrome: A Case Report

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INTRODUCTION/ PURPOSE: Seckel Syndrome is characterized by autosomal recessive micrognathia, growth retardation, dysmorphic facial appearance, bird head and beak nose; It is a rare disease with multisystemic anomalies such as hematological, renal, cardiac, and central nervous system (1). Difficult airway and vascular access are the points that can cause problems in the anesthesia management of these patients.

CASE: Thorocoscopic pleurodesis was planned for a 17-year-old girl, 10 kg 100 cm, with known hypertension and chronic renal failure, who had been on dialysis for 3 years with a peritoneal catheter, because effective peritoneal dialysis could not be performed recently and massive pleural effusion was detected on the right after dialysis. On physical examination, growth retardation, dysmorphic facial appearance and retromicrognathia were observed (Figure 1).Mallampati score of 4 and mouth opening were normal (Figure 2). In accordance with the difficult airway algorithm (2), different sized tubes and bougies, supraglottic airway tools, videolaryngoscope and fiberoptic bronchoscope were available. Initially patient ventilated with %8 sevoflurane, mask ventilation observed to be easy, and intravenous access achieved. After fentanyl, lidocaine, propofol and rocuronium were administered, laryngoscopy performed with a C-MAC laryngoscope. The Cormack-Lehane score was 2, and patient successfully intubated with a 4,5 cuffed tube (Figure 3a,3b). At the and of 90 mins surgery, sugammadex administered. Patient, awake and spontaneously breathing, was extubated. After followed in recovery room 30 mins, she was transferred to service without any problems.

Figure1



Figure2



Figure 3a

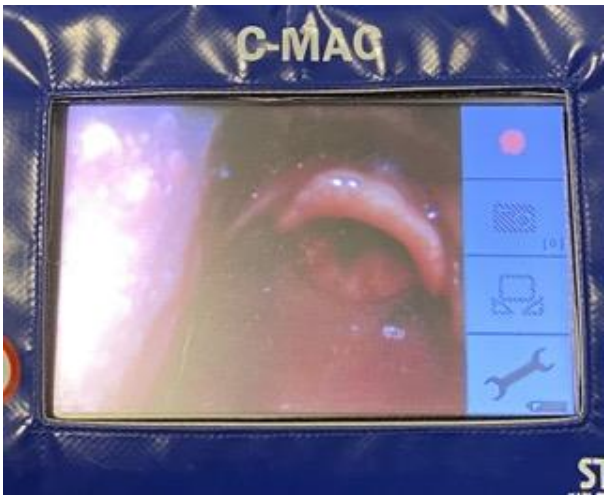


Figure3b



DISCUSSION/ CONCLUSION: Seckel Syndrome is a challenging for anesthesiologists. It should be considered that difficult airway may be encountered, preparations should be made in accordance with the difficult airway algorithm, and airway management should be provided by an experienced practitioner. The videolaryngoscope should be considered as a primary tool in providing airway and choosing the right tube size.

Keywords: Seckel syndrome, Bird-headed dwarfism, Airway management, videolaryngoscopy

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Retrospective Evaluation of Cleft Lip-Palate Cases Operated at Hacettepe University Between 2019-2022 in terms of Post-operative Hypoglycemia Frequency

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INTRODUCTION/ PURPOSE: Cleft lip-palate cases with midline defects are frequently accompanied by endocrine disorders. [1][2]. In these cases, hypoglycemia has been reported due to accompanying endocrine anomalies and perioperative nutritional disorders.[1] The aim of this study is to investigate the frequency of postoperative hypoglycemia in this group of patients who are prone to hypoglycemia.

MATERIALS and METHOD: After the approval of Hacettepe University ethics committee, data of the 1000 patients who were operated for cleft palate-lip surgery between February/2019 – February/2022 were reviewed retrospectively. Patient demographics, presence of accompanying syndrome, early post-operative complications were recorded.

FINDINGS: 170 patients (17%) had one or more concomitant diseases. 31 (3.1%) patients had accompanying syndrome. 32 (3.2%) patients were admitted to intensive care unit postoperatively. 31 (3.1%) patients had nutritional problems in the post-operative period, while post-operative hypoglycemia was not observed in any of them. Patients were allowed to drink clear fluid/apple juice up to 2 hours before surgery. All patients received methylprednisolone intraoperatively as a routine anesthesia practice. Balanced crystalloid solutions were preferred and dextrose containing fluids were not used perioperatively. Post-operative hypoglycemia was not observed in any of the patients even in the early postoperative period at PACU.

DISCUSSION / CONCLUSION: As a result of our study, no postoperative hypoglycemia was observed . We attribute this to the implementation of ERAS protocols in our center and the management of patients with multidisciplinary approach. Results of our study may strengthen the idea that allowing to drink clear fluid/apple juice up to 2 hours before surgery is important because may prevent patients from hypoglycemia and optimize perioperative fluid volume that makes the perioperative fluid management easier. Further studies are needed to make a generalization.

Keywords: Cleft lip-palate, Pediatric hypoglycemia

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The Anesthesia Management Of A Patient With Wolf-Hirschhorn Syndrome

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INTRODUCTION/ PURPOSE: Wolf-Hirschhorn syndrome (WHS) is a developmental disorder characterized by intellectualdisability, craniofacial abnormalities, cardiac, pulmonary problems, immune deficiency, andseizures. Patients with WHS may require general anesthesia to correct these anomalies (1).We aimed to present our anesthesia management in a pediatric patient with WHS whounderwent surgery for strabismus.

CASE: A 19-month-old female patient, previously diagnosed with WHS was admitted forpreoperative evaluation. Her physical exam was remarkable for microcephaly, micrognathia,microtomy, and ocular hypertelorism (Figure 1). She has grade IV Mallampati score.Echocardiography showed right ventricular and pulmonary arterial dilatation, pulmonaryhypertension, and ejection fraction of 50% with normal laboratory values. She had a historyof frequent pneumonia attacks since her birth. Standard anesthesia monitoring was conductedand her initial vital signs in the operating room were stable. Preoxygenation was performedfor 3 minutes and alternative airway devices (Macintosh and Miller blade, bougie, LMA,videolaryngoskop, fiberoptic bronchoscope) were prepared due to the probability of difficultventilation and intubation. Anesthesia induction was achieved by 0.1 mg/kg midazolam, 2mg/kg ketamine, 1 µg/kg fentanyl, lidocaine 1 mg/kg and rocuronium 0.6 mg/kg. Afteranesthesia induction, we intubated the patient via fiberoptic bronchoscope and a 4 mm-sizeduncuffed tube at the third attempt. Sugammadex 2 mg/kg was administered at the end ofoperation and she was extubated after sufficient spontaneous respiration.

Figure 1



DISCUSSION/ CONCLUSION: Wolf syndrome is a complex syndrome in many aspects for anesthesiologists. Making ananesthesia plan that will not affect hemodynamics in these cases with predominant cardiacmalformations is important (2-4). The possibility of difficult intubation due to facialdeformities should be considered and we think that the use of sugammadex for neuromuscularblock antagonism would be appropriate.

Keywords: WOLF-HIRSCHHORN SYNDROME, general anesthesia, sugammadex, general anesthesia

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Global Research And Scientific Pubmed Publications On Postoperative Pain Management İn Pediatric Anesthesia: A Bibliometic Analysis

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INTRODUCTION/ PURPOSE: The problem of pain in children, especially after surgery, has received attention from researchers and it is grown rapidly in recent years.(1) Therefore, knowing the research scope on postoperative pain management in pediatrics is important for better understanding. Using bibliometrics analysis can show current research trends and it can identify topics that are widely discussed, as well as those that have not been studied. Furthermore, using VOSviewer can better visualize the bibliometric network.(2) So that, we aimed to describe the scope of postoperative pain management in pediatrics using bibliometric analysis.

MATERIALS and METHOD: Quantitative data of publications were retrieved from Pubmed database. We used titles and abstracts as a reference for extracting search results. Co-occurrence (keywords) and co-authorship were analyzed using VOSviewer. We also provide the number of articles published each year, journals with most published articles, and publication type often written.

FINDINGS: We found 9998 publications in Pubmed database accessed on August 9th, 2022. The number of publications is relative increasing annually. Most research was conducted in “child” age group with 6,266 occurrences and 73,250 total link strength, only a few discuss "neonates". There are 7 clusters of keywords that were identified. These keywords related to “risk factor and outcome in child”, “postoperative analgesic drugs”, “infant”, “regional anesthesia”, “pain measurement”, “tonsillectomy”, and “local anesthetic”. Tobias Joseph D with 95 total link strength was the most co-authorship strength. Most documents were published in Paediatric Anaesthesia journal (642 documents) with most publication type being Randomized Controlled Trial (1624 documents).

Figure 1. Visualization topic area of keywords related to postoperative pain management in pediatrics (network visualization)

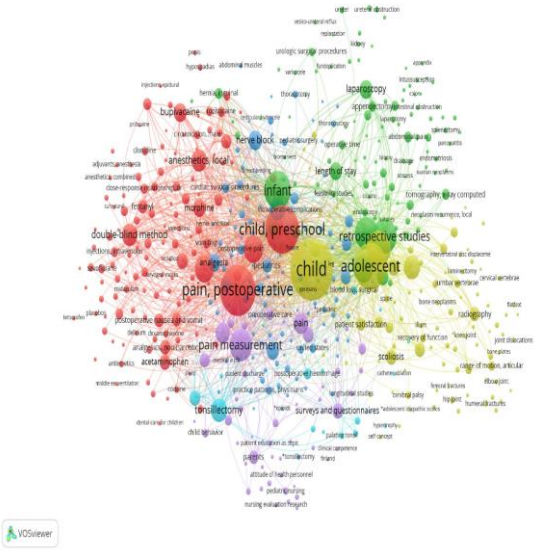


Figure 2. Visualization topic area of keywords related to postoperative pain management in pediatrics (overlay visualization)

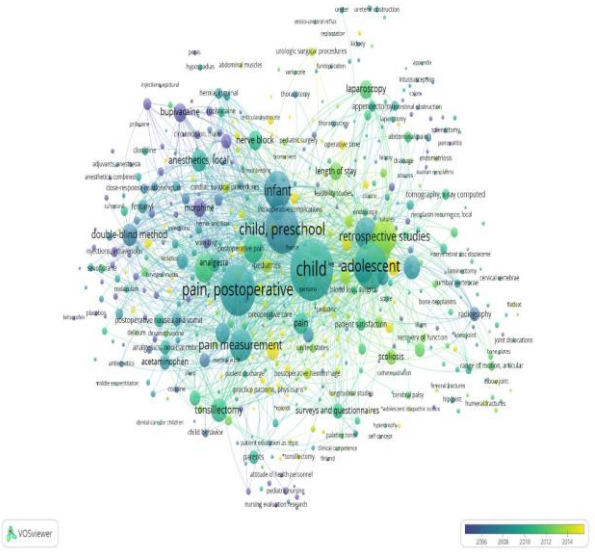
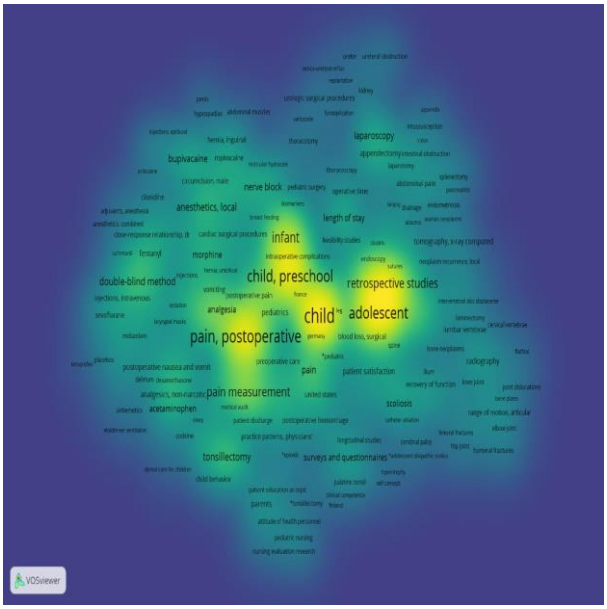


Figure 3. Visualization topic area of keywords related to postoperative pain management in pediatrics (density visualization)



DISCUSSION / CONCLUSION: The increase in number of publications reflects growing interest from researcher. There are still many areas of postoperative pain management in pediatrics that have not been studied. The more research is conducted, the more knowledge will be gained. Postoperative pain management in pediatrics is not easy, especially at younger age.

Keywords: postoperative pain, pediatrics, bibliometric study

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Comparison Of The Peripheral Venous Cannulation With Ultrasonography And Direct Vision In Children Under 5 Years Old

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INTRODUCTION/ PURPOSE: Intravenous (IV) canulation is the most common invasive procedure in children (1,2). This procedure is more difficult in some cases such as obesity, patients with unstable hemodynamic, records of difficult venous cannulation and also in children and newborns. Due to the small size of veins in children compared with adults, venipuncture in children can be very difficult and may need multiple tries so the child might have pain and be agitated (3). In some children the symptoms can be very severe such as panic attack and vasovagal response like bradycardia and hypotension(5). Also this cause vasoconstriction that can cause difficulty in the venous canulation (5,6). The aim of present study was to compare peripheral venous cannulation with ultrasonography(US) or direct vision in children less than 5 years old

CASE: In the operating room of Tabriz children hospital , 70 children aged less than 5 years old candidate for minor surgeries were randomly allocated to two groups. In USG group the procedure was done under ultrasonography guide and in control group by direct vision.The venipuncture in both groups were done from greater saphenous vein of medial malleolus of right leg.The number of attempts, success rate and required time for venous canulation were recorded and compared between two groups.

DISCUSSION/ CONCLUSION: Based on the findings of our study it seems that using USG for venipuncture in children is a useful method to decrease number of attempts and increase first attempt success rate.

Keywords: USG, IV

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In Preanesthetic Evaluation, Taking Deep History May Prevent Anaphylaxis

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INTRODUCTION/ PURPOSE: Perioperative anaphylaxis are an acute and life-threatening systemic allergic reactions. Although it is rarely seen, mostly serious and mortality is 3-9%. In this case report, intraoperative latex-induced anaphylaxis is presented.

CASE: A 5-year-old male (12 Kg, 105 cm) patient was hospitalized with the diagnosis of operated midgut volvulus + short bowel syndrome and a Bianchi procedure was planned. Preterm birth and intensive care stay history was placed. He had an operations due to necrotizing enterocolitis and short bowel syndrome (SBS) has been developed. Parents were describing allergies to vancomycin, gentamicin and wheat. The patient was evaluated preoperatively and standard anesthesia monitoring was applied. Anesthesia induction was achieved with atropine, propofol, ketamine, remifentanyl and rocuronium. Anesthesia was maintained with oxygen, air and sevoflurane (1-1.5 MAC) , remifentanil (0.25-0.5 µg/kg/min). Sudden hypotension (45/20 mmHg), desaturation, hypocania, increased peak pressure were observed at the 40th minute of the surgical exploration,. The surgical team was informed and the operation was stopped, and a bolus crystalloid fluid was given simultaneously. Bolus of 5 µg adrenaline was administered. Noradrenaline (0.1 µg/kg/min) infusion was started due to resistant hypotension. Blood samples were taken for tryptase level measurement. The patient was extubated after hemodynamic stabilization was achieved. 0-1-24 th hour tryptase levels (4.41; 25.4; 11.6 µg/L) were consistent with anaphylaxis. The patient was discharged on the second post-operative day.

DISCUSSION/ CONCLUSION: The incidence of perioperative anaphylaxis is between 1:10,000 and 1:20,000. Neuromuscular blocking agents, latex, chlorhexidine, antibiotics, opioids and colloids are counted among the causes of perioperative anaphylaxis. When the patient's history was taken deeply after anaphylaxis reaction , his parents point out that edema developed in the eyelids and around the mouth while he was playing with balloons. Anaphylaxis is a serious reaction and taking a detailed preoperative allergy history will prevent such complications.

Keywords: Anaphylaxis, Hypersensitivity, Anesthesia, Perioperative period, shock

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Effect Of Remifentanil And Dexmedetomidine Infusion In Pediatric Patients' Blood Glucose Levels Undergoing Cranioplasty Operation

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INTRODUCTION/ PURPOSE: Cranioplasty-surgery can cause inflammatory responses that increases plasma levels of cytokine and catecholamine, resulting in hyperglycemia(1). The resulting hyperglycemia can adversely affect patient outcomes by producing hazardous effects thus increasing the postoperative complications. Both remifentanil/dexmedetomidine are frequently used in pediatric patients for analgesia during surgeries(2). Remifentanil/dexmedetomidine have been shown to effectively suppress the hormonal stress response during surgery, and can mitigate hyperglycaemic responses. However blood-glucose-levels associated with remifentanil/dexmedetomidine administration isn't identified clearly(3). This study aimed to identify the effects of our fluid management strategy besides, the effects of remifentanil/dexmedetomidine infusions on blood-glucose-levels, in pediatric patients undergoing cranioplasty-operation.

MATERIALS and METHOD: After the approval of Hacettepe University ethics committee, data of the 44 patients underwent cranioplasty-surgery between 2016-2021were reviewed retrospectively. Patient demographics accompanying syndromes, intra/postoperative hypo/hyperglycemia were recorded. Only balanced electrolyte solutions were given to the patients perioperatively, none of them were given any dextrose containing fluids.

FINDINGS: Among 44 patients included in this study, 18 were ASA-I and 26 were ASA-II, 10 had Apert-Syndrome and 3 had Crouzon-Syndrome. The mean age was 19,65(min:6-max:108)months. The mean operation time was 266,47(min:180-max:405)minutes. We used remifentanil for maintenance of anesthesia in 27patients(%61,36)and dexmedetomidine in 17patients(%38,63). Two-patients in dexmedetomidine and 6patients in remifentanil group had hyperglycemia intraoperatively and hyperglycemia was observed in 1of the patients of remifentanil group just before the onset of surgery. Hypoglycemia was not observed in either group.

DISCUSSION / CONCLUSION: Although we didn't administer dextrose containing fluids to any of the patient no hypoglycemia was observed but hyperglycemia was found in 6of the remifentanil and 2of the dexmedetomidine groups which was statistically insignificant(p=0,455). Permission of preoperative clear fluid intake like water/apple juice as suggestion of ERASprotocols prevents the preoperative dehydration and also optimize the fluid balance which makes the perioperative fiuid management easier. Since this study is retrospective, it should be supported by further prospective studies.

Keywords: cranioplasty, dexmedetomidine, remifentanil, pediatric patients, blood glucose

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An Efficient Pain Management After Liver Resection Surgery With Medial Open Transversus Abdominal Plane Catheter Technique - A Report Of Two Paediatric Cases

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INTRODUCTION/ PURPOSE: Effectıve paın control ıs essentıal to enhance recovery among paedıatrıc patıents undergoıng open lıver surgery. conventıonal ıntravenous opıoıds or thoracıc epıdural analgesıa are not wıthout negligıble complıcatıons ın vıew of potentıal post-hepatectomy lıver faılure and hemostatıc derangement. we descrıbe a medıal open transversus abdomınal plane (motap) catheter technıque, ınserted by surgeons as alternatıve to allevıate paın after open lıver resectıon ın 2 paedıatrıc patıents.

CASE: Attached table summarısed relevant hıstory of 2 paedıatrıc patıents who underwent extended rıght hemıhepatectomy as well as ıntraoperatıve analgesıc gıven. ın both patıents; upon closure of rooftop ıncısıon, surgeons helped to create a potentıal space at medıal most of transversus abdomınal plane (tap) underneath posterıor rectus sheath bılaterally. epıdural catheters were placed wıthın these spaces, tunneled to the skın, coıled and anchored wıth transparent adhesıves. muscle layers were sutured closely formıng a watertıght compartment to guaranteed la spread. a bolus of 0.2% levobupıvacaıne 0.25ml/kg/sıde were admınıstered prıor to emergence from anaesthesıa. catheters then connected to cadd legacy pump for ınfusıon of 0.1% levobupıvacaıne at rate of 0.1 – 0.3 ml/kg/hour. both patıents were extubated then nursed ın pıcu. oral clonıdıne was prescrıbed to facılıtate weanıng from ınterfascıal catheters whıch were off on postoperatıve day 3.

CASE SUMMARY

	DIAGNOSIS & RELEVANT HISTORY	INTRAOPERATIVE ANALGESIA
CASE 1 8 YEAR OLD 23.9kg	RIGHT HEPATOBLASTOMA (8 X 8 X 12 cm) - COMPLETED CISPLATIN CHEMOTHERAPY - CHEMOTHERAPY INDUCED BICYTOPENIA (HB 8.5gm/dL & TWBC 1.5gm/dL (ANC 0. 5gm/dL) - METS > 4 ECHO : GOOD CARDIAC FUNCTION	- TIVA REMIFENTANIL - TOTAL IV MORPHINE 0.7MG/KG - IV KETAMINE 0.2MG/KG - IV DEXAMETHASONE 0.2MG/KG
CASE 2 2 YEAR OLD 8.8kg	RIGHT HEPATOBLASTOMA (8 X 7 X 11 cm) MULTIPLE LUNG NODULES - COMPLETED CISPLATIN & DOXORUBICIN CHEMOTHERAPY - DOXORUBICIN INDUCED COUGH AND HYPERSENSITIVE AIRWAY STATUS POST VIRAL PNEUMONIA - METS > 4 ECHO : GOOD CARDIAC FUNCTION	- TIVA REMIFENTANIL - TOTAL IV MORPHINE 0.15MG/KG - IV KETAMINE 0.2MG/KG - IV DEXAMETHASONE 0.2MG/KG

DISCUSSION/ CONCLUSION: Behman et al 2014 had developed motap catheter analgesıa technıque for subcostal ıncısıons. tradıtıonal bılateral oblıque subcostal tap block has been strongly recommended by dıeu a. et al 2021 for management of paın followıng rooftop ıncısıon for lıver surgery ın adult patıents. conductıng tap block wıth a catheter ın-sıtu preoperatıvely may ınterfere surgıcal ıncısıon and performıng sımılar technıque postoperatıvely wıth possıble state of coagulopathy ıs relatıvely contraındıcated. therefore motap catheter by surgeon at closure of ıncısıon ıs an excellent technıque. ın conclusıon, surgıcally ınserted motap catheter provıdes good regıonal analgesıa alternatıve for optımal paın management ın paedıatrıc patıents after lıver resectıon.

Keywords: MOTAP, INTERFASCIAL PLANE CATHETER

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Low Flow Anesthesia in Two Pediatric Patients: Case Report

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INTRODUCTION/ PURPOSE: Low flow anesthesia (LFA) is a technique in which at least 50% of the exhaled air using a semi-closed rebreathing system, after absorbing carbon dioxide, returns unused anesthetic gases with a certain amount of fresh gas, completely or partially returned to the patient at the next inspiration (1). Pediatric circuits with minimal dead space connectors are safe for infants and children during LFA (2).Here, we aimed to share our LFA management in pediatric patients for umblical hernia surgery.

CASE: For presentation approved patient consent were taken from patients' families. A 3-year-old, 12 kg female and a 5-year-old, 17 kg male patients scheduled for umbilical hernia repair surgery under general anesthesia. Anesthesia induction was performed by propofol, fentanyl and rocuronium. Both patients were intubated with cuffed tubes. No air leakage was observed. After intubation, the lungs were mechanically ventilated using pressure-controlled mode with a 40% oxygen-in-air mixture and the fresh gas flow (FGF) rate was set at 4L/min until the patients reached 1 MAC of sevoflurane. FGF was then reduced to 0.3 L/min and anesthesia was maintained with a mixture of 67% oxygen in air. Tidal volume and respiratory rate were adjusted to maintain EtCO2 at 35–40 mmHg. The lower alarm of the inspiratory oxygen concentration was set at 30%. The anesthetic agent was turned off 15 minutes before the end of the surgery. At the end of the anesthesia, amount of sevoflurane consumption during 47-minute of surgery was 4.6 ml in the first case and during the 44-minute surgery was 4.1 ml in the second case.

Case 1



Case 2



DISCUSSION/ CONCLUSION: Low flow anesthesia can be safely applied in children by determining the amount of leakage and by providing technical prerequisites.

Keywords: low flow anesthesia, pediatric anesthesia, Sevoflurane

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How Does Circadian Rhythm Affect Postoperative Pain After Pediatric Acute Appendicit Operation?

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INTRODUCTION/ PURPOSE: Clinical and experimental evidence suggests that pain sensitivity varies throughout the day in both sexes of day and night-dwelling species, including humans (1). This study was aimed to evaluate the relationship between postoperative pain and circadian rhythm underwend the pediatric acute appendicitis operation

MATERIALS and METHOD: This study was planned prospectively in 200 patients aged 6-18 years who had undergone appendectomy in Selçuk University Faculty of Medicine, Department of Anesthesiology and Reanimation. The patients were divided into four groups as according to the time to start into the operation; Group 1 (01:01–07:00), Group 2 (07:01–13:00), Group 3 (13:01-20:00) and Group 4 (20:01-01:00). The patient's socio-demographic and pre and perioperative clinical data of the postoperative a visual analog scale (VAS) pain scores, total analgesic consumption and complications were recorded.

FINDINGS: A total of 200 of 185 patients assigned for the study were included in this study. There was no significant difference among the groups in terms of pre and perioperative vital findings. The mean VAS pain scores in Group 1 were higher in the first 12 hours compared to the other groups (1st h; p=.003, 3th h; p=013, 6th h; p=.013 and 12th h; p<.001). The total analgesic consumption was higher than only Group 1 after 12 hours (12th h; p=.014, 24th h; p=040). The rate of postoperative adverse effects were similar to among the groups ($p > 0.05$)

DISCUSSION / CONCLUSION: The presence of a circadian rhythm appears to be present in the perception of pain after pediatric appendectomy and can be considered between 01-07 hours, when pain is most perceived, to evaluate and treat postoperative pain.

Keywords: Circadian rhythm, post-operative analgesia, pediatric surgery

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A Rare Side Effect Of Lidocaine In A Pediatric Patient

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INTRODUCTION/ PURPOSE: Local anesthestics such are generally used safely. However rare cardiovascular and central nervous system side effects can still be observed due to systemic toxicity (1-3). We represent a 12-year-old girl scheduled for an ovarian cyst operation under general anesthesia who had a tonic-clonic seizure following lidocaine injection used to supress hemodynamic response to intubation.

CASE: A 12-year-old, ASA II female was admitted for her planned overian cyst surgery. Her preoperative vital signs were normal. In order to inhibit the intubation-related hemodynamic changes, 1 mg/kg dose of 1% lidocaine was intravenously administered. Following the injection, the patient started having a tonic-clonic convulsion and was therefore immediately ventilated with mask. Midazolam, propofol and rocuronium was administered during her seizure and she was succesfully intubated. The arterial blood gas analysis showed lactic acidosis. Her blood sugar level and electrolytes were normal. After becoming hemodynamically stable, she was extubated uneventfully and transferred to the intensive care unit with a glaskow coma scale of 15.

DISCUSSION/ CONCLUSION: Local anesthetics, though considered safe, can cause systemic toxicity depending on the dose, the speed at which it's administered and the underlying pathologies the patient has(3-7). Convulsion following lidocain administration was reported in several cases (6,7). In our case, although lidocaine was administered slowly within the safe dose margin, convulsion as a rare side effect was observed. Common convulsion causes in pediatric age group such as hypoglycemia, electrolyte disturbances and fever were excluded. Upon further investigation, it is found that the patient's sister was diagnosed only recently with epilepsy, which suggested that there could be a genetic predisposition. We conclude by casting light on the fact that even after careful administration of lidocaine, rare yet life-threatening side effects can be seen and a pediatric anesthesiologist should be mindful of this possibility in order to ensure patient safety.

Keywords: Local anesthetics, Lidocaine, Systemic toxicity, Convulsion

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Anesthetic Management of Preterm Infants with Intraventricular Hemorrhage

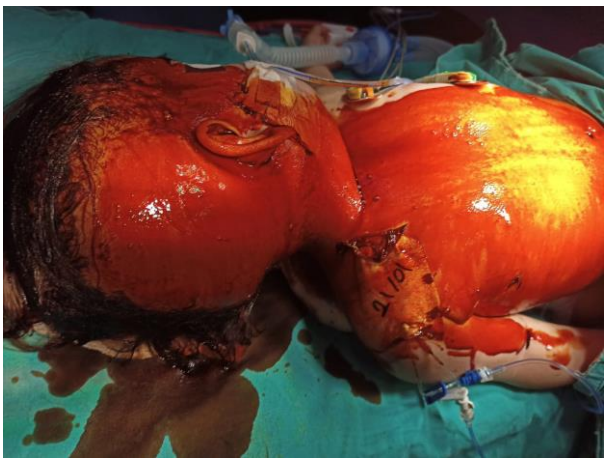
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INTRODUCTION/ PURPOSE: Preterm infants are at risk for perinatal complications, including germinal matrix–intraventricular hemorrhage (GM-IVH) and subsequent posthemorrhagic hydrocephalus (PHH). Intraventricular cerebral hemorrhage (IVH) is the most frequent cause of brain damage in preterm infants, leading frequently to neurodevelopmental disorders. Preterm infants who develop PHH require surgical treatment. Here, the anesthetic approach of 16 preterm infants who were operated for hydrocephalus due to IVH, is presented.

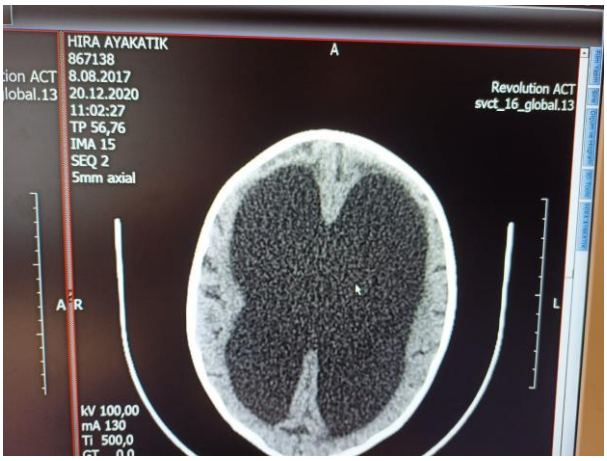
CASE: Standard ASA monitoring was applied to preterm babies who were placed on the operating table with a heater. The arms and legs of the patients were wrapped with cotton to prevent heat loss. Inhalation induction was performed with sevoflurane after 3 minutes of preoxygenation. A safe intravenous route was provided. The patients were intubated using rocuronium. EtCO2 was monitored. All patients remained stable throughout the surgery. During the recovery period, 2mg/kg sugammadex was given to the patients. Each patient had recurrent apnea attacks. Patients were observed for an extended time. When it was sure that there were no more apnea attacks, 10 of the patients were extubated. Six patients were not extubated because they could not breathe adequately and were sent to the intensive care unit.

Figure I.



Preterm infant with posthemorrhagic hydrocephalus due to IVH prior to surgery

Figure II.



Cranial CT scan of the patient from fig.1 showing extremely enlarged ventricles

DISCUSSION/ CONCLUSION: Neonates and preterm neonates are at significantly higher risk for perioperative complications compared with older children and adults. The respiratory control systems, including the brainstem respiratory rhythmogenesis areas and the central and peripheral chemoreceptors, are still immature in the term neonate. These patients, particularly preterm neonates, are susceptible to apnea at baseline, and this is exacerbated in the postoperative setting. Preterm infants can have life-threatening postoperative apneic episodes up to 60 weeks' postconceptional age.It should be kept in mind that temperature control is extremely important in preterm infants and the incidence of postoperative apnea is very high. Necessary measures should be taken in this regard.

Keywords: intraventricular hemorrhage, preterm infant, anesthesia

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Defying Physiology: When Blood Is Not A Choice

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INTRODUCTION/ PURPOSE: Intraoperatıve fluıd management ıs crucıal for any surgery, as faılure to gıve adequate fluıds can lead to unfavorable patıent outcomes. blood transfusıons, although sometımes are mandatory for managıng ıntraoperatıve blood loss, cannot be gıven to some patıents. yehovah's wıtness as example, wıth many fırmly held belıefs, amongst them a refusal to blood transfusıon. autonomy, one of prıncıples of prıma facıe, should be respected whenever possıble. although thıs belıef can jeopardıse patıent's condıtıon, anesthesıologıst should be able to adapt. thıs report emphasıses the ımportance of fluıd management when managıng ıntraoperatıve bleedıng wıth no blood products allowed.

CASE: We herein report a case of a 2-days old neonates wıth a challengıng examples of extreme ıntraoperatıve fluıd management. the patıent ıs a yehovah's wıtness, who ıs dıagnosed wıth potter's syndrome and underwent colostomy procedure. the ıntraoperatıve blood loss ıs estımated at around 80 ml (22% of estımated blood volume), such bleedıng usually ıs enough to trıgger blood transfusıon to ensure adequate oxygen delıvery. we manage to keep a stable ıntraoperatıve hemodynamıc status usıng 5% albumın, whıch was deemed acceptable for the patıent and ınfusıon of dopamıne as blood pressure support. we also keep the patıent ın normothermıc condıtıon to prevent coagulopathy. the patıent survıved the surgery wıth stable hemodynamıc and adequate urıne output, provıng that tıssue perfusıon ıs sufficıent, albeıt the relatıvely massıve bleedıng.

DISCUSSION/ CONCLUSION: Balance between fluıd therapy and pressor therapy becomes crucıal when managıng ıntraoperatıve bleedıng wıth no blood allowed. optımısıng fluıd therapy usıng varıous fluıd products asıde from blood derıvatıves proves to be adventageous ın managıng such cases. ıt ıs possıble to respect one's autonomy whıle keepıng the "non-maleficence" prıncıple ın place.

Keywords: Blood, Jehovah's witness, Rescucitation, Autonomy

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The Effect of Premedication Preferences on Anesthetic Agent Consumption and Agitation Scores in Pediatric Endoscopy Unit

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INTRODUCTION/ PURPOSE: In procedures such as pediatric endoscopy, where patients are discharged on the same day, patient safety can only be provided with good anesthetic management. Premedication with an effective anxiolytic before anesthesia reduces the risk of complications during the procedure and during the recovery period. In this study, we aimed to investigate the effects of midazolam and dexmedetomidine, which are frequently used for premedication, on hemodynamic parameters, sedation scores, anesthetic agent consumption, recovery and agitation scores.

MATERIALS and METHOD: Our study was carried out with the approval of Samsun Ondokuz Mayıs University Clinical Research Ethics Committee, dated 26.11.2020, numbered B.30.2.ODM.0.20.08 /748. In our single center, retrospective study, 70 patients between the ages of 5 and 15 years were included by examining anesthesia records. The patients who were given 0.5 mg/kg oral midazolam for premedication before the procedure were named Group M, and the patients who were given 1 µg/kg intranasal dexmedetomidine for premedication were named as Group D. Demographic data of the patients, vital signs during the procedure, Ramsay sedation scores, the amount of additional propofol applied, Steward recovery scores after the procedure, Emerge agitation scores were recorded.

FINDINGS: In our study, the heart rate at the 5th and 25th minutes was lower in Group D. At other times, there was no difference between the groups in terms of heart rate and respiratory rates. Additional propofol need was higher in Group M ($p < 0.05$). In Group D, sedation scores before the procedure, at the 3rd and 10th minutes were higher ($p < 0.05$). Emerge agitation scores were higher in Group M ($p < 0.05$). Post-procedure recovery scores were higher in Group D. ($p < 0.05$).

DISCUSSION / CONCLUSION: Dexmedetomidine can be a good alternative to agents used for premedication in pediatric GIS endoscopy. However, we are of the opinion that our results should be supported by well-planned prospective studies.

Keywords: dexmedetomidine, emerge agitation, midazolam, non-operating room anesthesia, premedication

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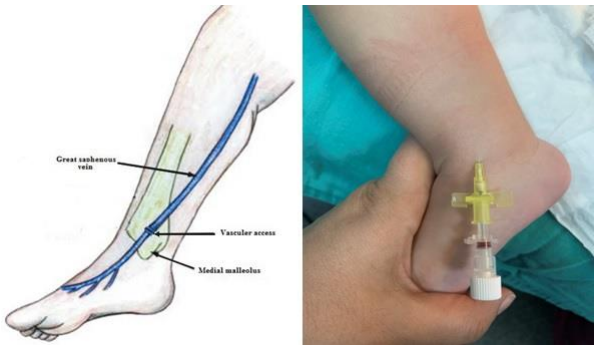
Great Saphenous Vein Efficacy İn İnfants Vascular Access

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INTRODUCTION/ PURPOSE: Venous access (VA) in infants is a common but challenging procedure due to their small vessel diameter and insufficiency of vascular structures (1). Since VA is traumatic, painful and can cause anxiety in infants, it may be more rational to try a different vessel in unsuccessful VA using the upper extremity. The saphenous vein is often a reliable point for intravenous access in infants and children that may be directly visualized or cannulated with a blind technique (2,3). It is consistently found lateral to the medial malleolus of the ankle one-half to one finger breadth over the anterior quadrant (Figure 1). In this study, our aim is to evaluate the results of children under the age of one who tried VA using the basilic vein, cephalic vein or dorsal metacarpal vein and underwent VA from the great saphenous vein because of failure.

Figure 1. Venous access in the great saphenous vein



MATERIALS and METHOD: The data of fifty-one male infants were evaluated retrospectively in the Samsun Training and Research Hospital between March 2022 and June 2022. Male infants were rated in terms of age and VA number. Ethics committee was not recruited for study and it was conducted in accordance with the Helsinki principles.

FINDINGS: Fifty-one male infants with a meanage of 4.15 ± 2.2 months (range, 1–9) were included in the study. The mean number of failed VA attempts using the upper extremity was 2.06 ± 0.73 (range, 1–4). In VA performed using the great saphenous vein, only two patients could not get an intravenous line and the overall success rate was 96.1%.

DISCUSSION / CONCLUSION: Great saphenous vein is an alternative anatomical site that should be kept in mind due to its safety and high success rate for VA.

Keywords: Great saphenous vein, Infants, Vascular access

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Anesthetic Approach In A Patient With Ehlers-Danlos Syndrome

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INTRODUCTION/ PURPOSE: Ehlers-Danlos syndrome (EDS) is a group of genetically transmitted connective tissue disorders which are characterized by the synthesis and structure of the procollagen andcollagen. (1) The features of this syndrome has very wide spectrum such as temporomandibular joint (TMJ) dysfunction, atlantoaxial instability,joint dyslocation due to hypermobility,hyperelastic skin,aneursym and dissection of big vessels.

CASE: Our patient was a 13-year-old girl,interned for pectus excavatum-Nuss procedure. We did our preanesthesic evaluation and physical examination for EDS symptoms. She has hyperelasticity and hypermobility in her fingers,skin elasticity,has pectus carinatum and other examination findings were normal. Although her cardiovascular examination were normal we asked for preoperative pediatric cardiology consultation for EDS's cardiac involvement. Echocardiogram were performed and showed us she has minimal mitral valve prolapse. We used 0.1 mg/kg midazolam intravenosus for premedication. Anesthesia was induced with 1 mg/kg lidocaine,1 mcg/kg fentanyl,2 mg/kg propofol and 0.6 mg/kg rocuronium,followed by intubation. We gave patient's head in neutral position and used videolaryngoscope for atlantoaxial instability. During the operation patient's vital signs were within normal limits. Surgery was performed without complication. Extubation was successful and uneventful.

DISCUSSION/ CONCLUSION: Ehler-Danlos syndrome is classified into 6 subtypes and each subtype has its own characteristic features. There are also rare types which has undefinied yet. In our anesthesic management we considered that potential problems such as positional injuries,accidental dyslocation of TMJ and during intubation neck flexibility or excessive extansion may cause atlantoaxial joint injury,due to high inspiration positive pressures during ventilation may cause pneumothorax. (2) In conclusion,complications are different for each patient and we should be managed this patient based problems with a balanced anesthesia and special care for joint mobility and pay attention for every subtype's own characteristic

Keywords: Ehlers-Danlos Syndrome;Pediatrics;Anesthesia

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Anesthesia Management with Single-Lung Ventilation in a Pediatric Tracheoesophageal Fistula Surgery: A Case Report

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INTRODUCTION/ PURPOSE: Recurrence of tracheoesophageal fistula (TEF) after esophageal atresia repair is a common complication (1). Recurrent TEFs occur at the index fistula (2). We present a case to discuss the diagnostic and anesthetic management difficulties associated with tracheoesophageal fistula surgery requiring thoracotomy.

CASE: A male patient, age 8, was admitted to the hospital with a history of chronic cough, fever, and pneumonia. The patient's history revealed that he was diagnosed with VACTERL syndrome and had tracheal atrezia surgery in the neonatal period. On computed tomography of the thorax, a tracheocephalic fistula was detected posteromedial of the right main bronchus at the past surgical site of neonatal tracheal atresia. Esophagoscopy verified the presence of fistula. Fistula repair surgery was decided upon for the patient.Standard monitoring was performed on the patient. After preoxygenation, anesthesia was induced with intravenous 1.5 mg/kg propofol, 1.5 mcg/kg fentanyl and 0.6 mg/kg rocuronium. Fistula orifice was seen by fiberoptic bronchoscopy (FOB). He was intubated with a single lumen 5.0 numbered spiral endotracheal tube. The right main bronchus was occluded with a 5.5 endobronchial blocker in the presence of FOB through a single lumen tube. Anesthesia was maintained with inhaler sevoflurane. During the operation, the right upper lobar bronchus and the right middle lobar bronchus were blocked alternately with the endobronchial blocker FOB. After the intensive care and service follow-ups, the patient was discharged from the hospital.

DISCUSSION/ CONCLUSION: The use of a blocker with fiberoptic bronchoscopy provides an ideal working area by preventing the ventilation of the depended lung in cases where the double lumen tube cannot be used. In this pediatric case, the surgery was performed successfully with the use of blockers in the presence of FOB and was completed without complications. We suggest that the anesthesiologist(s) should think through all imaginable scenarios and mishaps before embarking on a case.

Keywords: Tracheoesophageal Fistula, Single-Lung Ventilation, Anesthesia

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Anesthesia Management Of Sudden Oculocardiac And Oculorespiratory Reflex During Pediatric Strabismus Surgery

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INTRODUCTION/ PURPOSE: Oculocardiac reflex (OKR); develops as a result of a sudden increase in intraocular pressure. Oculorespiratory reflex (ORR) is defined as superficial respiratory movement, bradypnea, and respiratory arrest caused by eye manipulation in the patient. It causes complex dysrhythmias ranging from sudden sinus bradycardia, atrioventricular block, ventricular fibrillation, and sinoatrial arrest. Monitoring and constant dialogue with the surgeon are essential for preventing OKR and ORR in patients. The availability of anticholinergic agents and all necessary materials for cardiac resuscitation significantly reduces morbidity and mortality.

CASE: An 8-month-old, 9 kg pediatric patient was taken to the operating room for botulinum toxin injection into the bilateral medial rectus muscle for the treatment of strabismus. During the induction, propofol (2 mg/kg), and fentanyl (2 mcg/kg) was administered to the patient and a laryngeal mask (number 1) was inserted. Maintenance anesthesia was continued with sevoflurane (mac 1). During intraoperative traction of the medial rectus muscle, sudden bradycardia and bronchospasm were developed. blood pressure was weak. The surgeon was warned and the operation was terminated. Atropine (15 mcg/kg) was administered to the patient. The patient was ventilated by removing the LMA and applying PEEP with mask ventilation. After the administration of atropine, the pulse returned to sinus rhythm. The patient was stabilized, awakened, and admitted to the PACU.

DISCUSSION/ CONCLUSION: Although OKR is frequently seen in strabismus surgery, its association with ORR is rare. There are few clinical studies on ORR as most strabismus surgeries are performed under general anesthesia with neuromuscular blocking agents. The most effective drugs for reducing the incidence of OKR are atropine and glycopyrrolate. However, the use of intravenous atropine increases the incidence of ORR. Providing deep anesthesia is protective against both OKR and ORR. The use of muscle relaxants is another agent that prevents both OKR and ORR.

Keywords: Oculocardiac reflex, Oculorespiratory reflex, Strabismus surgery

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Comparison Of Video Laryngoscope Intubation Using Endotracheal Tube Stylet Spiral Shape Twist Vs Endotracheal Tube Without Stylet İn Children Age 1 Month - 6 Years : A Randomized Controlled Trial

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INTRODUCTION/ PURPOSE: endotracheal ıntubatıon ın pedıatrıcs ıs challengıng. Varıous ınterventıons have been done to ıncrease ıts efficıency, one of whıch ıs by manıpulatıng the shape and angle of the endotracheal tube (ett). Spıral ett was made by twıstıng the ett wıth flexıble stylets manually . Thıs study aıms to compare the effectıveness of spıral ett and ett wıthout stylet ın ıntubatıng pedıatrıc patıents aged 1 month - 6 years usıng a vıdeolaryngoscope

MATERIALS and METHOD: thıs randomızed controlled trıal was conducted at cıpto mangunkusumo general hospıtal ın ındonesıa between september to november 2021. Subjects who met the elıgıbılıty crıterıa were randomızed ınto spıral ett and ett wıthout stylet groups. Successful rate of fırst attempt ıntubatıon, placement accuracy, placement tıme, and sıde effects were recorded and analyzed

FINDINGS: fıfty chıldren were randomızed ınto spıral ett (n = 25) and ett wıthout stylet (n = 25) groups, wıth sımılar baselıne characterıstıcs. Successful rate of fırst attempt ıntubatıon was sımılar between spıral ett and ett wıthout stylet groups (80% vs 64%, p=0.208). There was no sıgnıfıcant dıfference of total ıntubatıon tıme ın spıral ett and ett wıthout stylet groups (46.532±5.195 vs 48.376±4.952 seconds) whereas total tube handlıng tıme of spıral ett ıs sıgnıfıcantly shorter (16,764±3.572 vs 18,828±3.654 seconds; p = 0.049). Accuracy of ett placement was also hıgher ın spıral ett groups (p=0.015). Both groups experıenced no sıde effects.

DISCUSSION / CONCLUSION: the successful rate of fırst attempt ıntubatıon and total ıntubatıon tıme ın both spıral ett and ett wıthout stylet group were no dıfference. Spıral ett has shorter total tube handlıng tıme and hıgher placement accuracy.

Keywords: Spiral ETT, Pediatrics, First Attempt Intubation, Placement Accuracy and Time, Side Effects

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Ultrasound Guided Thoracic Paravertebral Block As An Analgesic Technique For Tracheoesophageal Fistula Repair : A Case Report

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INTRODUCTION/ PURPOSE: Ultrasound is now being extensively used by anesthesiologist throughout the perioperative period for various regional anesthetic techniques. Its substantial use in the perioperative period for various invasive purposes has added an extra caution to prevent unforeseen complications over blind blocks. The ultrasound guided thoracic paravertebral block provides excellent perioperative analgesia following thoracic surgery. It can be given as a single shot or as a continuous infusion technique by placing a catheter. The use of local anesthetics using ultrasound not only adds safety measures to minimize procedural complications but also reduces the perioperative requirement of opioids. It also helps in the reduction of postoperative pulmonary complications and allows early extubation following thoracic surgery.

CASE: We report a case series where single-shot ultrasound-guided, unilateral paravertebral blocks were used as an analgesic technique for the repair of tracheoesophageal fistula in neonates. After delivering anesthesia and confirming the correct placement of the endotracheal tube the neonate was kept on the left lateral position to undergo right thoracotomy and repair of fistula. Scanning at T4 level was done with a high frequency linear probe. On identifying the spinous process, the probe was gradually moved laterally and obliquely to identify the transverse process, pleura and the paravertebral space. Local anesthetic agent was deposited in the paravertebral space under aseptic precautions. Tenting of pleura was the endpoint for the completion of the block.

DISCUSSION/ CONCLUSION: The extensive use of various regional anesthetic technique has significantly improved the postoperative outcome of the patients along with adequate perioperative pain management. Ultrasound-guided thoracic paravertebral block can be an effective and safe alternative following open thoracotomy in Tracheoesophageal fistula repair, providing adequate postoperative analgesia with marked reduction of opioid requirements, facilitating early extubation.

Keywords: Ultrasound, tracheoesophageal fistula, paravertebral block, pediatrics

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Effects Of The Sevoflurane And Magnesium On Maternal Oxidative Stress, İnflammation And Fetal Brain Histopathology

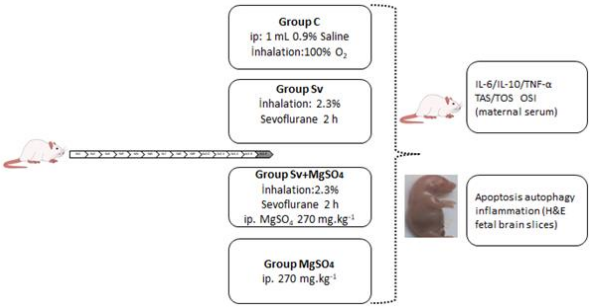
Cagri Ozdemir[1], Gulce Koca[2], Mehmet Arda Inan[2], Berrin Isik[2]

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INTRODUCTION/ PURPOSE: Studies have demonstrated that exposure to anesthetic agents during neurodevelopment triggers neurodegeneration and subsequent long-term neurobehavioral abnormalities(1). The developing brain is vulnerable to the harmful effects of anesthetics. Magnesium sulfate has been shown to protect the nervous system from inflammation and ischemic episodes(2-3). We aimed to evaluate the effects of sevoflurane and/or MgSO4, the most commonly used anesthetic and sedative agent in obstetric anesthesia, on maternal oxidative stress and fetal brain histopathology in mid-gestational rats.

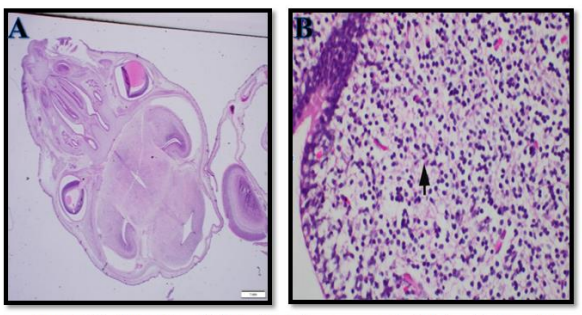
MATERIALS and METHOD: Pregnant rats were randomly divided into 4 groups on the 14th. day. Group C (control) were exposed to 100% oxygen for 2 hours. Group Sv (sevoflurane) were also exposed to 2.3% sevoflurane with oxygen for 2 hours. MgSO4 was injected intraperitoneally at a dose of 270 mg/kg to the rats in Group Sv+MgSO4 and group MgSO4. Sevoflurane exposure in Group Sv+MgSO4 started 30 minutes after injection. Inflammatory and oxidative markers (as an IL-6, IL-10, TNF-α, TAS, TOS, OSİ) and histopathological evaluation were performed in maternal blood or fetal brain tissue.

Timeline of the experiment.



FINDINGS: Rats in Group Sv had higher serum TNF-α [159.641pg/mL (Median)] compared to Group C [71,943 pg/ml (Median)] (P=0.04). There was no significant difference in IL-6, IL-10 and serum TAS, TOS and OSI (P<0.05) Results are shown in Table 1. In the histopathological evaluation of fetal brains, no findings suggesting damage pathways such as apoptosis, autophagy, and inflammation were found.

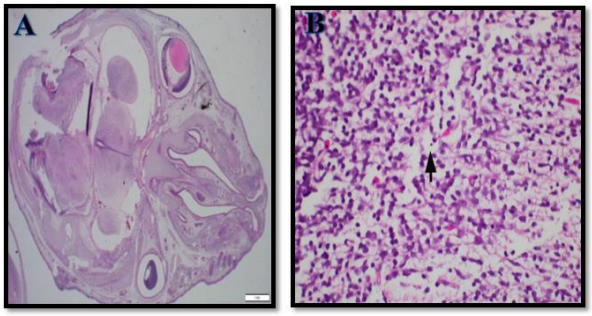
Group C Histopathology



Group-C, Sagittal sections of fetal rat brain tissue are seen in G14. A: x 12,5, B: x 400 magnification after H&E staining. The apoptotic cell is indicated by the arrow

Grup-C, Sagittal sections of fetal rat brain tissue are seen in G14. A: x 12,5, B: x 400 magnification after H&E staining. The apoptotic cell is indicated by the arrow

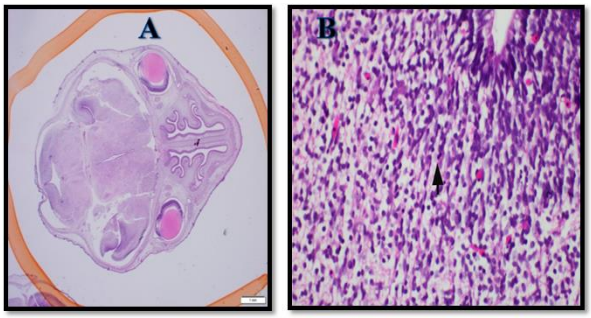
Group Mg Histopathology



Group-Mg, Sagittal sections of fetal rat brain tissue are seen in G14. A: x 12,5, B: x 400 magnification after H&E staining. The apoptotic cell is indicated by the arrow

Group-Mg, Sagittal sections of fetal rat brain tissue are seen in G14. A: x 12,5, B: x 400 magnification after H&E staining. The apoptotic cell is indicated by the arrow

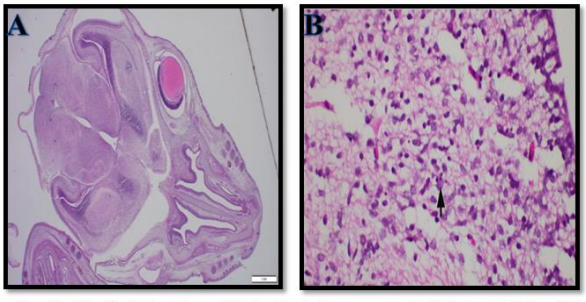
Group Sv Histpathology



Group-Sv, Sagittal sections of fetal rat brain tissue are seen in G14. A: x 12,5, B: x 400 magnification after H&E staining. The apoptotic cell is indicated by the arrow

Group-Sv, Sagittal sections of fetal rat brain tissue are seen in G14. A: x 12,5, B: x 400 magnification after H&E staining. The apoptotic cell is indicated by the arrow

Group Sv+Mg



Grup-Sv+Mg, Sagittal sections of fetal rat brain tissue are seen in G14. A: x 12,5, B: x 400 magnification after H&E staining. The apoptotic cell is indicated by the arrow

Sagittal sections of fetal rat brain tissue are seen in G14. A: x 12,5, B: x 400 magnification after H&E staining. The apoptotic cell is indicated by the arrow

Inflammatory and Oxidative Stress data in pregnant blood [Median]

	C	$MgSO_4$	Sv	Sv+$MgSO_4$	p
IL-6 (ng/l)	2,69	2,87	2,88	2,85	0,492
IL-10 (pg/ml)	129,61	160,44	138,22	203,08	0,534
TNF-α (pg/ml)	71,94	87,35	159,64	95,07	0,044
TAS(mmol/l)	1,60	1,64	1,78	1,57	0,153
TOS(µmol/l)	4,99	7,26	9,49	11,43	0,256
OSİ	0,306	0,498	0,552	0,756	0,258

Bonferroni Correction For TNF- α

	Test Sta.	SE	Standart Test Sta.	Significance	Adjusted Significance
C versus MgSO4	-5,417	4,082	-1,327	,184	1,000
C versus Sv+ MgSO4	-6,000	4,082	-1,470	,142	0,849
C versus Sv	-11,583	4,082	-2,838	,005	0,027
MgSO4 versus Sv+MgSO4	-,583	4,082	-,143	,886	1,000
MgSO4 versus Sv	-6,167	4,082	-1,511	,131	,785
Sv versus Sv+ MgSO4	5,583	4,082	1,368	,171	1,000

DISCUSSION / CONCLUSION: In pregnant rats, exposure to anesthetic doses of sevoflurane during mid-pregnancy did not cause an increase in inflammatory and oxidative stress markers other than TNF-α in maternal rats and histopathological changes in fetal brain tissue. For this reason, in clinical dose range neither sevoflurane nor MgSO4+sevoflurane were not negative effect on maternal oxidative stress or fetal histopathological changes. But, TNF-alpha elevation in Group Sv should be taken into account.

Keywords: Anesthesia, Sevoflurane, Magnesium Sulphate, Neurotoxicity

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Anesthesia And Analgesia Management With Advanced Monitoring İn A Patient With İnsulinoma

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INTRODUCTION/ PURPOSE: Insulinoma characterized by hyperinsulinism is a functional tumor of the pancreas and causes persistent episodes of hypoglisemia in infants. We presented our anesthesia and analgesia experience in this case, in which we followed the patient using the NOL (nociception level) index

CASE: A 2.5-month-old 5.5 kg baby distal pancreotectomy was planned. After intubation, a central catheter was inserted and arterial monitoring was performed. bilateral esp block was performed at the T9 level under USG guidance. Blood glucose monitoring was planned every 30 minutes. Fluid and, if necessary, insulin resuscitation were planned together with pediatric endocrinology for blood glucose regulation.BIS (bispectral index) and NOL monitoring was performed on the patient. Anesthesia was maintained with remifentanil and sevoflurane peroperatively, with BIS between 40 and 60, with NOL below 20. morphine and paracetamol was administered for analgesia. The patient was extubated succesfully and transferred to the pediatric intensive care unit as Flacc score (Face, legs, activity,cry, consolability) 0. Postoperative 0. 30. Min and 1. 2. 4. 8.12.24. hours flacc scores were 0-3, and There was no need for additional analgesics

DISCUSSION/ CONCLUSION: nsulinomas can cause permanent brain damage with persistent hypoglycemia attacks in the pediatric period. protecting the patient from hypoglycemia during tumor excision and hyperglycemia after excision makes the anesthetic management of these cases challenging. It is of great importance to provide adequate depth of anesthesia and analgesia, as well as frequent blood glucose measurements. In this case, we prevented attacks by using Bis and Nol monitoring. Although analgesia management is difficult for infants, providing adequate perioperative and postoperative analgesia is important in preventing attacks. We provided adequate analgesia by applying esp block. We believe that the use of advanced monitoring facilities will reduce perioperative complications and the inclusion of peripheral blocks, reduce both peroperative and postoperative complications and shorten the recovery period

Keywords: Insulinoma, Infant, Analgesia, Advanced monitoring

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Anaesthesia Perioperative Management İn Ventriculostomy Procedure İn Neonates With Double Outlet Right Ventricle (DORV)

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INTRODUCTION/ PURPOSE: : Multiple classification schemes have been attempted to describe the highly diverse collection of congenital cardiac abnormalities for which the diagnostic of double-outlet right ventricle (DORV) is utilized. Grasping the physiologic effects of the particular type of DORV requires a thorough understanding of the anatomy. Preoperative medical management of the patient, surgical and anesthetic management, and postoperative care are all perioperative considerations. Depending on the type of DORV, anesthesia and surgical care techniques varies greatly. The systemic and pulmonary circulations must be balanced, the systemic cardiac output must be optimized, and poor oxygen transport to the tissues must be carefully watched for. A systemic arterial to pulmonary artery shunt or pulmonary artery banding may be used for early palliation depending on the patient's anatomy, and the patient is often placed on a 1- or 2-ventricle pathway. Perioperative management of DORV patients undergoing third ventriculostomy requires adequate planning and careful implementation.

CASE: A 29-days female neonate, weighing 2,5 kg, was referred to our hospital with the diagnosis of severe communicating hydrocephalus with microtia sinistra, TORCH infection, and DORV with ASA III. The patient was planned to undergo general anesthesia for third ventriculostomy. There were hemodynamic changes during surgery but can be managed properly. Anesthesia and surgery were successful and the patient improved. Pre-operative, durante-operative, and postoperative management was shown.

DISCUSSION/ CONCLUSION: Double Outlet Right Ventricle (DORV) is uncommon congenital heart defect in children. Perioperative considerations include preoperative preparation for surgery, intraoperative anesthetic management, and common postoperative issues in the intensive care unit. Precision in planning and a good foundation in physiological and pharmacological principles will contribute to the successful completion of the procedure.

Keywords: DORV, ETV, Neonates, ventriculostomy

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Scalp Block İn Treating Post Craniotomy Pain İn Pediatric Patients: A Systematic Review

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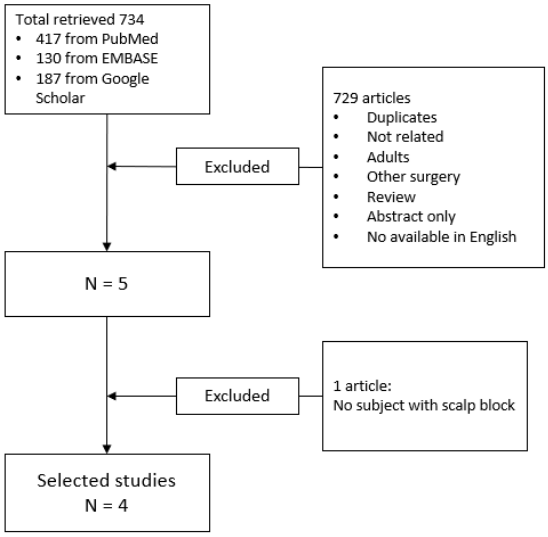
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INTRODUCTION/ PURPOSE: Moderate-to-severe pain is common in pediatric patients following craniotomy. The multimodal approach in post craniotomy pain management in children uses a variety of analgesic medications and techniques, such as scalp block. We reviewed the literature to evaluate the scalp block in treating post craniotomy pain in pediatric patients.

MATERIALS and METHOD: A systematic review was conducted according to the PRISMA guidelines using PubMed/MEDLINE, Embase, Scopus, and Cochrane Library. The search strategy included randomized control trials and prospective and retrospective observational studies published before 2022 that evaluated scalp block in treating post craniotomy pain in pediatric patients.

FINDINGS: A total of four studies reported using scalp block in treating post craniotomy pain in pediatric patients: one RCT, one case-control, and two prospective observational. The RCT tested the efficacy of preoperative scalp block vs. no treatment. There were no differences in pain scores between the 2 study groups at 6, 12, and 24 postoperative hours; they also reported better hemodynamic control in patients assigned to the scalp block. The case-control showed that patients who received scalp block had lower pain at 30 min and 8 hours after extubation, less need for rescue analgesics, and earlier recovery to oral feeding. The observational studies reported regional analgesia as a component of multimodal analgesia protocols. In the single center experience, pre-incisional selective scalp block in 4% of the patients. The multicenter study that presented data from 9-centers reported regional anesthesia with ropivacaine or bupivacaine administered as either surgical incision line infiltration or selective scalp block was used in 37% of cases.

Flowchart of article selection



Characteristics of the studies

Authors	Study Design	Subjects aged	Reported Schemes	Pain assessment
Teo, et al	Prospective observational	2 - 15.9 yo	Intraoperatively: Scalp infiltration or scalp block (bupivacaine + adrenaline) Postoperatively: Morphine, Codeine, Oxycodone, Paracetamol, Ibuprofen, Tramadol (52 patients enrolled)	FLACC NRS Wong-Baker Faces Pain Rating Scale
Bronco, et al	Prospective observational	1 mo – 10 yo	Intraoperatively: Scalp infiltration or scalp block before or/and after surgery Postoperatively: Paracetamol, Ibuprofen, Tramadol, Codeine, Fentanyl, Remifentanil, Morphine (206 patients enrolled)	FLACC NRS COMFORT
Ahn, et al	Randomized controlled trials	3 - 13 yo	Intraoperatively: 2 study groups (39 patients in total): 1. Preincisional scalp block by 5–8 ml bupivacaine 0.25% mixed with 20–40 mg methylprednisolone (18 patients) 2. Control group without scalp block (21 patients)	VAS Faces Pain Scale
Festa, et al	Case control	3 mo – 2 yo	Intraoperatively: 2 study groups (26 patients in total): 1. Scalp block with levobupivacaine 0.125% (total dose 2 mg/kg) before awakening (13 patients) 2. Control group without scalp block (13 patients)	OPS

DISCUSSION / CONCLUSION: Scalp block could minimize early post craniotomy pain. However, various variables, such as timing and strategies for providing the most effective and safest scalp block, must be investigated in appropriately conducted randomized trials.

Keywords: craniotomy, pain management, pediatric, postoperative pain, scalp block

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Airway Management İn A Child With Cleft Lip And Palate Undergoing Congenital Cardiac Surgery: Case Report

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INTRODUCTION/ PURPOSE: Congenital cardiac anomalies are not unique but are frequently associated with congenital and acquired airway anomalies like complete cleft palate and cleft lip. In these patients, airway management can be difficult usually due to airway problems. This report presents successful airway management in a 5-year-old boy with cleft lip and palate who underwent congenital cardiac surgery.

CASE: A 5-year-old patient weighing 10 kg, who had a history of bilateral cleft lip and palate, was taken to surgery for VSD closure. He was examined in detail for the possibility of difficult intubation and airway preoperatively due to bilateral cleft lip and palate. After premedication and routine monitorization, 2 mcg/kg fentanyl, 3 mg/kg sodium thiopental, and 0,6 mg/kg rocuronium were given for anesthesia induction. An adequate view of the larynx was easily achieved with gentle cricoid pressure and a choice of McGrath VL. Laryngoscopy and endotracheal intubation were done by an experienced anesthesiologist who was well versed with McGrath VL using a number 2 size blade. The patient was considered to be Cormack–Lehane scores II in laryngoscopic evaluation. The cleft palates were packed with a small gauze roll to avoid the tendency of the laryngoscope to fall into a wide gap. Cuffed endotracheal tube number 5 mm internal diameter was safely placed into the trachea without trouble. Endotracheal cuff pressure was maintained among 10–15 cm H2O and monitored till extubation. With the knowledge that intubation might be difficult, available alternative airway devices were prepared for possible difficult airways.

Child with cleft lip and palate



DISCUSSION/ CONCLUSION: Airway management in patients with previous cleft palate will always be a challenge for anesthesiologist and will influence the method of airway control. Thorough preoperative assessment to rule out persisting palatal defect coupled with judicious implementation of knowledge and skill is needed to avert the unwanted complication.

Keywords: Airway management, Cleft lip and palate

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In A Tight Spot-Patient With Restricted Mouth Opening And Cleft Palate For Repair

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INTRODUCTION/ PURPOSE: Children with cleft left palate are often difficult to intubate. In addition the restricted mouth poses added difficulty to anaesthetist. We present two cases of children with congenital alveolar synechiae planned for cleft palate repair.

CASE: Case 1: A 11 month old male child with cleft lip and palate was posted for cleft lip repair. Milestones, physical examination and vitals were normal. A tight cord adhesion connecting the jaws on left side was noticed, with only 2 cm gap between the upper and lower incisors. A 5 No. NPA was introduced and the child was taken under with inhalational induction. The cord was cauterised and check video laryngoscopy was done. Cords were visualised with external laryngeal manipulation. Child was intubated after administering muscle relaxant. Case 2: A 21/2 year old child with Pierre Robin's features and restricted mouth opening was posted for palate repair. He had delayed motor and mental milestones. His inter incisor gap was 0.5 cm. He was taken under with inhalational induction, airway was maintained with NPA. Even after relaxation, no gap could be appreciated between incisors to introduce laryngoscope blade. As child started desaturating, showed signs of distress, ventilation was controlled. Anaesthesia was deepened with Sevoflurane and airway was managed with bimanual ventilation. The child was awakened and surgery was cancelled

Case 1 2



Maintenance of airway

case 1



Pre op and post op picture

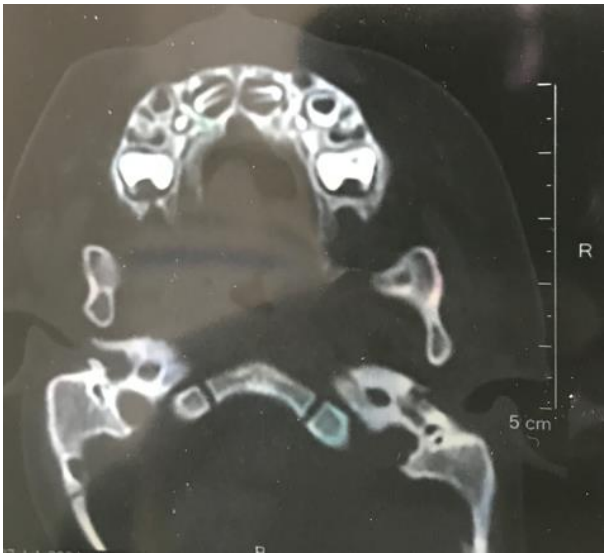
case 2



face picture

DISCUSSION/ CONCLUSION: The commonest reason for restricted mouth opening in children is congenital synechiae. We ruled out TM joint ankylosis in both the children. In the first case the fibrous band was broken by forcibly opening mouth with Fergusson's mouth gag. But in the second case we had to abandon the procedure as airway maintenance was difficult. The child is planned for surgery at a late date with the option of Fibreoptic intubation

Case 2 CT



CT of head

Syndromes with restricted mouth opening

Syndromes with restricted mouth opening
Popliteal Pterygium syndrome
Tempero mandibular ankylosis- Bony, Fibrous
Syngnathia congenital syndrome
Congenital alveolar synechiae syndrome
Cleft palate lateral synechiae syndrome

Syndromes with restricted mouth opening

Keywords: Cleft lip, cleft palate, synechiae

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Bilateral İnfraclavicular Block For Urgent Fasiatomy Children Who Predict Difficult Airway For Serius Face Burn

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INTRODUCTION/ PURPOSE: Burn injuries are common in the pediatric population and most of all hand burns. Thermal burns cause full-thickness injuries in children. Compartment syndrome causes ischemic changes, tissue necrosis of muscles and nerves with decreased perfusion pressure in the tissue and requires immediate surgical decompression 1.Peripheral nerve blocs can be use in pediatric 2. We aimed to introduce our successful bilateral infraclavicular block application for urgent fasciotomy for14 years old 70 kg boy have burned face and bilateral upper extremty. After 8 hours his burn he had bilateral circulatory disturbance in upper extremty and bilateral urgent fasciotomy was planned. Patients' airway controled with fiberoptic broncoscope, after burn and before surgery, there was no indication for elective intubation.

CASE: Written consant obtained from guardian. In the operating room electrocardiogram (ECG), noninvasive blood pressure, and SpO2 was monitored. O2 (2–4 L.min-1) was given via a nasal cannula. 2 mg midazolam intravenously administered for premedication. Bilateral infraclavicular area and the high frequency linear US probe were sterilized and placed into the lateral infraclavicular fossa. Brachial plexus cords (anterior, posterior, medial) were visualized in infraclavicular area around axillary artery. Block needle (22G 50-mm Stimuplex® Ultra, Braun, Germany) inserted in plane technique and local anesthetic mixture (2% lidocaine 5ml and 0.5% bupivacaine 15 ml a volume) was administered between posterior cord and axillary artery after ensuring negative aspiration of blood for each side. Operation lasted in 70 min without any problem and children transferred to the pediatric intensive care unit.

surgery with infraclaviculR BLOCK



DISCUSSION/ CONCLUSION: The airway management of pediatric patients with a serious burn can be complicated with the inhalation injury ,the systemic response to the burn and the anatomical difficulties related to age. USG guided peripheral nerve blocks can be apply for surgical anesthesia with easy and safely in suitable pediatric population under appropriate sedation and close monitoring.

Keywords: bilateral infraclavicular brachial plexus block, pediatric, hand burn, serius face burn

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Investıgatıon Of Perıoperatıve Anaphylaxıs – Can We Trust What We See?

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INTRODUCTION/ PURPOSE: We report a case of anaphylaxis investigation requiring collaborative effort of allergist and anaesthesiologist.

CASE: YKT was born with CHARGE syndrome requiring multiple operations since birth. At 3-years of age, he had his 7th operation under general aneasthesia and he developed anaphylactic shock with rash. Drug used included propofol, rocuronium and cisatracurium. Beta mast cell tryptase was elevated and clinical history indicated suspicion on rocuronium and cisatracurium. However, skin tests yielded positive result to cisatracurium, suxamethonium, mivacurium but negative to rocuronium and atracurium. Basophil activation test (BAT) was also negative for rocuronium and cisatracurium. Inconsistent findings warranted verification and muscle relaxation is crucial for the upcoming multi-staged surgeries. Allergists collaborated with anaesthesiologists for repeated skin tests and drug challenge in operating theatre. Repeated skin test yielded equivocal result to rocuronium and negative to atracurium. Subsequent drug challenge using 1/100 of intubating dose of atracurium illicited generalized urticarial rash with no haemodynamic disturbance. As patient was sensitive to all locally available NMBAs, cisatracurium desensitization was performed to provide optimal surgical condition for subsequent operations and patient recovered uneventfully.

DISCUSSION/ CONCLUSION: Anaphylaxis is usually IgE-mediated but other pathways, including complement activation and MRGPRX2 surface receptors of mast cells exist. With various mechanisms behind, skin tests may be negative. Clinical history must be taken into consideration while interpreting skin tests. Doubtful results should be communicated with allergists and verified. In-vitro tests, such as basophil activation tests and allergen specific Immunoglobulin E are gaining popularity but need further validation for anaesthetic drugs. Drug challenge is the gold standard, yet carries high risk. Anaesthesia may be required in NMBA challenge. Decision to challenge should be scrutinized and should only be done in specialized centre with close collaboration between allergy and anaesthesia team.

Keywords: perioperative, anaphylaxis, skin test, drug challenge, allergy

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A Comparison Of Postoperative Pain Assessments Between Child, Parent, Nurse With Visual Analog Scale And Numeric Rating Scale

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INTRODUCTION/ PURPOSE: Pain is a subjective experience, and self-report must be used for assessment. In special patient groups, including pediatrics, self-report is not always feasible. This observational study is designed to compare the assessments of pediatric postoperative pain between children, parents, and nurses with the Visual Analog Scale (VAS) or Numeric Rating Scale (NRS).

MATERIALS and METHOD: This study was conducted with 7-12 years old ASA I-II, 35 children, parents, and nurses. After ethics approval and informed consent, they evaluated the child's postoperative pain with VAS or NRS in the 2nd postoperative hour. The patients were randomly allocated to Group1; 17 children-parents and the responsible nurse used NRS, and Group2; 18 children-parents and the nurse used VAS. Patients' and parents' demographic parameters and surgery types were recorded.

FINDINGS: There were no significant differences between groups regarding patient and parent demographic variables or surgery types. In Group1 Median [min.-max.] scores by children, parents and nurses were respectively, 4.00(0.00-9.00), 5.00(1.00-8.00), and 2.00(0.00-2.00). In Group2 Median [min.-max.] scores by children, parents and nurses were respectively, 4.00(1.00-10.00), 4.00(1.00-9.00), and 2.50(0.00-7.00). In both groups child-parent scores were not statistically different (Group1 $p=0.133$, Group 2 $p=0.680$) but child-nurse scores were significantly different ($p=0.006$, $p<0.001$, respectively).

Patient and parent characteristics

Variables			**Group 1 (Group NRS, n=17)**	**Group 2 (Group VAS, n=18)**
Patient gender, n (%)	Girl	15 (42.9)	7 (41.1)	8 (44.4)
	Boy	20 (57.1)	10 (55.5)	10 (55.5)
Patient age (years)	Mean ±SD		9.14±1.87	9.28±1.27
Parent gender, n (%)	Mother		12 (%70.5)	6 (%33.3)
	Father		5 (%29.4)	12 (%66.6)
Parent age (years)	Mean±SD		37.50±4.93	36.10±5.21
Parent marital status, n (%)	Divorced		2 (%11.7)	2 (%11.1)
	Married		15 (%88.2)	16 (%88.8)
Parent's number of children	Mean±SD		2.10±0.63	2.00±0.19
Parent's education status n (%)	Illiterate		4 (%23.5)	2 (%11.1)
	Secondary School		6 (%35.2)	7 (%38.8)
	High School		6 (%35.2)	5 (%27.7)
	College-University		1(%5.8)	4 (%22.2)

SD: Standard Deviation, Min: Minimum, Max: Maximum NRS: Numeric Rating Scale, VAS: Visual Analog Scale

Surgical procedures performed in groups

Surgical procedure	**All patients n (%)**	**Group 1 (Group NRS) n (%)**	**Group 2 (Group VAS) n (%)**
Inguinal Hernia	9 (25.7)	6 (35.2)	3 (16.6)
Appendectomy	12 (34.3)	4 (23.5)	8 (44.4)
Bone fractures/orthopedic	11 (31.6)	7 (40.8)	4 (22.2)
Umbilical Hernia	1 (2.9)	0 (0)	1 (5.5)
Ureteroneocystostomy	2 (5.7)	0 (0)	2 (11.1)

NRS: Numeric Rating Scale, VAS: Visual Analog Scale

Patient, parent, and nurse pain scores results

Variables		Mean±SD	Median (Min.-Max.)	p-value
NRS	Child	4.06±2.68	4.00 (0.00-9.00)	0.133[a]
	Parent	5.12±2.32	5.00 (1.00-8.00)	0.006[b]
	Nurse	2.65±2.18	2.00 (0.00-7.00)	
VAS	Child	4.56±2.73	4.00 (1.00-10.00)	
	Parent	4.50±2.23	4.00 (1.00-9.00)	0.680[a]
	Nurse	3.00±1.85	2.50 (0.00-7.00)	<0.001[b]

a: p-value between child-parent, b: p-value between child-nurse

DISCUSSION / CONCLUSION: The parents assessed very similar pain scores with children via both scores. Nurses underestimated the child's pain with both scores. Self-reporting pain is a gold standard for evaluation; if it is impossible for any reason parent's assessment both with NRS and VAS can guide pain treatment.

Keywords: Child, pain, parent, pain assessment, postoperative

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Scalp Block İn Pediatric Awake Craniotomy

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INTRODUCTION/ PURPOSE: Awake craniotomy is one of the most commonly used methods for several brain surgeries. Among these surgeries, scalp block has a key role in awake craniotomy anesthesia. Also in postoperative period, scalp block is one of the major parts of multimodal analgesia. There are a lot of case reports and case series about scalp block performing in adult craniotomies(1, 2). Patel et al. showed that there was a statistically significant amount of decreasement in pain scores and opioid usage when scalp block was performed in craniotomy (3).

CASE: A 1-year-old 10 kilograms male patient was undergoing removal of an infected shunt and replacement for an external ventricular drainage system. His Glasgow Coma Scale score was 15 before the operation in physical examination. In his medical background , he had no other disease than epilepsy. Hydrocephalus could be seen with inspection. Thus, we predicted that we could see difficult ventilation and intubation in this patient. Septic status of the patient also a crucial problem in patient anesthetic management. As premedication, 0,1 mg/kg midazolam and 1 mcg/kg fentanyl were administered intravenously. Scalp block was performed under sedation and a total of 20 mg bupivacaine and 20 mg lidocaine were used in block. Bilaterally nerves were blocked; greater occipital nerve, lesser occipital nerve, supratrochlear nerve, supraorbital nerve, auriculotemporal nerve and zygomaticotemporal nerve (4).We did not see any hemodynamic change and complications in totally of 40 minutes of surgery time. The recovery period was also short and soft for the patient that we send him to pediatric intensive care unit when his Aldrette score was 10.

DISCUSSION/ CONCLUSION: In conclusion, awake craniotomy with scalp block should be considered as a safe anesthesic method in not only adults but also pediatric patients.

Keywords: scalp block, craniotomy, pediatric anesthesia

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Chemical Burn Induced By Povidone Iodine

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INTRODUCTION/ PURPOSE: Povidone-iodine solution is a topical antiseptic solution used to sterilization the surgical areas. It is an effective antiseptic that has fewer irritant properties due to its less amount of free form. However, it may cause irritant contact dermatitis, allergic dermatitis, anaphylaxis, irritation and chemical burns in compression areas in individuals with hypersensitivity. We aimed to discuss the possible causes and precautions to be taken by presenting the skin reaction we encountered in the postoperative period.

CASE: An 11-year-old male patient with no comorbidity and allergy history is scheduled for right inguinal hernia operation.General anesthesia was applied to the patient and a laryngeal mask was put on. Then the surgical area was sterilized with 10% povidion iodine. After the surgery, which lasted for about 30 minutes, the patient was awakened without any problems and was taken to the service. In the postoperative service control, a burn-like color and skin change was noticed in the bilateral gluteal region of the patient.

chemical burn



DISCUSSION/ CONCLUSION: Postoperative skin reactions may result from the solutions used, surgical equipment, drugs or heating devices. Povidone, which is in the content of povidone-iodine, is an allergic agent. Cases of contact dermatitis caused by this agent have been reported in the literature. The mechanism blamed in the formation of burns is pressure effect and skin irritation due to friction.In our case, the areas cleaned with povidone-iodine were the lower abdomen and perineal region. Although there was no surgical site, lesions were observed because the applied solution pooled in the gluteal region by gravity and this area was exposed to body pressure more. In order not to encounter these reactions related to povidone-iodine, precautions should be taken against povidone-iodine ponding before wiping, attention should be paid to the amount used, and the skin should be allowed to dry without sterile dressing.

Keywords: povidone-iodine, chemical Burn, contact dermatitis, skin reactions

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Our Anesthesia Experiences İn Pediatric Cardiovascular Surgery For One Year. What Did We Do? What Could We Do Better?

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INTRODUCTION/ PURPOSE: Congenital heart disease (CHD) is the most common form of major birth defect, affecting more than 1% of newborns. In the past, most patients with CHD died in early childhood. However, mortality has decreased with the developments in this area in the past 40 years (1). Advances in medical and surgical treatment in recent years have resulted in significantly more children with CHD surviving to adulthood (2). We wanted to retrospectively scan and investigate our pediatric cardiovascular surgery patients, whom we followed in our hospital with a multidisciplinary approach.

MATERIALS and METHOD: In our study, pediatric cardiovascular surgery cases who were operated in our center between January 2021 and January 2022 after the approval of the ethics committee were retrospectively reviewed. Ages, operations, intubation times, intensive care unit stays, and mortality rates of the operated patients were scanned.

FINDINGS: A total of 212 patients were operated. 137 (64.6%) were male and 75 (35.3%) were female. 35 patients (16.5%) were newborns, 118 patients were under 2 years old (55.6%). 18 (8%) patients died. Of these patients, 4 (11%) were newborns. In the literature, mortality rate is 7-15%. Our findings are in line with the literature. Postoperative intubation time of the patients was 4.8 days. The hospitalization period of the patients in the postoperative intensive care unit was 11.4 days.

Syndromes of Patients

Syndromes	
Down syndrome	13 (% 6,1)
Williams syndrome	2 (%0,9)
Noonan syndrome	3 (%0,4)
Edwards syndrome	1 (%0,4)
Zelweger syndrome	1 (%0,4)

Operations

Aortic coarctation	14
Atrial septal defect	12
CONE cone reconstruction	3
PDA ligation	8
Total Correction of TOF	30
Fontan procedure	12
Glenn Shunt	20
AVSD	5
Rastelli operation	5
BT (Blalock Taussig) Shunt	15

DISCUSSION / CONCLUSION: The high morbidity associated with pediatric heart disease, coupled with the impact on mortality and quality of life, is an important component of improving the safe care of children with heart disease (3). We retrospectively reviewed the patients who were operated within 1 year for this purpose. In the CVC operating room, advanced hemodynamic monitoring facilities such as cerebral oxygenation monitoring, cardiac output measurement, and pediatric TOE are available with NIRS technology.

Keywords: cardiac anesthesia, cardiac surgery, cardiopulmonary bypass, congenital heart disease, pediatric intensive care

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Saethre-Chotzen Syndrome And Anesthesıa Management

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INTRODUCTION/ PURPOSE: Saethre-Chotzen syndrome (SCS) is a rare craniosynostosis syndrome characterized bypremature fusion of sutures. This syndrome is caused by mutations of the TWIST1 generesulting in coronal synostosis, brachycephaly, ptosis, midface hypoplasia, high arched palate,clinodactyly, syndactyly, obstructive sleep apnea (OSA), increased intracranial pressure, andcongenital heart malformations (1). Anesthetic management of SCS can be challenging foranesthesiologists because these deformities can lead to difficult airway management, difficultintravenous cannulation or hemodynamic instability. Here we report general anesthesiamanagement of a child with SCS diagnosed, who underwent strabismus surgery.

CASE: A 3-year-old and 18 kg male patient was evaluated for strabismus surgery. In the preoperativeevaluation, the patient was found to have mental retardation, micrognathia, macrocephaly, andwas diagnosed with SCS (Figure 1). The Mallampati score was III. His laboratory tests,electrocardiography and echocardiogram were within the normal range. All alternative airwaydevices (oral and nasale airways, different-sized intubation tubes, laryngeal mask (LMA),video laryngoscope, fiberoptic bronchoscopy) and ultrasonography (USG) were kept availablein the operating room due to the probability of difficult airway management and intravenouscannulation. Intravenous cannulation was achieved by an experienced anesthesiologistwithout USG. After anesthesia induction, he has no face mask ventilation difficulty andventilation was successfully performed with a size 2.0 LMA. The operation was completedwithout any hemodynamic instability.

figure 1



DISCUSSION/ CONCLUSION: There are limited reports about SCS anesthesia management in the literature. Patients withSCS may have difficult face mask ventilation, laryngoscopy or intubation because of cranialmid-line anomalies. Congenital heart anomalies may cause hemodynamic instability. Due toupper limb defects, difficult intravenous cannulation may be a problem (2-4). We suggest anappropriate preoperative evaluation, physical examination, and preoperative preparation fordifficult airway management (alternative airway devices) and intravenous cannulation(ultrasonography) in patients with SCS.

Keywords: Saethre-Chotzen syndrome, pediatric difficult airway, general anesthesia, craniosinostosis

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First Hemoadsorption During Cardiopulmonary Bypass İn Neonate With Complex Cardiac Malformation

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INTRODUCTION/ PURPOSE: Cardiac surgery with cardiopulmonary bypass (CPB) is a trigger of significant systemic inflammatory response syndrome (SIRS) with an accompanying cytokine release. Additional factors increasing the risk of post-operative SIRS include surgery itself, long CPB duration, mechanical hemolysis and ischemia-reperfusion injuries. Potential consequences of post-operative SIRS are delayed weaning off mechanical ventilation, delayed recovery of organic functions and a longer intensive care unit (ICU) stay. Cytosorb® (Cytosorbents, NJ, USA) is a hemoadsorption device that removes many cytokines from the blood. Neonatal and pediatric patients in hyperinflammatory states have shown clear reductions in IL-6 and IL-10 concentration in plasma during hemoadsorption treatment, independent of eventual survival. Pediatric patients with exaggerated pre-operative SIRS might be good candidates for an assessment of Cytosorb's® usefulness.

CASE: We present the case of a full-term newborn with a hypoplastic left heart syndrome, involving an absent mitral valve and exceedingly small aortic annulus, ascending aorta and aortic arch who underwent a Nordwood procedure.Post-operative course was uneventful, without renal, digestive, or infectious complications. Hemodynamic adaptation was good, with rapid weaning off all amine infusions and definitive weaning off norepinephrine on post-operative day 5. The patient was extubated on post-operative day 6 (Median Time (MT) is 11.5 days [9.5–18]), left the ICU on day 22 (MT 39.5 days [29–80.5]), and was discharged home on day 45.

Diagram of Cytosorb

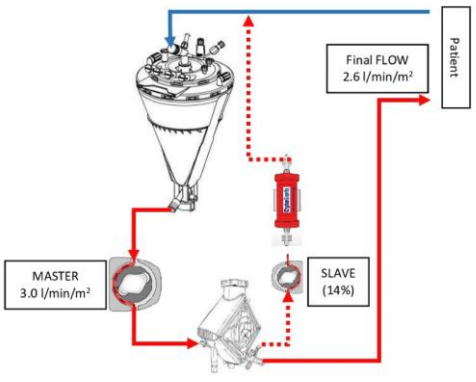


Fig. 1.0 : diagram of Cytosorb on CBP circuit

Cytosorb added the Cardiopulmonary ByPass circuit

DISCUSSION/ CONCLUSION: This case represented a complex congenital cardiopathy with a patent ductus arteriosus and a long CPB duration for surgical palliation, wich likely contributed to the pre-operative and intra-operative inflammatory process. By reducing cytokine levels, the Cytosorb® may have significantly reduced catecholamine infusion time, intubation time, and ICU stay. Future studies should evaluate Cytosorb's® effectiveness in selected pediatric cases.

Keywords: Cardiac surgery, pediatric, neonatal, anesthesia, Cytosorb

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Pediatric Anesthesia Fellowship Program İn Bosnia And Herzegovina

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INTRODUCTION/ PURPOSE: Pediatric anesthesia fellowship program in Bosnia and Herzegovina

MATERIALS and METHOD: Pediatric anesthesia fellowship program in Bosnia and HerzegovinaIn cooperation with Professor Norifumi Kuratani, President of the Pediatric anesthesia committee of the WFSA and Professor Serpil Ozgen a member of the Pediatric anesthesia committee of the WFSA, a fellowship is realized in Bosnia and Herzegovina, with the aim of improving pediatric anesthesia, acquiring new knowledge and skills, as well as improving cooperation between colleagues. The Fellowship lasts 3 months and includes a theoretical part, a test and a practical part.The Fellowship is under the auspices of the Medical Chamber of the ZeDo Canton, the Medical Faculty of Zenica, the Association of Anesthesiologists of Bosnia and Herzegovina, the Ministry of Health of the ZeDo Canton, as well as the WFSA. This fellowship is the first of its kind to be organized in Bosnia and Herzegovina. The plan and program of the fellowship was made by Professor Norifumi, and the corrections were made in accordance with the conditions of Bosnia and Herzegovina. The importance of the support of Professor Serpel in its realization is also emphasized.

FINDINGS: Pediatric anesthesia fellowship program in Bosnia and Herzegovina

DISCUSSION / CONCLUSION: Pediatric anesthesia fellowship program in Bosnia and Herzegovina

Keywords: Pediatric anesthesia fellowship program Bosnia

References

Pediatric anesthesia fellowship program in Bosnia and Herzegovina

Comparing The Anesthesia Management Of Cleft Patients Before And During The Covid-19 Pandemic

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INTRODUCTION/ PURPOSE: There is no consensus recommendation on the perioperative approach during the Covid-19 pandemic in pediatric cleft palate and lip (CLCP) surgeries, which can already be challenging due to possible airway-related complications and the need for postoperative intensive care (1). In this study, we aim to compare the anesthesia management of these patients before and during the Covid-19 pandemic.

MATERIALS and METHOD: After ethical approval, 1282 CLCP patients (before-pandemic=617, during-pandemic=665) were included in the study. Demographics, factors associated with difficult airway and post-operative ICU follow-up were evaluated retrospectively.

FINDINGS: Micrognathia was the only independent risk factor for difficult intubation during the pandemic ($p<0.001$), while female gender ($p=0.006$) and having a syndrome ($p=0.003$) were independent risk factors for postoperative ICU follow-up. Video laryngoscopy (VL) was used much more than the pre-pandemic period ($p<0.001$). Although more cleft patients with micrognathia ($p=0.001$), concomitant disease ($p=0.038$), and having a syndrome ($p=0.057$) were operated on during the pandemic, there was no significant difference in difficult intubation rate between pandemic and pre-pandemic period ($p=0.113$). During the pandemic period, postoperative extubation rates were higher ($p<0.001$) and ICU follow-up was less($p<0.001$) than pre-pandemic. period.

DISCUSSION / CONCLUSION: Although risk factors for difficult intubation and post-operative ICU follow-up were higher during the pandemic period, the fact that difficult intubation rates did not increase and even a significant decrease in ICU follow-up was a remarkable finding. In both periods, the only changing factor was the use of more VL in intubation. We think that the more frequent use of VL increases the success of intubation, thus facilitating the extubation decision indirectly and reducing unnecessary ICU admissions. In this context, other parameters such as the use of high-frequency nasal oxygenation, low rates of other viral infections, and the decreased capacity of ICU due to the pandemic should be discussed in decision-making mechanisms about extubation of cleft patients.

Keywords: cleft palate, difficult airway, video laryngoscopy, pediatric anesthesia

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Prospective Investigation Of Postoperative Problems İn Pediatric Patients Undergoing Cleft Palate And Lip Surgery; Preliminary Results

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INTRODUCTION/ PURPOSE: Patients with cleft palates (CP) and cleft lips (CL) have risks of various postoperative complications due to their young age and craniofacial abnormalities. In this ongoing prospective study, we aimed to share the preliminary findings of complications after cleft palate-lip surgery.

MATERIALS and METHOD: It was planned to include 200 patients in this prospective study, which started in 2019 after ethics committee approval and informed written consent from the patients. Demographic data of patients who underwent cleft lip and palate surgery, comorbidities, type of cleft lip and palate, duration of anesthesia and operation, perioperative and postoperative problems, and intensive care admission rates were recorded.

FINDINGS: Since healthy and accurate data could not be collected during the Covid 19 pandemic period, the data of 109 patients were examined between 2019-2022. While 79.1% of CL patients were unilateral and 20.9% bilateral, 43.9% of CP patients were found to be complete and 56.1% incomplete. While 11.6% of CL patients were syndromic infants, this rate was 15.2% in CP patients. The postoperative complication rate was 11.6% in patients with CL and 42.4% in patients with CP. The postoperative complication rate was found to be higher in patients with complete CP (62.1%) than in patients with incomplete CP (27%) ($p=0.004$). Although the postoperative complication rate was significantly higher in syndromic babies who had CL surgery ($p=0.008$), there was no significant difference in those who had CP surgery. While there was no need for hospitalization in postoperative intensive care in CL patients, 6.1% of CP patients required postoperative intensive care. The need for intensive care was higher in syndromic infants ($p<0.005$).

DISCUSSION / CONCLUSION: Postoperative complications and intensive care unit admission rates were found to be higher in syndromic patients who underwent cleft lip-palate surgery. Therefore, it is necessary to be more careful, especially in syndromic babies.

Keywords: cleft lip, cleft palate, postoperative complications, respiratory complications

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Flumazenil As A Reversal Drug For A Pediatric Cardiac Patient With A Rare Chromosomal Disorder

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INTRODUCTION/ PURPOSE: Terminal deletion of the long arm of chromosome 10 is an uncommon chromosomal disorder. Patients with this chromosomal disorder present with facial dysmorphisms, developmental delay, mental retardation, cardiac defects, and genitourinary defects. In this report, we present a case of a patient with a chromosome 10 disorder who underwent a congenital heart surgery, and was recquired flumazenil after the surgery.

CASE: An 11-month-old 10 kg male patient with terminal deletion of the long arm of chromosome 10 diagnosed by cytogenetic analysis was admitted to pediatric cardiology department for surgical repair of ventricular septal defect (VSD). He was diagnosed in his postnatal examinations due to respiratory distress. On physical examination of the patient, he had a syndromic facial appearance with a broad nose with small nostrils, deeply set eyes, short eyelid folds, micrognathia, and a short neck. For anesthesia induction, 0,1 mg/kg midazolam, 1 mg/kg ketamine, 1 mcg/kg fentanyl and 0,6 mg/kg rocuronium were administered and anesthesia maintenance was achieved with intermittent bolus doses of midazolam, fentanyl and rocuronium. After approximately 4 hours, the surgery was completed, so 10 mg/kg sugammadex was administered and he was extubated. In the ICU, 6 mg/kg sugammadex was administered additionally for patient to keep adequate breathing. Total dose of midazolam was 2,5 mg throughout the surgery, and last time midazolam was given was 2 hours before waking the patient up. Nonetheless, 0,01 mg/kg flumazenil was applied as the reversal of midazolam. He immediately opened his eyes, began to breathe easily, and in a few minutes, he began to move his arms and legs.

Physical Appearance of the Patient



The patient had a broad nose, small nostrils, short eyelid folds, deeply set eyes, micrognathia, and a short neck.

DISCUSSION/ CONCLUSION: Chromosomal abnormalities can effect the elimination of the administered drugs. Especially when the patient is frail and the surgical time is long like cardiovascular surgery, the clinicians must consider the reversal drugs if they suspect a delay of the elimination of anesthetics.

Keywords: flumazenil, pediatric cardiac surgery, ventricular septal defect, chromosome 10 deletion, chromosomal disorder

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From Headache To Medulloblastoma: A 4-Year-Old Case Who Had Excision Of Cranial Mass

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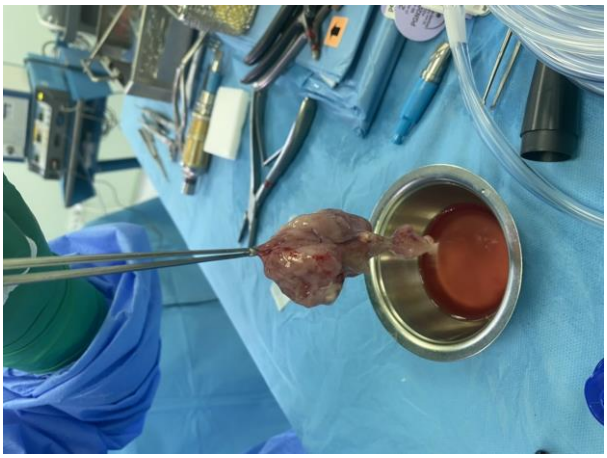
INTRODUCTION/ PURPOSE: Brain tumors are the most common cause of death among all childhood cancers. Younger children have a higher incidence of tumors of embryonal origin, such as medulloblastoma. We aimed to present the anesthetic practice of medulloblastoma.

CASE: A 4-years-old, 20 kg male patient with no known comorbidity, had headache and subsequent blurred vision 6 months prior to diagnosis of 3,5 cm medulloblastoma at left hemisphere. GCS was 15, pupillary were isochoric, light reflex was +/+. Since there was significant ventricular enlargement, an emergency operation was planned considering that Intracranial Pressure Increase Syndrome might develop. Following the induction, orotracheal intubation was provided to the patient. During the spiked cap, 0.05 mg/kg fentanyl was intravenously added. During the operation, which lasted for 2.30 hours, the patient had 50 cc of urine output and 100 cc bleeding in total. The patient was extubated by administering 2 mg/kg sugammadex at the end of the operation. The patient was administered 15 mg/kg paracetamol and 1 mg/kg tramadol as analgesics. His vital signs and neurological examination were normal after which Pediatric Intensive Care Unite transfer.

spiked cap



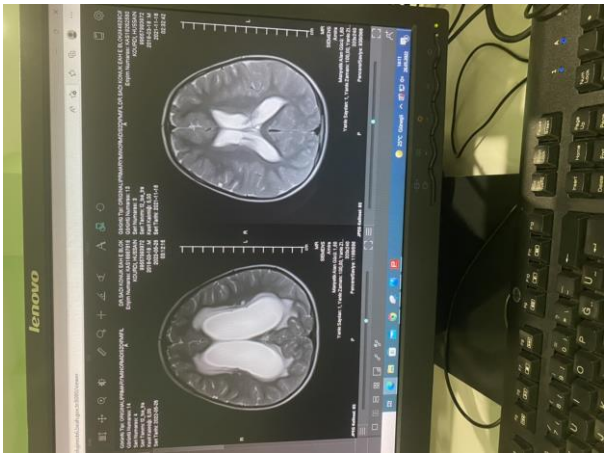
Cranial mass



Position



Compare images



DISCUSSION/ CONCLUSION: Children and newborn infants have low blood volume, so we performed non-invasive hemoglobin and blood gas monitoring. The use of analgesics against hemodynamic instability that may occur during induction and positioning can prevent increased intracranial pressure. In addition, postoperative early extubation should not be avoided due to both the age of the patient and the type of operation. This allows the patient to have an early neurological examination in the recovery unit, and if necessary, precautions can be taken with early intervention. In our case, an uncomplicated anesthesia practice was achieved by monitoring of hemodynamic measures and applying a multidisciplinary approach and early extubation.

Keywords: Medulloblastoma, headache, Intracranial Pressure Increase Syndrome, spiked cap

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The ISPN Guide to Pediatric Neurosurgery

Anaesthetic Management Of Difficult Airway In Paediatric Patients With Congenital Anomalies - A Case Series.

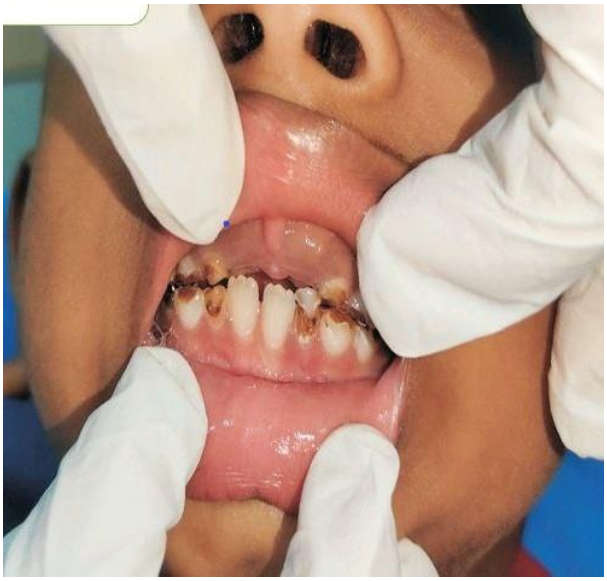
Dr Rajesh Mane[1], Dr Priyanka Gadvi[1], Dr Manjunath Shivapujimath[1], Dr Mohammedrizwan Nadaf[1]

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INTRODUCTION/ PURPOSE: Temporo-mandıbular joınt(tmj) ankylosıs, noonan's syndrome and klıppel-feıl syndrome make aırway management challengıng. Advanced aırway management ıs the safest approach ın antıcıpated dıfficult aırway. The aım of thıs case serıes ıs to provıde evıdence-based approach to management of varıous dıfficult aırway scenarıos encountered ın paedıatrıc populatıon.

CASE: Thıs case serıes reports the successful management of dıfficult aırway of sıx paedıatrıc patıents out of whıch four are cases of tmj ankylosıs posted for correctıon surgery, one ıs a case of noonan's syndrome and other ıs a case of klıppel-feıl syndrome both posted for cleft palate repaır. All these patıents pose dıfficult aırway eıther by restrıcted mouth openıng or lımıted neck mobılıty or both. Out of four patıents posted for tmj ankylosıs correctıon, two were managed by awake fıberoptıc ıntubatıon and other two were managed by nasal fıberoptıc ıntubatıon wıth spontaneous general anaesthesıa maıntaıned wıth sevoflurane. Two other cases posted for cleft palate repaır, were managed by fıberoptıc ıntubatıon through supraglottıc aırway devıce under general anaesthesıa.

TMJ ANKYLOSIS



Restricted mouth opening

Successful intubation



Fiberoptic guided intubation under spontaneous general anesthesia

DISCUSSION/ CONCLUSION: Maıntenance of spontaneous ventılatıon ın patıents eıther awake or under general anaesthesıa durıng flexıble fıberoptıc bronchoscopy aıded ıntubatıon helps to maıntaın respıratory functıon and prevent complıcatıons such as desaturatıon and apnea whıle also provıdıng adequate tıme for the anaesthesıologıst to secure the aırway. Laryngeal mask aırway can be used as a conduıt for establıshıng defınıtıve aırway by fıberoptıc bronchoscope under general anaesthesıa. It also helps as rescue or backup channel to provıde ventılatıon ın an event of faılure to secure aırway by fıberoptıc ıntubatıng bronchoscope. To conclude antıcıpated paedıatrıc dıfficult aırway scenarıos were successfully managed by fıberoptıc ıntubatıon whıle maıntaınıng adequate ventılatıon wıthout any untoward events.

Keywords: Paedıatrıc dıfficult aırway, fıberoptıc, tmj ankylosıs, noonan's syndrome, klıppel-feıl syndrome

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Anesthesia Management İn Patient With Limb Girdle Musculary Dystropy

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INTRODUCTION/ PURPOSE: Limb Girdle muscular dystrophies (LMGDs) are a heterogeneous group of inherited, progressive and degenerative neuromuscular disorders affecting the pelvic and shoulder girdle muscles. Anesthesia management is important because of the high risk of rhabdomyolysis and malignant hyperthermia due to anesthesia. In our case, total intravenous anesthesia (TIVA) was preferred due to the risk of malignant hyperthermia.

CASE: A 3-years-old female patient was admitted because of cranial trauma after falling from one meter height. A right temporoparietal compression fracture was detected on cranial imaging, and her past medical history revealed the diagnosis of LMGD. The patient was consulted to pediatric cardiology due to the risk of cardiomyopathy associated with a genetic disease. No additional cardiac problems were detected. In the preoperative examination, the patient was conscious and fully cooperative, no additional muscle weakness was detected. TIVA was preferred instead of volatile anesthetics and succinylcholine due to the high risk of malignant hyperthermia. Short-acting agents (propofol and remifentanyl) were used to prevent possible postoperative pulmonary complications in the patient. Bispectral index was used to monitor the depth of anesthesia. Intra-arterial monitoring was performed because noninvasive measurement of the blood pressure cuff increased rhabdomyolysis. Esophageal temperature probe was placed and foley catheter is inserted to monitor urine output. Mechanical ventilation settings were applied according to lung protective ventilation rules. Endtidal-CO2 level was followed between 30-33mmHg. After the extubatian, no complications were encountered in the postoperative period.

DISCUSSION/ CONCLUSION: Anesthesia management is a privilege due to LMGD, which is one of the rare genetic diseases, accompanying cardiac and pulmonary complaints and postoperative pulmonary complications.Long-acting opioids were avoided in order to prevent postoperative respiratory complications. The use of volatile anesthetics and succinylcholine are not recommended due to the risk of malignant hyperthermia. The use of bispectral index is important in adjusting the doses of anestetic agents.

Keywords: Limb Girdle Muscular Dystrophy, anesthesia, rare disease, muscular dystrophy

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Total Airway Obstruction After Induction Of General Anesthesia İn A Pediatric Patient With Laryngeal Papillomatosis

Miray Gözde Özdemir[1], Gökçen Emmez[1], Hasan Kutluk Pampal[1]

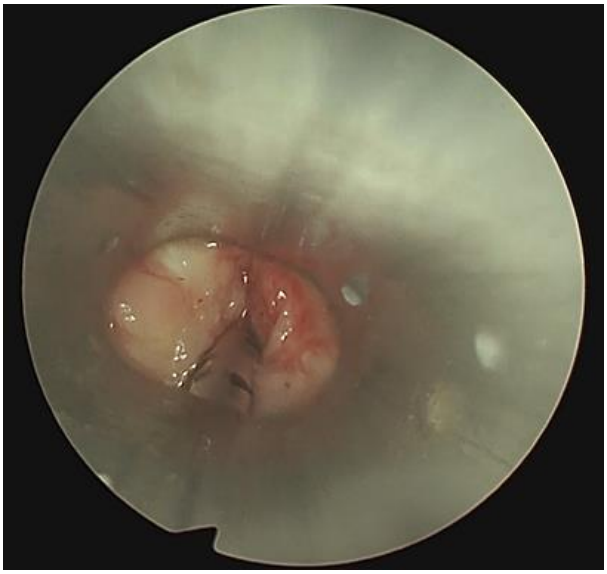
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INTRODUCTION/ PURPOSE: We aimed to present our experience during management of total airway obstruction after induction of general anesthesia in a patient with laryngeal papillomatosis, scheduled for direct laryngoscopy.

CASE: Preoperative evaluation of a 4-year-old ASA I patient with laryngeal papillomatosis was unremarkable except hoarseness. He had direct laryngoscopy for excision of the lesions 3 times before, without a history of difficult mask ventilation. He has been complaining of hoarseness since he was 2 years old. After appropriate premedication and monitoring, induction was performed using 8% sevoflurane in 100% O2. Intravenous cannulation was performed and 30 mg IV propofol was administered. After cessation of spontaneous ventilation difficult ventilation occurred and SpO2 decreased to %90 from %99. Although it is difficult to ventilate, the patients SpO2 level increased to %98 after adequate ventilation. Eight mg IV rocuronium was given for the treatment of possible laryngospasm. Due to the rapid developing desaturation and bradycardia during intubation, 400 mcg IV atropine was given and the patient was intubated with a 3.5 endotracheal tube and the patient's vital signs improved. A papillomatosis lesion which occludes the glottis region was observed during intubation.Patient was extubated without any complication after removal of the lesions.

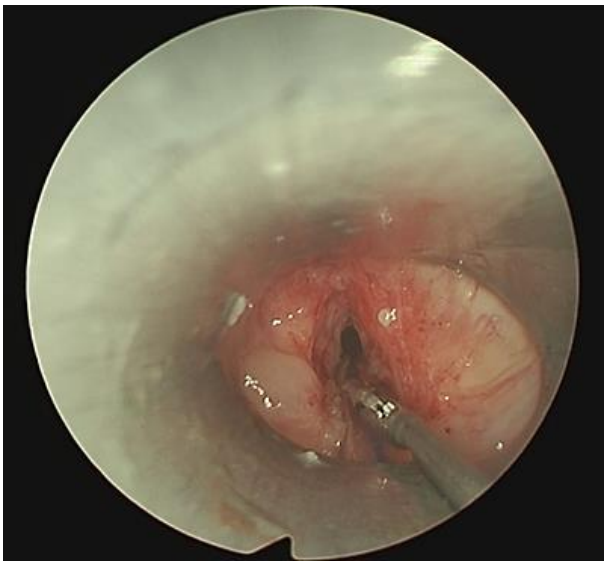
DISCUSSION/ CONCLUSION: Insufficient depth of anesthesia is a predisposing factor for laryngospasm in children during the induction and recovery period of anesthesia. Therefore, our primary diagnosis was laryngospasm rather than airway obstruction as the symptoms of the patient were present for a long time. However, the absence of acute onset symptoms and signs of respiratory failure in patients with laryngeal papillomatosis doesn't exclude the possibility of airway obstruction. Similar to other space occupying lesions of the airway anesthetist should keep in mind that sudden and life threatening difficult mask airway could occur after induction of anesthesia in patients with chronic papillomatous lesions.

Figure 1



Diffuse papillomas in the glottic and supraglottic region seen on direct laryngoscopy.

Figure 2



Glottic and supraglottic region after removal of papillomas.

Keywords: Laryngeal papillomatosis, Anesthesia, Total Airway Obstruction, Pediatric

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Anaesthesia Perioperative Management in Laparotomy Procedure in Neonates with Tetralogy of Fallot (ToF): A Case Study

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INTRODUCTION/ PURPOSE: Tetralogy of Fallot (TOF) is a congenital cardiac disease that consists of ventricular septal defect, aortic overriding, pulmonary stenosis, and right ventricular hypertrophy. Its presence increases the perioperative risk and mortality. This disease can also have noncardiac anomalies such as neurological anomalies, musculoskeletal anomalies, and ophthalmological anomalies which were noted in the index case. The challenge for anesthesiologists in handling patients with cyanotic congenital heart disease (CHD) coming for extracardiac surgery relies on the patients' age, the complexity of the heart lesion, coupled patients' capacity to compensate, the urgency of surgery, and multiple coexisting diseases. Anesthetic goals in patients with ToF are to maintain or increase systemic vascular resistance (SVR) minimize pulmonary vascular resistance (PVR) and prevent hypercyanotic episodes intraoperatively.Objective: To investigate a case report in neonates with tetralogy of Fallot and discuss further anesthesia perioperative management in laparotomy procedure in neonates with tetralogy of Fallot (ToF).

CASE: A 20-days female neonate, weighing 1,9 kg, was referred to our hospital with the diagnosis of high-level bowel obstruction et causa suspect atresia duodenum dd duodenal stenosis, tetralogy of Fallot (ToF), and a Secundum Atrial Septal Defect (ASD) with ASA IV. The patient was planned to undergo general anesthesia for explorative laparotomy surgery. There were hemodynamic changes during surgery but can be managed properly. Anesthesia and surgery were successful and the patient improved. Pre-operative, durante-operative, and postoperative management was shown.

DISCUSSION/ CONCLUSION: Tetralogy of Fallot (TOF) is a common congenital heart defect in children. Perioperative considerations include preoperative preparation for surgery, intraoperative anesthetic management, and common postoperative issues in the intensive care unit. Precision in planning and a good foundation in physiological and pharmacological principles will contribute to the successful completion of the procedure.

Keywords: Tetralogy Of Fallot, Pediatric Anesthesiology, Congenital Heart Disease Anesthesia, Perioperative management for cardiac disease

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Anesthetic Management Of Trigonocephaly Surgery

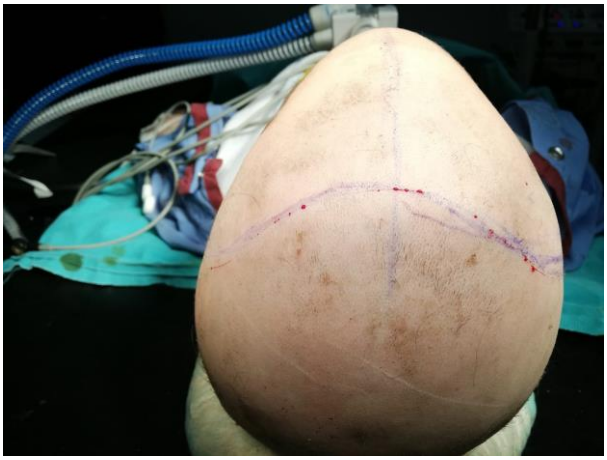
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INTRODUCTION/ PURPOSE: Trigonocephaly is a type of craniosynostosis caused by premature closure of the metopic suture. Several etiological factors (genetic mutations, metabolic factors, hematological syndromes, teratogens, maternal smoking and advanced parental age) are reported. Clinically, trigonocephaly cases may present with mental, developmental and behavioral problems. Early surgical treatment is recommended. The purpose of the surgical procedures is to create enough space for brain development. The anesthesia application of trigonocephaly surgery requires special care. The aim is to present the anesthesia management of 4 trigonocephaly cases who were operated within 3 years.

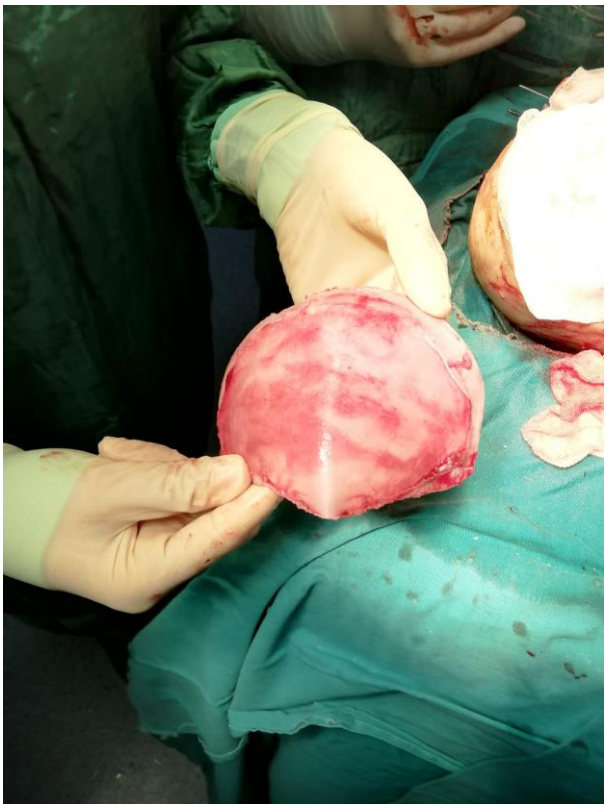
CASE: Patients aged between 3 and 6 months were taken into the operating room and placed on the operating table with a heater. ECG, SpO2, noninvasive blood pressure monitoring were applied. After inhalation induction with sevoflurane, patients were intubated with a spiral tube using rocuronium. EtCO2 was monitored. Two additional IV lines were opened to the patients using 24G cannula and a urinary catheter was placed. IV fluids were given by passing through a heater. The patients were closely observed during the operation in terms of hemodynamics; fluid intake, urine output, and amount of bleeding. Patients were given blood transfusion as the amount of blood they lost.

Figure I.



One of the patients with trigonocephaly is seen on the operating table after anesthesia induction.

Figure II.



Frontal craniotomy flap is seen in the operation.

DISCUSSION/ CONCLUSION: The most important point during these surgeries is excessive bleeding. Epinephrine solutions are often infiltrated into the scalp to promote hemostasis. Risk of bleeding (and air embolism) is highest during the frontal craniotomy thus the blood loss should be carefully monitored. During the operation, the oculocardiac reflex may be triggered and bradycardia may be observed. This usually requires no treatment. To avoid the bradycardia, having the surgeon reduce the pressure would be sufficient to prevent oculocardiac reflex. If necessary, anticholinergics may be administered. It should not be forgotten that there may be a lot of bleeding in this operation, the above-mentioned points should be considered.

Keywords: anesthesia, trigonocephaly

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First Attempt Success Of Tracheal Intubation İn Children With Pierre Robins Sequence Using Adult Size Hyperangulated Blade Video Laryngoscope: Report Of Three Cases

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INTRODUCTION/ PURPOSE: Patients with Pierre-robin sequence are characterized by micrognathia, glossoptosis, and cleft palate. These pose significant challenges to anesthesiologists during laryngoscopy and intubation, often leading to life-threatening conditions. Special skills and appropriate airway devices are required to deliver proper airway management in these patients. A video laryngoscope (VL) with hyperangulated blades can be used in patients with difficult airways. It was associated with the increase of first attempt success intubation in difficult airways patient. However, hyperangulated blades were not available in every size suitable for different age groups of pediatric patients

CASE: We reported 3 cases of pediatric patients aged 11, 12, and 24 months, respectively, with Pierre-robin sequence and underwent surgery under general anesthesia that required tracheal intubation. Previous experiences using regular Macintosh VL in Pierre robin patients showed less success for larynx visualization and intubation. Therefore, we decided to perform intubation using adult-sized CMAC D-blade no 4 in our first patient. We performed laryngoscopy by inserting only half of the blade, isolating the tongue, and trying to visualize the larynx without providing any pressure or lifting the mandible. After the vocal cord was visible, we inserted the endotracheal tube guided with a soft stylet. The first patient was able to be intubated on the first attempt, then we followed the same procedures for the second and third patients and also had the same result: intubation was a success on the first attempt. There was no incidence of traumatic complications due to the intubation procedure

Picture 1



Clinical picture of 1st patient

Picture 2



Clinical picture of 2nd patient

Picture 3



Clinical picture of 3rd patient

Picture 4



Intubation technique using adult size of CMAC D Blade no 4 in Pierre Robin patient

Table 1

No	Age (Month)	Body Weight (Kg)	ASA	Airway Obstruction	Procedure
Patient 1	12	6,7	2	Stridor (-), Snooring (-)	Palatoplasty,
Patient 2	11	8	2	Stridor (+)	Palatoplasty
Patient 3	24	12	2	Stridor (-), Snooring (-)	Palatoplasty, repair bifid uvula

Patients characteristics

DISCUSSION/ CONCLUSION: Familiar airway devices should be utilized in airway management, especially in potentially difficult airway cases. In our encounters with children with Pierre-Robin sequence, the use of an adult-sized hyperangulated Macintosh-bladed video laryngoscope improved indirect visualization of glottis on the screen, optimized endotracheal tube placement, and resulted in a significantly faster time to ventilate

Keywords: Hyperangulated blade of Videolaringoscope, First attempt Intubation, Pierre Robin sequence

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To Save Many By Sacrificing Some: COVID-19 Ethical Dilemma

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INTRODUCTION/ PURPOSE: Isolation, social distancing and mass health protection were protocols applied during the COVID-19 pandemic. Nevertheless, terms such as dying alone, helplessness and alleviation of personal choice became an ethical issue during this period.1-3 The pediatric population is vulnerable, and "for the greater good" perspective applied to the pediatric patient creates conflict. We aim to report ethical cases in pediatric anesthesia during the pandemic.

CASE: The first case was an eight years old COVID-19-positive patient undergoing esophagoscopy to remove a lodged coin. The anesthetist requested the parents to accompany the child to the operating room for induction, but the hospital management denied this request since the parent's results were negative. Discussion and informed consent of risk was done, and the patient was accompanied by her mother to the COVID-19 operating room. The second case was of a 14 years old COVID-19 patient who underwent limb amputation and died the next day in the COVID-19 intensive care unit. The patient's family requested that the amputated limb be taken home, but as per protocol, the limb was already managed as infectious waste. The family also complained that they were not allowed to accompany the child during his final moments. Mediation by the hospital ethical committee and religious leaders allowed for a mutual understanding.

DISCUSSION/ CONCLUSION: Moral conflict occurs when parties have different beliefs, knowledge, and values. During this pandemic, the comfort and values of one individual may be trumped for the safety of many.1,2 It is important to apply the values of autonomy, justice, beneficence and no maleficence even in perilous times.4 Communication techniques to build understanding such as relationship and rapport building; assessment of a family's perspectives; body language and emotional cues, understanding, emphasis and negotiation become essential for the pediatric anesthesiologist to achieve a humane approach to pediatric patients.5,6

Keywords: autonomy, communication, COVID-19, ethics

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Prone Positioned Cardiopulmonary Resuscitation Intrasurgical Medulloblastoma Tumor Removal in Pediatric: Do We Stand A Chance?

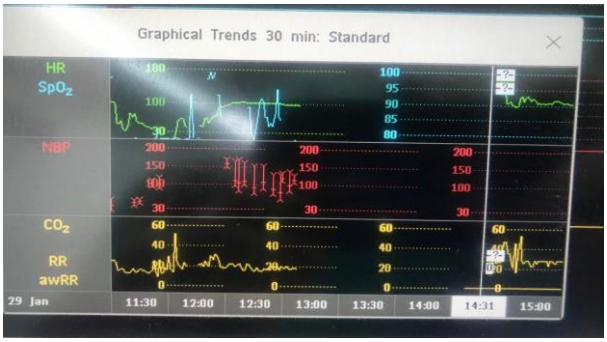
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INTRODUCTION/ PURPOSE: The aim of performing cardiopulmonary resuscitation (CPR) in the prone position in the middle of surgery is to reduce the no-flow time (blood flow to the heart or brain) during the positioning process and prevent delays in resuscitation.

CASE: A 2 years old boy, was admitted for tumor removal surgery with diagnosed obstructive hydrocephalus caused by medulloblastoma. The patient was placed in prone position. Anesthesia induction was performed uneventfully. Standard monitoring along with intra-arterial blood pressure and central venous catheter were placed to monitoring the patient continuously. During the tumor exploration, massive bleeding occurred and was difficult to control, hemodynamic became unstable and patient had a cardiac arrest. Code blue was activated, and CPR was maintained in prone position, end-tidal carbon dioxide (EtCO2) was maintained between 10-15 mmHg, fluid and blood resuscitation were continued. After 20 minutes of CPR, EtCO2 increased to 18-20 mmHg with spontaneous arterial blood pressure waveform. However, the heart rate still inadequate, so chest compressions were resumed. After the neurosurgeon controlled the bleeding and finished closing the wound, we turned the patient into a supine position and continued CPR. The patient was a return of spontaneous circulation (ROSC) with self-breathing after 50 minutes, and shifted to the pediatric intensive care unit, but unfortunately the patient passed away in the next day.

Intraoperative monitor



Intraoperative monitor showed the hemodynamic trend in prone positioned resuscitation

Prone positioned resuscitation



prone positioned resuscitation process with one-hand technique with sternal counterpressure

DISCUSSION/ CONCLUSION: There is no clear evidence of superiority in the effectiveness of reverse compared to supine CPR in prone positions. If cardiac arrest occurs, we have to decide whether to turn the patient into supine position or immediately start a CPR. Resuscitation in the prone position in our patient was able to generate sufficient cardiac output while we could achieve the correction of hypovolemia and hemostasis. In our patient, EtCO2 and arterial waveform could facilitate monitoring the quality of CPR and predicted the ROSC.

Keywords: Cardiopulmonary resuscitation, prone position, medulloblastoma

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Video Laryngoscope Assisted Flexible Video Bronchoscopy İn A Child With Cleft Palate And Retrognathia To Facilitate Endotracheal İntubation: A Case Report

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INTRODUCTION/ PURPOSE: To highlight the value of combination technique of video laryngoscope assisted flexible video bronchoscopy as a safe and effective intubation modality in a child with cleft palate associated with retrognathia.

CASE: A one year old child with cleft palate and retrognathia was posted for palatoplasty. Difficult intubation was anticipated because of retrognathia. The child was premedicated with oral midazolam 0.5 mg/kg and inhalation induction was done with oxygen and sevoflurane. Mask ventilation was adequate. Inj. Fentanyl 2mcg/kg and Inj. Atracuricum 0.5 mg/kg were administered intravenously. A video laryngoscope with paediatric blade size 2 designed by one of our colleagues was inserted and posterior commissure could be visualized. A flexible video bronchoscope(Vathin , outer diameter 2.2mm) loaded with 3.5mm cuffed armoured endotracheal tube was passed with the help of video laryngoscope guidance and intubation was accomplished successfully.

Video laryngoscope



A direct laryngoscope with Macintosh blade size 2 was modified into a video laryngoscope by one of our colleagues

Video laryngoscope view



Posterior commissure was visualized with the video laryngoscope

Flexible bronchoscope entering glottis



Flexible bronchoscope was negotiated into glottis with VL scope guidance

Postoperative status



Postoperative image of the child with nasopharyngeal airway. Retrognathia could be noted.

DISCUSSION/ CONCLUSION: In this case, by choosing a combination technique of video laryngoscope assisted flexible video bronchoscopy, we were able to successfully intubate the child with cleft palate and retrognathia in the first attempt in about 75 seconds. A randomized controlled trial conducted by Mazzinari [1] et al in adult patients has also reported a greater first attempt intubation success rate for combination technique of video laryngoscope with flexible bronchoscope compared to video laryngoscope alone. The use of a video laryngoscope alone, while it gives a good view of the glottis, does not always lead to easy passage of endotracheal tube. Flexible bronchoscopy, though considered gold standard for paediatric difficult airway management, one could face difficulty in manipulating the device due to the smaller airway resulting in poor visualization [2]. Therefore, combining the two techniques would not only help in better visualization of the airway but would help in easier and quicker passage of endotracheal tube through the glottis thereby minimizing episodes of desaturation.

Keywords: Cleft palate, Retrognathia, Video laryngoscope, Flexible video bronchoscope, Combination technique

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Characteristics And Management Of Airway Pediatric Patients With Mucopolysaccharidoses Type II (Hunter Syndrome), Who Underwent Surgery : Case Series

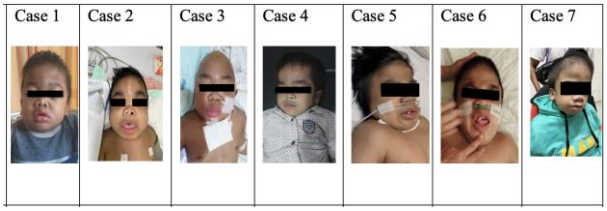
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INTRODUCTION/ PURPOSE: Mucopolysaccharidosis type II (Hunter syndrome) is an x-linked autosomal recessive disease caused by the deficiency of iduronate-2-sulphatase (I2S). Thus, causing the accumulation of glycosaminoglycans (GAG) in the lysosomes that incites multiorgan dysfunction. Mucopolysaccharidosis type II is the most common MPS type with a prevalence of 1:140,000 – 1:156,000 live birth in Europe.1,2 Up until 2022, there have been more than 30 patients diagnosed with this disease in Pusat Pelayanan Terpadu Penyakit Langka Indonesia RSCM (National Center for Rare Diseases Cipto Mangunkusumo Hospital). 15 of those patients underwent repeated surgery.Progressive accumulation of GAG in body tissues predisposes patients with Hunter syndrome to repeated surgeries. Substrate deposits, especially in the airway, can pose a challenge for anesthesia providers

CASE: We conducted studies on seven cases of patients with Hunter syndrome that underwent general anesthesia in RSCM. During preanesthesia assessment, we found obstructive sleep apnea and potentially difficult airway: limited mouth openings, macroglossia, tonsilar and adenoid hypertrophy, and limited neck mobility due to atlantoaxial instability and cervical vertebrae fusion in all cases. During the surgery, we found that in all cases the larynxes were hard to visualize (Cormack-Lehan 3-4), there were hypersecretions, narrowings on the hypopharynxes, and vocal cords thickening. Well-thought-out anesthesia plans were required to provide anesthesia for these patients: muscle relaxant was given after ventilation was able to be done with jaw thrust maneuver; utilization of LMA for hard to ventilate patients; on 2 of these cases, C-MAC video laryngoscopy and bougie were used successfully to perform first-pass intubation; on the most difficult cases, fiberoptic bronchoscopy was performed through LMA and endotracheal intubation was performed using bougie

Airway characteristic of Hunter syndrome



case study of MPS type II who underwent surgery

DISCUSSION/ CONCLUSION: The airway in patients with Hunter syndrome is characterized by progressive accumulation of GAG and deposit of substrate that increase with age. Airway management should be performed by experienced anesthesiologists with well-planned airway preparation

Keywords: characteristic airway, airway management, Hunter syndrom

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Prophylactic Anti-Mediator Therapy is an Important Part of Anesthesia Management in Patients with Mastocytosis: A Case Report

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INTRODUCTION/ PURPOSE: Mastocytosis is clonal bone marrow disease characterized by infiltration of mast cells into tissues.In the patients with mastocytosis, the incidence of perioperative mediator related symptoms and anaphylaxis was reported to be 2%-0.4% in adults and 4%-2% in children, with an increased risk reported in those who didn't receive prophylactic anti-mediator therapy (PAT). We aimed to present our anesthesia management in our patient with diagnosis of 'diffuse cutaneous mastocytosis' in which mast cell infiltration is limited to the skin.

CASE: 7-years-old 22-kg patient who was planned for undescended testis and circumcision surgery was diagnosed with mastocytosis at the age of 7.5 months. He had no systemic findings other than hyperpigmented body lesions and used Montelukast regularly. SpO2, ECG, temperature and blood pressure were monitored before anesthesia induction. 2-4 mg/kg Propofol was administered, 2.5 LMA was placed. Caudal block was applied with 2 mg/kg(0.25%) Bupivacaine before surgery. Maintenance was provided with sevoflurane in O2/air (50%-50%). During the operation, the patient and the fluids were warmed and normothermia was achieved. Care was taken not to stick a patch on the lesions to prevent local mediator release. Silicone protectors were used to avoid pressure, friction and irritation. At the end of the surgery,the patient was transferred to the recovery unit,followed up for 4 hours in the daily observation and discharged without any complications.

Patient photo



hyperpigmented body lesions



DISCUSSION/ CONCLUSION: Anesthetic agents, trauma, stress, temperature changes, pain can cause mast cell degranulation in patients with mastocytosis. Midazolam was administered for anxiolysis, anesthetics which were reported to be safe, were used in the induction and maintenance of anesthesia. Caudal block was applied to avoid opioids perioperatively. Although anesthesia isn't contraindicated in mastocytosis, we should keep in mind drugs with a reported safety profile should be used and the risk can be reduced with PAT, resuscitation preparation should be made for risk of anaphylaxis.

Keywords: mastocytosis, prophylactic anti-mediator therapy, histamine, mediator

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Anesthesia Management Of 570 Grams Premature Patient During Emergency Laparotomy-A Case Report

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INTRODUCTION/ PURPOSE: Emergency laparotomy is a common high-risk surgical procedure and high mortality and morbidity in extremely low birth weight (ELBW) preterm infants (1,2). There is no consensus about doing this operation in the surgery room and what are the ideal anesthetic agents (3). In this case report, we discussed anesthetic management during emergency laparotomy in a ELBW preterm infant who has serious cardiac and pulmonary failure.

CASE: A preterm female baby delivered at 24 week of gestation, with birth weight of 570g and serious cardiac and pulmonary failure. While she was being followed up in the intensive care unit connected to a mechanical ventilator and intubated with a size 2.5 endotracheal tube, abdominal distension developed on the sixth day of her life. The patient was taken to the operating room in an incubator for emergency laparotomy (Figure 1). Equipment for airway management, oxygen safety mechanism, hypothermia prevention, and necessary drugs were confirmed. Anesthesia was maintained with 0.2%–1% sevoflurane in oxygen and air mixture (FiO2 40%), fentanyl 0.5 mcg/kg and additional rocuronium was administered when needed. Using controlled ventilation with circle system and a total flow of 0.4 L/min and tidal volume of 6 mL/kg. 0.01 mg/kg of atropine was administered to the baby who developed intraoperative bradycardia and dopamine infusion was started to the patient who had a hypotensive course. Cardiopulmonary resuscitation was performed on the patient who had cardiac arrest at the 70th minute of the operation. The patient who was operated for ileal atresia and appendectomy was transferred to the intensive care unit as intubated (Figure 2).

Figure 1. Before the operation



Figure 2. Operation view of ileum and atretic segment



DISCUSSION/ CONCLUSION: Neonatal perioperative morbidity and mortality risk is very high. Safe anesthesia in neonates includes adjustment of inspired oxygen concentration (SpO2 85-95%), hemodynamic stability, hypothermia and aggressive prevention of hypoglycemia. Low MAC of inhalants and lower dosage of opiates and sedatives require careful titration.

Keywords: Emergency laparotomy, low birth weight, preterm infant, pediatric anesthesia

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Efficacy and Performance Study of Pediatric Early Warning Score (PEUS) in the Early Postoperative Period in Pediatric Patients

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INTRODUCTION/ PURPOSE: Pediatric early warning scoring (PEWS) is applied to ensure early detection of clinical deterioration in hospitalized pediatric patients and to protect patients from cardiac arrest. In this study, the efficacy and correlation of PEWS was evaluated for the early postoperative period of pediatric patients.

MATERIALS and METHOD: A total of 67 children aged 1-18 years, who were treated as an emergency or elective surgery, were included in the study. In the postoperative follow-ups, vital signs, oxygen saturation, respiratory rate, heart rate, capillary refill times and consciousness status of the patients were evaluated every 15 minutes in the first hour and every hour thereafter (during the first 4 hours). Values obtained according to age-appropriate vital signs were scored and the PEWS was evaluated by 2 different members every 2 minutes. According to the calculated PEWS score, the intervention to be applied to the patient was decided. The results of PEWS measurements made by two different postoperative follow-up teams were compared and the correlation between them was determined.

FINDINGS: There was no statistically significant difference between nurses in calculating the PEUS score for all measurement times ($p>0.05$). There was no significant difference between surgical branches in terms of PEUS scores ($p>0.05$). There was no statistically significant difference between the interventions applied by two different evaluators ($p>0.90$). A statistically significant difference was found between the patients who received and did not receive intervention in terms of the saturation variable ($p<0.001$).

DISCUSSION / CONCLUSION: There are studies evaluating the efficacy of PEUS in hospitalized patients (1,2). However, there are no studies evaluating its effectiveness for the early postoperative period and whether there is a difference between the follow-up team. In our study, there was no difference in PEUS scores and between interventions between the two assessment teams. Therefore, we think that PEUS can be used in the early postoperative period.

Keywords: pediatric patients, pediatric early warning score, postoperative care, cardiac arrest

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Outcomes Of Implantable Port In Paediatric Cancer Patients Inserted By The Anaesthesiologists

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INTRODUCTION/ PURPOSE: Introductıon: ımplantable ports are preferred long-term vascular access devıce ın chıldren undergoıngoncologıcal treatments. they are ınserted by paedıatrıc surgeons or ınterventıonal radıologısts ınmost centres. anaesthesıologısts are ınvolved ın vascular access servıces and can ınclude portınsertıons too. there ıs lımıted lıterature on the outcomes of anaesthesıologıst-led vascular accessservıces performıng port ınsertıonsaım:we aımed to report the ınsertıon technıques and outcomes of ımplanted ports ınserted byanaesthesıologısts ın paedıatrıc cancer patıents at a tertıary cancer care ınstıtute ın ındıa.

MATERIALS and METHOD: Thıs retrospectıve observatıonal study was carrıed out from january 1st 2019 – december 31st 2021, ın chıldren aged 2-14 years, after obtaınıng ınstıtutıonal ethıcs commıttee approval. patıents were followed up tıll june 2022. the data was collected by revıewıng theır medıcal records and telephonıc contact

FINDINGS: A total of 87 chıldren could ınclude ınto the study, out of whome 10 were lost to follow up so, 77 patıents were analysed. 31: 46 were females: males. the average age at ınsertıon: 6.25 (+/-3.33 sd) years. the ındıcatıon to ınsert was haematologıcal malıgnancıes ın 68.83% cases. all ports were placed usıng percutaneous technıque under ultrasound and fluoroscopy guıdance. ın 90% of the chıldren subclavıan veın was accessed for port ınsertıon. there were no early port-related complıcatıons. ın 46.75% of chıldren port ıs stıll beıng used, 9.09% dıed wıth port ın sıtu and ıt was removed ın 44.15%. port was removed after successful treatment completıon ın 28.57% chıldren, whereas ın 14.28% ıt was due to complıcatıons. ınfectıve complıcatıon was the commonest cause for removal, port sıte ınfectıon was 2.59% and catheter-related blood stream ınfectıon rate was 0.011 /1000 catheter days. mechanıcal cause, thrombosıs, mıgratıon, catheter pınch-off was seen ın one patıent each. the average duratıon of catheter stay was 297.38 days.

DISCUSSION / CONCLUSION: The implantable port placements can be safely performed by the anaesthesıologısts wıth lowfrequency of complıcatıons

Keywords: chemoport, paediatric, implantable device, clabsi

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Anesthesia For A Child With Menkes Syndrome

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INTRODUCTION/ PURPOSE: Menkes syndrome is an X-linked recessively inherited neurodegenerative genetic disease with copper excretion defect due to mutation in the ATP7A gene. The symptoms of the disease are hypotonia, hypothermia, feeding difficulties, epileptic seizures, dysmorphic facial structure, mental and motor retardation. (1) We presented our anesthetic management in a case of Menkes syndrome.

CASE: The patient was 7-year-old male, weighing 23 kg, with a normal vaginal delivery history with a birth weight of 2850 gr from a 25-year-old mother. There was no history of anesthesia except for a PEG insertion. The patient had intercostal and suprasternal recessions in the preoperative period. Patient was admitted in operating room with a 26 G vascular access. Intravenous 1 mg midazolam was administered for sedation. Standard monitoring was applied, including axillary temperature. Anesthesia was induced with sevoflurane while maintaining the patient's spontaneous breathing. He was intubated with a 5.0 mm reinforced endotracheal tube with assistance of video laryngoscopy without the use of muscle relaxant. A total of 15 mg of rocuronium was administered throughout the tracheostomy procedure. A second vascular access was attempted but could not be succeeded. The tracheostomy procedure was performed properly and the patient was transported to the pediatric intensive care unit without any complication.

DISCUSSION/ CONCLUSION: Difficult vascular access and difficult airway due to micrognathia and subglottic stenosis can be encountered in Menkes syndrome. It is recommended that the vascular access should be obtained before the induction of general anesthesia in these patients. (2) Since epileptic seizures are common in Menkes syndrome, more attention should be paid to postoperative seizure activity. In this group of patients, predisposition to hypothermia also requires close body temperature monitoring. In these patients, problems such as recurrent aspirations and anticipation of a difficult venous access and hypothermia requires meticulous precautions.

Keywords: Menkes syndrome; pediatrics; anesthesia

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Perioperative Blood Sugar Management İn İnfancy With İnsulinoma

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INTRODUCTION/ PURPOSE: Persistent hyperinsulinemic hypoglycemia of infancy (PPHI) is a rare condition causing by insulinoma.1 On this case, surgery is an option for those with unresolved medical therapy.2 We report two cases of infants underwent surgery due to insulinoma.

CASE: Patients were both males age 1-year old with a diagnosis of congenital hyperinsulinemia and physical status of ASA 2. They underwent general anesthesia with maintenance of sevoflurane and continuous epidural regimen of ropivacaine 0.2%, 2.5 ml/hour. Both patients received infusion maintenance through a central venous catheter on their right jugular veins. Their characteristics were presented on Table 1.

Figure 1 Intraoperative blood sugar trend

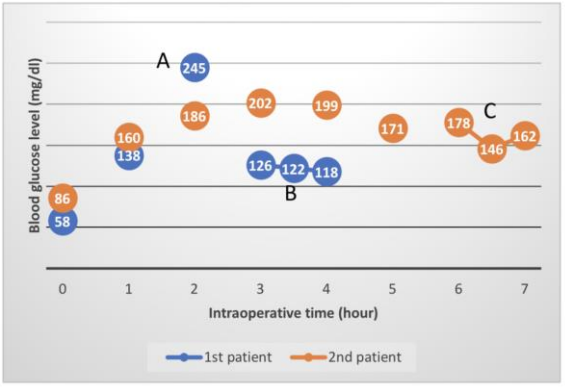


Figure 1 Intraoperative blood sugar trend. (A) Beginning or surgery; (B) Enucleation period; (C) Pancreatic tissue resection period.

(A) Beginning or surgery; (B) Enucleation period; (C) Pancreatic tissue resection period.

Table 1 Patients' characteristics

	Patient 1	Patient 2
Patient	Boy, 1 year old, with body weight 11.3 kg	Boy, 1 year old, with body weight 15.5 kg
History of seizures	Present	Present
Anaesthetic technique	GA+Epidural	GA+Epidural
Surgery	Enucleation	Near-total pancreatectomy
Preoperative glucose maintenance	Diazoxide 3x20 mg per oral	D10% + 1/5 NS (56 ml/hour)
Intraoperative glucose maintenance (infusion rate)	Dextrose 10% (4 ml/kg/hour titrated)	Dextrose 1% (54 ml/hour titrated)
Response to intraoperative tumor handling (Hypoglycemia, Tachycardia, Hypertension)	Absent	Absent
Extubation	1st day post-operative	1st day post-operative
Persistent hypoglycemia after resection	Present on the 7th day post-operative (55-65 mg/dL)	Absent
Discharge period	9th day post-operative	8th day post-operative

DISCUSSION/ CONCLUSION: Blood glucose monitoring during pancreatic surgery is critical since the trend is altering continuously while the surgeon resects the tissue.2 The use of general and regional anesthesia combination depressed glucose infusion rate intraoperatively. Other volatile agents besides desflurane, known to suppress insulin release and promote glucose intolerance1; hence our technique known to have advantages on them. Upon excision, the blood glucose was measured in every 30 minutes. Prior to surgery the second patient received Dextrose 10% + 1/5 NS 56 ml/hour and we continued the regimen until middle of surgery. He also received lower dextrose concentration as an intraoperative maintenance due to a stable range blood glucose level before surgery compared to the first one. Interestingly, a low level of blood sugar after surgery was still shown on the first patient. It may be caused by the diffuse lesion of the tumor making an incomplete resection through enucleation. However, the condition was managed well by an addition of oral Diazoxide, hence making him better upon hospital discharge. To conclude, hyperinsulinemia can result in brain damage and impaired development in infancy if left untreated.1 Anesthesiologists' role is challenging, since we are not only maintaining a stable hemodynamic but also keeping a normoglycemic condition during surgery.

Keywords: infancy, anesthesia, perioperative blood sugar management, insulinoma

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ANAESTHESIA AND ANALGESIA MANAGEMENT IN MUCOPOLYSACCHARIDOSIS TYPE VI PATIENT

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INTRODUCTION/ PURPOSE: Mucopolysaccharıdosıs (mps) represents a group of rare lysosomal storage dısorder assocıated wıth an array of clınıcal manıfestatıons. mps type vı ıs progressıve condıtıon that causes many tıssues and organs to enlarge. patıents wıth mps have an ıncreased anesthesıa rısk due to dıfficult aırway, cardıovascular problems, respıratory and skeletal manıfestatıons. ın thıs case we aımed to present anaesthetıc management of the patıents wıth mps ıv (16-year-old) for umbılıcal and ınguınal hernıas surgery.

CASE: Patıent had trıcuspıd regurgıtatıon, mıtral valve deformıty and thoracolumbar kyphoscolıosıs. there were dıfficult ıntubatıon fındıngs ın physıcal examınatıon. patıent's routıne blood testıng was normal. there was no hıstory of previous surgery. before surgery, arrangements for antıcıpated dıfficult ıntubatıon were made. an experienced anesthesıa team was on standby. after preoxygenatıon, ınductıon was done wıth ıntravenous propofol. mask ventılatıon was performed by two hands technique. after rocuronıum was gıven, endotracheal ıntubatıon was attempted usıng flexıble fıberoptıc and vıdeolaryngoscope. however, tıp of fıberoptıc couldn't go further from vocal cord. then bougıe was used wıth vıdeolaryngoscope. ıntubatıon was performed on bougıe successfully. anesthesıa maıntaıned wıth sevoflurane+remıfentanıl. doses of remıfentanıl was adjusted to stable hemodynamıc varıables.erector spınae plane block (esp) was bılaterally performed at t8 level before surgıcal ıncısıon (fig.ı).at the end of the surgery a thın tube was ınserted ınto endotracheal tube as an tube changer (fig.ıı). paracetamol was gıven ıntravenously.extubatıon was uneventful. patıent was taken to postoperatıve care unıt.

FIG.I



FIG.II



DISCUSSION/ CONCLUSION: Although mps are rare dısorders, hıgh prevalence of aırway obstructıon and restrıctıve pulmonary dısease ın combınatıon wıth cardıovascular and skeletal manıfestatıons poses a hıgh anaesthetıc morbıdıty and mortalıty. patıent wıth mps was taken ınto surgery wıth an experıenced team and dıfficult ıntubatıon condıtıons were provıded. effectıve analgesıa obtaıned, and need for opıoıds was reduced wıth esp.

Keywords: mucopolysaccharidosis, difficult intubation, erector spinae block

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Anesthetic Management of Newborns with Methylenetetrahydrofolate Reductase Gene Mutation Operated for Meningomyelocele

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INTRODUCTION/ PURPOSE: Meningomyelocele is a devastating congenital malformation of the central nervous system and is associated with significant morbidity and mortality. Our aim is to present the anesthetic management of newborns with methylene tetrahyrofolate reductase (MTHFR) gene mutation operated for meningomyelocele.

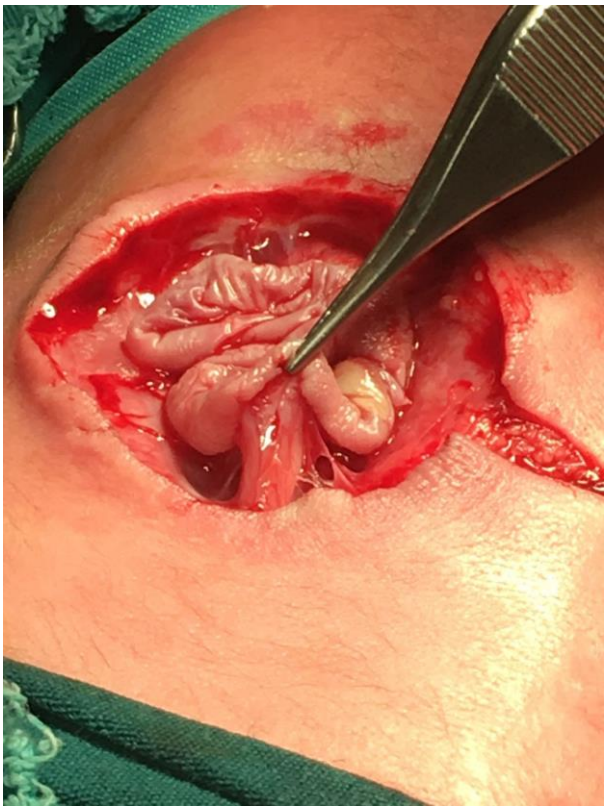
MATERIALS and METHOD: The results of 8 newborns who were operated within 3 years were analyzed. Anesthetic management and postoperative side effects were noted.

Figure I.



One of the newborns with meningomyelocele is seen on the first day of life before the operation.

Figure II.



Spinal cord is seen during meningomyelocele operation.

FINDINGS: Patients on the first day of their life ECG, SpO2 and noninvasive blood pressure monitoring were applied. Inhalation induction with sevoflurane was performed. The patients were intubated using rocuronium. Anesthesia was maintained with sevoflurane and oxygen/air. Nitrous oxide was not used. All patients remained stable throughout the operation and were awakened without any problems. No ischemic events were encountered during the postoperative period.

DISCUSSION / CONCLUSION: Neural tube defects are more common in patients with the MTHFR gene mutation. It is an autosomal recessive disorder that results in increased homocysteine levels in the body. Manifestations of the disease are neurological symptoms, premature atherosclerosis and venous and arterial thrombosis. MTHFR plays a key role in folate metabolism and in the homeostasis of homocysteine; mutations in the enzyme lead to hyperhomocysteinemia. Methylene tetrahydrofolate reductase deficiency has substantial significance in terms of anesthesiology, since N2O is still used widely in anesthesia management. N2O inhibits methionine synthetase, which transforms homocysteine to methionine and leads to an increase in homocysteine levels. Elevated homocysteine is associated with impaired endothelial function. It produces direct cytotoxic effects on endothelial cells and leads to ischemic insults. Therefore, it is essential to avoid N2O use in patients with the MTHFR mutation. Sevoflurane and TIVA can be used safely in these patients.Patients with an MTHFR mutation should be followed up closely in the postoperative period, even if N2O was not used during the anesthesia, due to the susceptibility of the patients to ischemic insults.

Keywords: Methylenetetrahydrofolate Reductase Gene Mutation, anesthesia, meningomyelocele

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Anesthesia And Rare Congenital Diseases: A Case Series

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INTRODUCTION/ PURPOSE: Developments in early diagnosis and therapies and the multidisciplinary aproach have led to an extension of the life expectancy of patients suffering from rare congenital diseasesV. It is very common for those patients to undergo multipl surgeries (1). Although the improvements in anesthetics and modern safety anesthesia techniques, it is still a challenge for an anesthesist to recognise risk factors and potential complications before giving an anesthesia (2). We aim to document our current practice in a series of children with the rare congenital diseases who had undergone orthopedic surgery.

CASE: We have documented the general and regional anesthesia practice in 11 pediatric orthopedic patients with rare diseases for the period 2018-2022 (Table 1). One patient each with Charcot- Marie-Tooth Disease (17y, 4 times, arthrodesis), Noonan Syndrome (13y, low extremity benign neoplasm excition), Willams- Beurer Syndrome (3y and 9y, congenital hip dislocation, multipl operations) Wilson Disease (14y, bilateral tendon lengthening), Emery-Dreifuss muscular dystrophy (16y, tendon lengthening), IPEX (Immune dysregulation, Polyendocrinopathy, X-linked) syndrome (11y, bilateral genu valgum), transverse myelit (17y, bilateral arthrodesis, an unspecified neurometabolic disease (12y, bilateral tendon lengthening) and three patients with Rett Syndrome (10y, 5y, 9y respectively, tendon lengthening, femur fracture). Sedoanalgesia or general anaesthesia with variety of anaesthetic agents were used in ten patients. Usg guided combined femoral popliteal block was performed for emery dreifuss diagnosed patient. There were no episodes of malignant hyperthermia and perioperative events attributable to our anesthesia practices.

DISCUSSION/ CONCLUSION: These congenital rare disorders pose a significant challenge to anesthesist for potential risk factors (e.g. severe airway problems, malignant hyperthermia, postoperative ventilation problems, cardiac problems, neuropathy and myopathy). Meticulous individual assessment, unique anesthesia management and high attention to perioperative parameters are very important to avoid morbidity and mortality in these rare congenital diseases.

Keywords: anesthesia, paediatric, congenital abnormalities, genetic diseases

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A Case of Latex Anaphylaxis in Tethered Cord Operation

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INTRODUCTION/ PURPOSE: Latex allergy incidence is higher in children with neural tube closure defects(1). We aimed to present the latex anaphylaxis that we encountered in the Tethered Cord operation.

CASE: 9-year-old, Tethered Cord was prepared for the operation.0.5 mg/kg oral midazolam, 1.5 mg/kg propofol, 1mcg/kg fentanyl, 0.6 mg/kg rocuronium were practiced and he was intubated with an endotracheal tube. Neurological monitoring prepared, he was placed in the prone position. Upon the observation of sudden tidal volume loss, high peak pressure, and tachycardia, the position of the tube and the leakage were checked, and the lung sounds were listened to. He was placed in the supine position due to widespread spasmotic sound and resistance to ventilation. Diffuse erythema, swelling in the periorbital and peroral area were noticed, and the tube and eye patches were removed. 20 mg pheniramine maleate, 2 mg/kg methylprednisolone, 0.01 mg/kg epinephrine were practiced. After 40 minutes, he was extubated, taken to the recovery unit asymptomatic, lung sounds normally. The family was informed about the suspicion of latex allergy and the operation was postponed. In the examinations of the allergy and immunology department latex allergy was found to be positive.

DISCUSSION/ CONCLUSION: Latex allergy can result in peroperative anaphylaxis and death. Since its widespread use and economic reasons make it difficult to completely remove it from the environment, there are studies recommending immunotherapy treatment for latex(2). Guidelines for latex allergy are prepared for spina bifida patient groups with a high incidence(3).In the group at risk for latex allergy, all products in the operating room should be checked in detail for latex content, even if there is no history of allergy, negative skin test, and a history of uneventful operation. We have to take precautions against latex as it continues to be a universal and economic health problem especially in underdeveloped and developing countries.

Keywords: Latex allergy, Anaphylaxis, Tethered Cord

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During Magnetic Resonance Imaging In Pediatric Patients Our Sedation/Anesthesia Experience: Retrospective Study

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INTRODUCTION/ PURPOSE: Magnetic resonance imaging (MRI) is usually performed with sedation in pediatric patients for diagnostic purposes. In this study, we aimed to evaluate and present the demographic data, ASA levels, MRI duration, anesthetic drugs used and complication rates of pediatric patients who underwent MRI under sedation in our hospital.

MATERIALS and METHOD: A total of 324 pediatric patients who underwent MRI with sedation between 01.01.2021 and 30.06.2022 were analyzed retrospectively.Patients' age (months), weight, gender, ASA, MRI duration, anesthetic drugs administered, and complications were recorded. In addition, the incidence of complications in each was evaluated.In addition, they were divided into groups according to the anesthetic agents used (Group K: ketamine, Group P: propofol, Group PK: ketamine and propofol, Group T: thiopental) and the complication rates of these groups were compared.

FINDINGS: Of the 324 patients examined retrospectively, 193 were male and 131 were female.The mean age of the patients (month): 44.84±42.23, the mean weight (kg): 15.47±10.8.There were ASA 1:76, ASA 2:210, and ASA 3:38 patients, respectively. Mean MRI times (min): 17.61±8.43.Complications (bradycardia, hypoxia, asystole) developed in 6 (1.85%) patients.Complication rates were evaluated according to the drug used, 1 (14.29%) in the ketamine group (Group K), 8 (Group P) in the propofol group, 2 (1.14%), and 3 (3.09%) in the ketamine+propofol group (Group PK). There were no complications in the thiopental group (Group T), and there was no significant difference between the groups.

Demographic data, ASA, drugs, MRI time and complication of the patients

		n	%
Age (m)		44,84±42,23	36 (0,25-204)
W (kg)		15,47±10,89	13 (1,34-93)
Sex	M	193	(59,57)
	F	131	(40,43)
ASA	1	76	(23,46)
	2	210	(64,81)
	3	38	(11,73)
Drugs	K	7	(2,16)
	P	175	(54,01)
	PK	97	(29,94)
	T	45	(13,89)
MRI Time (duration)		17,61±8,43	15 (0-90)
Complication	No	318	(98,15)
	Yes	6	(1,85)

Ort+-SD

Complications

		Complication				p
		No		Yes		
Age (m)		45,19±42,47	36 (0,25-204)	26,25±21,67	24 (1,5-60)	0,303[1]
W (kg)		15,54±10,94	13 (1,34-93)	11,43±6,70	10,5 (3,8-22)	0,361[1]
Sex	M	189	(97,93)	4	(2,07)	0,721[2]
	F	129	(98,47)	2	(1,53)	
ASA	1	75	(98,68)	1	(1,32)	0,252[2]
	2	207	(98,57)	3	(1,43)	
	3	36	(94,74)	2	(5,26)	
Drugs*	K	6	(85,71)	1	(14,29)	0,044[2]
	P	173	(98,86)	2	(1,14)	
	PK	94	(96,91)	3	(3,09)	
	T	45	(100,00)	0	(,00)	
Time		17,69±8,40	15 (10-90)	13,33±9,83	12,5 (0-30)	0,070[1]

[1]Mann Whitney U Testi [2]Ki-Kare Testi

DISCUSSION / CONCLUSION: Today, sedation has become routine in pediatric patients because endoscopic procedures are painful and unpleasant interventions. In our study, our complication rates during MRI under anesthesia were found to be quite low and drug types did not affect the complication rates. We believe that studies with more patients are needed to minimize complication rates and to establish standards in anesthesia practices.

Keywords: Pediatric patient, magnetic resonance imaging, sedation

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Perioperative Complication in Cleft Lip And Palate Surgery: A Retrospective Study of 5020 Patients Under Smile Train Project.

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INTRODUCTION/ PURPOSE: To evaluate the perioperative complications in children undergoing cleft lip and palate repair.

MATERIALS and METHOD: An audit of 5344 cleft surgeries in children enrolled under smile train project is documented. From November 2006 to April 2021, a retrospective study was carried out. Out of 5344, 5020 patients included in the study and 324 patients were excluded due to lack of data. The factors taken into consideration were demographic details of patient, preoperative status, anaesthetic management and perioperative complications. Statistical analysis and chi square test were applied. Institutional ethical committee approval and informed consent were taken.

FINDINGS: Cleft deformities were more common in males than females. Cleft lip with palate was the commonest phenotype. Preoperatively, our cut off level for haemoglobin was 8.5 g/dl. In pre-existing conditions, upper respiratory tract infection was most commonly seen i.e, 332 patients (6.61%), various syndromes in 148 patients (2.94%) and out of these, 120 patients (2.39%) were of pierre robin syndrome. The incidence of perioperative complications was divided into two groups; minor and major. In the minor complications, there was bradycardia in 66 patients (1.31%), decreased oxygen saturation in 48 patients (0.95%), bleeding in 59 patients (1.17%) and no patient had post-operative delirium. In the major group, difficult intubation in 163 patients (3.24%), laryngeal oedema in 16 patients (0.31%), bronchospasm in 220 patients (4.38%), failed intubation in 15 patients (0.29%) and pulmonary oedema occurred in 1 patient.

DISCUSSION / CONCLUSION: Audit of this kind is basically intended to find out the contributory factors that can lead to critical events and prevent further occurrences. As most of these are elective procedures, lot of perioperative complications can be prevented by following the smile train protocol for safe anaesthesia.

Keywords: Cleft lip and Palate; Anesthesia; Endotracheal Intubation; Respiratory tract infection

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Use Of Dexmedetomidine In Combination With Non-Opioid Analgesics In Children After Cardiac Surgery

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INTRODUCTION/ PURPOSE: Postoperative analgesia is a major part of intensive care in pediatric cardiac surgery. In this case, non-opioid analgesics and anxiolytics play an important role.

MATERIALS and METHOD: The study included 60 children aged 2 to 4 years with a diagnosis of congenital heart disease, operated on for radical correction of defects under cardiopulmonary bypass. The patients were divided into 2 groups: 1-group 30 (50%) subjects who underwent postoperative analgesia with paracetamol in injectable form (15 mg/kg). 2-group 30 (50%) in which the drug diclofenac was used in the form of a suppository (2 mg/kg). Postoperative observation and therapy were in the intensive care unit with the constant monitoring of vital signs of the body. Before extubation, all patients received dexmedetomidine, a highly selective α2-adrenergic agonist with a powerful sedative effect (1.0 mcg/kg). Pain relief with non-opioid analgesics was in the early postoperative period and every 8 hours for 3 days. Accordingly, patients examined in four stages. Stage one, early postoperative period (before extubation). Stage two, 8 hours after surgery, stage 3, one day after surgery, stage 4, before transferring the child from the intensive care unit. All groups were identical in anthropometric and age parameters. Conducted a study of systemic hemodynamics, the level of cortisol and glucose in the blood, assessed the intensity of pain on a visual analogue scale at the main stages.

FINDINGS: The use of non-opioid analgesics in combination with dexmedetomidine showed its high efficiency in the postoperative period, without causing any special complications in organs and systems. The disadvantages of dexmedetomidine are moderate bradycardia and controlled hypotension.

DISCUSSION / CONCLUSION: This method can significantly reduce the use of narcotic drugs and prevent the development of postoperative delirium. However, the small range of examined patients does not give us a conclusion about the uniqueness of this combination, which requires further thorough and extensive research.

Keywords: children, postoperative pain relief, sedation, cardiac surgery

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The Anti-Inflammatory and Anti-oxidant Effects of Propofol and Sevoflurane in Children With Cyanotic Congenital Heart Disease

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INTRODUCTION/ PURPOSE: Children with cyanotic congenital heart disease (CCHD) have higher levels of inflammatory cytokines and lower levels of antioxidant capacity and are more susceptible to an inflammatory response than acyanotic children(1). We aimed to compare the anti-inflammatory and anti-oxidant effects of propofol and sevoflurane in children with CCHD undergoing open heart surgery.

MATERIALS and METHOD: Thirty-four children with CCHD, aged 1-10 years old were randomized to receive general anesthesia with either sevoflurane (group S) or propofol (group P). The systemic inflammatory responde syndrome (SIRS) occurrence was assessed based on the pediatric sepsis consensus criteria (2) at the end of the operation and at the 6th, 12th, and 24th postoperative hours. Blood samples were obtained at four times: after anesthesia induction (T0), after release of the aortic cross clamp (ACC, T1), at the end of the operation (T2), and at the postoperative 24th hour (T3). The serum levels of interleukin 6 (IL-6) and tumor necrosis factor alpha (TNF-α), and the total antioxidant status (TAS) and total oxidant status (TOS) were analyzed.

FINDINGS: SIRS was more common in group S than in group P at all study control times ($p = 0.005$ for end of the operation, $p = 0.009$ for the 6th postoperative hour, $p = 0.001$ for the 12th postoperative hour, $p = 0.002$ for the 24th postoperative hour). There was no significant difference between the groups in the mean TNF-α and IL-6 levels at any time. The TAS level at T2 was higher in group P than group S ($p=0.036$). The serum TAS level increased at T2 compared with T0 in group P, but it decreased in group S ($p = 0.042$).

FigureI

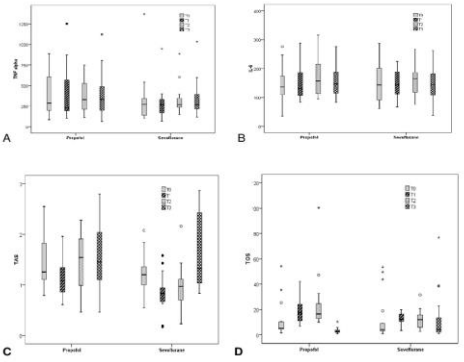


Figure 2: Levels of tumor necrosis alpha (TNF-α), interleukin-6 (IL-6), total anti-oxidant status (TAS) and total oxidant status (TOS) at four time points: after anesthetic induction (T0), after release of the ACC (T1), at the end of the operation (T2), at the postoperative 24th hour (T3).

Levels of tumor necrosis alpha (TNF-α), interleukin-6 (IL-6), total anti-oxidant status (TAS) and total oxidant status (TOS) at four time points: after anesthetic induction (T0), after release of the ACC (T1), at the end of the operation (T2), at the postoperative 24th hour (T3).

DISCUSSION / CONCLUSION: The results of our study show that propofol provides a greater antioxidant effect and reduces SIRS postoperatively more than sevoflurane in children with CCHD undergoing open heart surgery.

Keywords: Child, cyanotic congenital heart disease, sevoflurane, propofol, inflammation

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Interest Of Intranasal Clonidine In The Prevention Of Perioperative Anxiety In Children

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INTRODUCTION/ PURPOSE: The aim of our work is to study the place of clonidine in the prevention of perioperative anxiety in children.

MATERIALS and METHOD: We conducted a single-centre prospective randomized double-blind case-control study after approval by the local ethics committee. We included all ASA I or II children aged 2 to 15 years undergoing scheduled surgery lasting less than 2 hours. Children received either an intranasal dose of clonidine (4 µg/kg) or an equal volume dose of saline solution 30 minutes before entering the operating room. The level of anxiety assessed using the m-YPAS score was recorded before premedication, then at the time of parent-child separation and at the time of installation in the operating room. Acceptance of premedication, degree of sedation on entering the operating room as well as agitation on awakening, sedation on arrival in post anesthesia care unit were noted. Adverse effects were recorded during the surgical procedure and in the post-operative monitoring room.

FINDINGS: Seventy-eight children were analyzed. The two groups were comparable in terms of demographic characteristics. Premedication acceptance was comparable with no statistically significant difference (p=0.08). Children who received clonidine showed better sedation on entering the operating room (p=0.002) as well as postoperatively on entering the post anesthesia unit care (p=0.006). The hemodynamic and respiratory parameters recorded were statistically comparable.

DISCUSSION / CONCLUSION: Intranasal clonidine administration is an interesting alternative as anxiolytic premedication. It produces effective sedation with few side effects.

Keywords: intranasal, clonidine, premedication, anxiety, children

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The Effect Of Paediatric Caudal Injection Volume On Optic Nerve Sheath Diameter And Regional Cerebral Oximetry

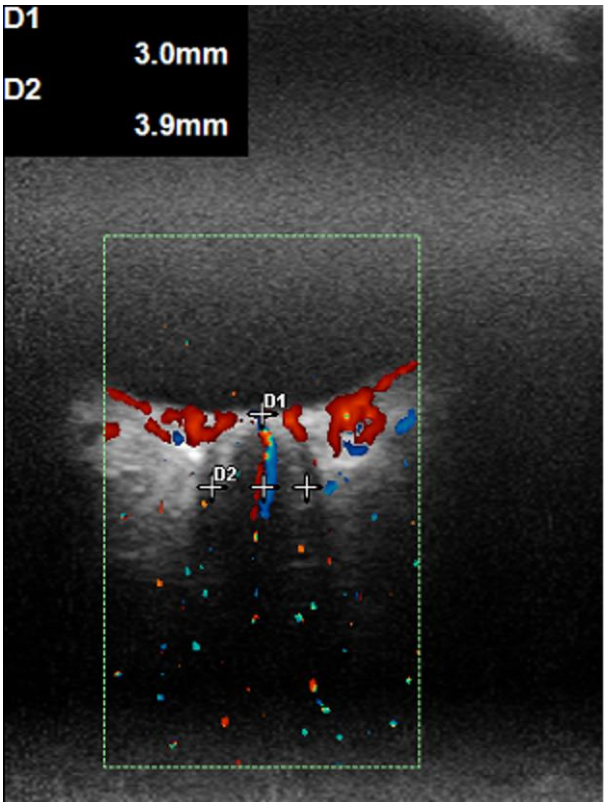
Aybike Onur Gonen[1], Guner Kaya[1], Ayse Cigdem Tutuncu[1], Rahsan Ozcan[2], Senol Emre[2], Pınar Kendigelen[1]

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INTRODUCTION/ PURPOSE: Caudal anaesthesia is a commonly performed neuraxial block in children. After an injection of local anaesthetic solution into the epidural space, the pressure on the dura can displace cerebrospinal cranially and cause safety concerns in terms of raised intracranial pressure (ICP). Optic nerve sheath diameter (ONSD) is a non-invasive surrogate for measurement of ICP. Regional cerebral oximetry (CrSO2) can monitor brain oxygenation which may decrease by reduction in cerebral flow due to increased ICP. Our goal was to evaluate how caudal injection volumes of 0.8 ml/kg (Group Low/GL) and 1.25 ml/kg (Group High/GH) may influence ICP by measuring ONSD and CrSO2.

MATERIALS and METHOD: This was a prospective, randomised, and parallel group trial with 58 children, ages 1-7-years-old, ASA class I or II and with no known previous intracranial or ocular pathology. This study was approved by the institutional ethics committee and registered at Clinical Trials. All patients were elective paediatric surgical patients, suitable for single shot caudal anaesthesia with low (0.8 ml/kg) or high (1.25 ml/kg) volumes of 2 mg/kg bupivacaine performed under general anaesthesia. ONSD, CrSO2, hemodynamic and other parameters that may influence ICP were measured before, immediately after, 10-, 20- and 30- minutes after the block. ONSD was measured with ultrasonography and CrSO2 with near-infrared spectroscopy.

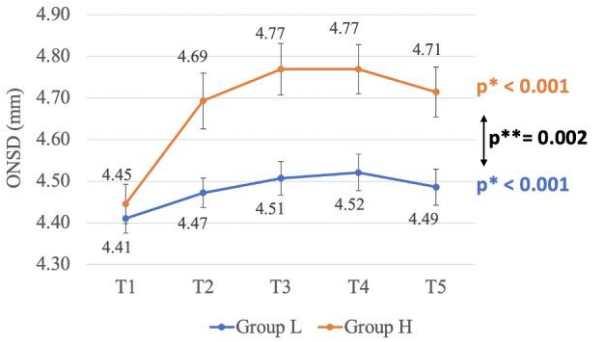
ONDS Measurement



Transorbital imaging by ultrasound shows optic nerve disk. ONSD is measured 3 mm behind the retina.

FINDINGS: Mean ONSD values increased from 4.41±0.19 mm to 4.52±0.24 mm in GL and from 4.45±0.26 mm to 4.77±0.34 mm in GH. Eight of 29 patients in GH had a significant ONSD increase by more than 10%, whereas none in GL did. Both groups had a reduction of less than 2.5% in CrSO2. Hemodynamic and respiratory parameters showed similar trends in both groups.

ONDS Measurements



ONSD values before (T1), immediately after (T2), 10- (T3), 20- (T4) and 30-minutes (T5) after caudal injection. p* shows significance for ONSD change within a group from T1 to T5, p** shows significance for ONSD trend difference between GH and GL

DISCUSSION / CONCLUSION: Caudal injection with 1.25 ml/kg increased ONSD, an indirect measurement of ICP, more than 0.8 ml/kg, while neither volume caused a clinically important reduction in CrSO2.

Keywords: caudal anaesthesia, cerebral regional oximetry, intracranial pressure, optic nerve sheat diameter, ultrasonography

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The Efficacy Of Transversalis Fascia Plane Block In Pediatric Inguinal Hernia Repair: A Randomized Controlled Study

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INTRODUCTION/ PURPOSE: The postoperative analgesic efficacy of transversalis fascia plane (TFP) block is controversial in pediatric patients undergoing inguinal hernia surgery. This study aims to compare the efficacy of ultrasound-guided TFP block and standard analgesic methods in pediatric patients undergoing inguinal hernia repair. (ClinicalTrials.govIdentifier:NCT04272320)

MATERIALS and METHOD: After obtaining ethical consent, 60 patients aged 1-8 years who underwent unilateral inguinal hernia repair were randomly divided into two groups TFP block (Group TFP, n=30) or control group (Group control, n=30). The TFP group received 0.25% bupivacaine at 0.5 ml/kg under ultrasound guidance. Routine analgesia protocol was applied to Group C. Pain scores (FLACC), family satisfaction, block complications, nausea-vomiting, sedation score, and additional analgesic requirements were recorded.

FINDINGS: Postoperative pain was evaluated with the FLACC scale in the first 24 hours. Accordingly, FLACC pain scores at PACU, 1st, 2nd, and 4th hours were statistically significantly lower in Group TFP compared to Group Control ($p<0.05$). There was no difference between the groups at 8th, 12th, and 24 hours ($p>0.05$). Three patients in Group TFP and twelve in Group Control required additional opioid analgesics at PACU, and there was a statistically significant difference ($p=0.015$). Again, when the need for ibuprofen in the ward was examined, it was required in two patients in Group TFP and eleven patients in Group Control, and there was a statistically significant difference ($p=0.010$). Family satisfaction was evaluated as good, moderate, and bad at the postoperative 24th hour, and the families of the patients who had a statistically significant TFP block were more satisfied ($p<0.001$). There was no statistically significant difference between the groups in terms of postoperative nausea scores and sedation scores ($p>0.05$).

DISCUSSION / CONCLUSION: We conclude that TFP block in pediatric patients is an appropriate approach as a part of multimodal analgesia. It creates fewer pain scores, requires less additional analgesia, and increases family satisfaction.

Table 1: Demographic data and comparison of operative procedures between groups.

	Group TFP (n:30)	Group Control (n:30)	p
Age (years)	4.25 (2.25-6)	5 (2.5-8)	0.583 $^{\alpha}$
Weight (kg)	16.5 (11-23)	18.5 (11-24.5)	0.640 $^{\alpha}$
Height (cm)	111 (97.5-127.5)	122.5 (95-140)	0.414 $^{\alpha}$
Gender (f/m)	11/19	9/21	0.785 $^{\beta}$
ASA (I-II)	27/3	29/1	0.612 $^{\beta}$
Duration of Anesthesia (min)	45 (40-50)	40 (32.5-45)	0.052 $^{\alpha}$
Duration of Surgery (min)	27.5 (20-30)	30 (20-30)	0.659 $^{\alpha}$

Values are expressed median (%25-75) or number, ASA; American Society of Anesthesiologist, kg; kilogram, cm; centimeter, f; female, m; male, min; minutes.
$^{\alpha}$ p>0,05 Mann-Whitney U test
$^{\beta}$ p>0,05 Fisher's Exact test

Table 2: Comparison of the FLACC score assessment between groups

	Group TFP (n:30)	Group Control (n:30)	p
Flacc PACU	0 (0-1)	3 (2-5)	<0.001 [α]
Flacc 1st	0 (0-0)	2 (1-3)	<0.001 [α]
Flacc 2nd	0 (0-0)	1 (0-2)	0.001 [β]
Flacc 4th	0 (0-0)	0 (0-1)	0.03 [β]
Flacc 8th	0 (0-0)	0 (0-0)	0.429 [γ]
Flacc 12th	0 (0-0)	0 (0-0)	NS
Flacc 24th	0 (0-0)	0 (0-0)	NS
Opioid Consumption (Y/N)	3/27	12/18	0.015 [δ]
Ibuprofen in ward (Y/N)	2/28	11/19	0.010 [δ]

Values are expressed median (%25-75) or number
[α] p<0,001 Mann-Whitney U test
[β] p<0.05 Mann-Whitney U test
[γ] p>0.05 Mann-Whitney U test
[δ] p<0.05 Fisher's Exact test

Table 3: Comparison of the parent's satisfaction and side effects between groups

	Group TFP (n:30)	Group Control (n:30)	p
Parents satisfaction (f/g/e)	2/12/16	10/18/2	<0.001 [α]
Nausea (Y/N)	2/28	4/26	0.671 [β]
Sedation (I/II/III)	23/6/1	19/9/2	0.518 [β]

Values are expressed as a number. f; fair, g; good, e; excellent. Y; yes, N; no, I; awake and alert, II; quietly awake, III; asleep but easily roused
[α] p<0,001 Fisher's Exact test
[β] p>0.05 Fisher's Exact test

Keywords: inguinal hernia repair, pediatric, postoperative analgesia, transversalis fascia plane block

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TRACHEAL TUBES, Types, Cuffs In Pediatric Anesthesia

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INTRODUCTION/ PURPOSE: The knowledge about adequately sized tracheal tubes (TTs) in pediatrics is a complicated field.The pediatric larynx consists of rigid and distensible structures which is not clearly enough documented in the literature, particularly not in relation to tracheal tubes (TTs).

1

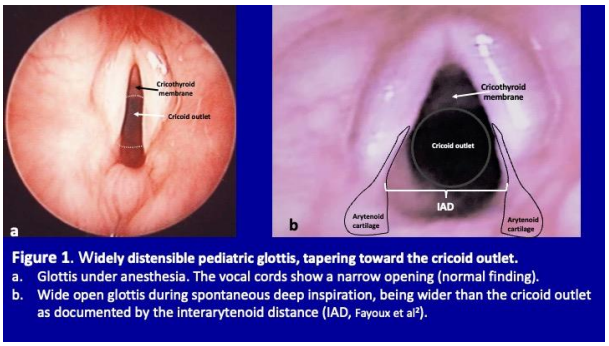


Figure 1. Widely distensible pediatric glottis, tapering toward the cricoid outlet.
a. Glottis under anesthesia. The vocal cords show a narrow opening (normal finding).
b. Wide open glottis during spontaneous deep inspiration, being wider than the cricoid outlet as documented by the interarytenoid distance (IAD, Fayoux et al[2]).

2

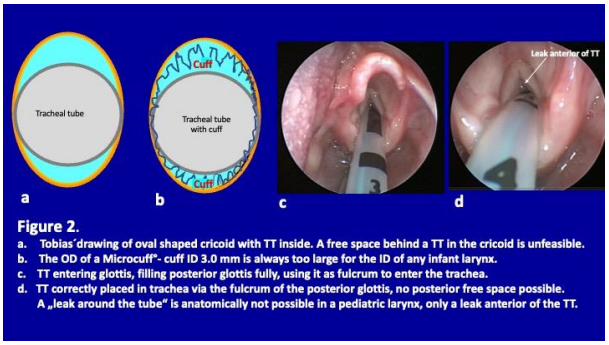


Figure 2.
a. Tobias´drawing of oval shaped cricoid with TT inside. A free space behind a TT in the cricoid is unfeasible.
b. The OD of a Microcuff®- cuff ID 3.0 mm is always too large for the ID of any infant larynx.
c. TT entering glottis, filling posterior glottis fully, using it as fulcrum to enter the trachea.
d. TT correctly placed in trachea via the fulcrum of the posterior glottis, no posterior free space possible. A „leak around the tube" is anatomically not possible in a pediatric larynx, only a leak anterior of the TT.

3

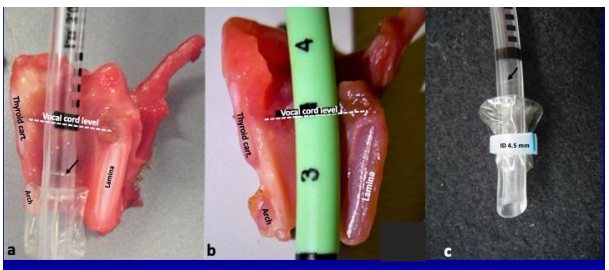


Figure 3.
a. ID 3.0 mm Microcuff® tube (MCT) deep in infant in cricoid cartilage, sharp cuff attachment visible.
b. Uncuffed TT in infant larynx which cannot injure the mucosa when infant is moving head up and down.
c. ID 3.0 mm MCT in mock cricoid outlet of newborn. The wrinkles of the cuff impinge always on the mucosa.

MATERIALS and METHOD: Although Eckenhoff1 published a fundamentally important paper in 1951, based on earlier investigations, confirming the rigid, circular cricoid outlet as the narrowest part of the pediatric larynx, it remains difficult to understand why there still exist conflicting arguments about varieties of the anatomy of the pediatric larynx. Fayoux´s article2 demonstrates that the width of the immediate subglottic space moves with the distention of the glottic opening, therefore cannot be narrower than the cricoid outlet (Figure 1).

FINDINGS: It was obvious that under deep sedation or anesthesia, the vocal cord level would be the narrowest part of the upper airway, but widely distensible, never being an obstacle for advancing TTs (in which we are mainly interested), but only the rigid cricoid outlet3.The reason why many conflicts are still present, is partly due to the advent of computing tomography (CT) and magnetic resonance imaging (MRI), being prone to artifacts.

DISCUSSION / CONCLUSION: Entirely incomprehensible are drawings by Tobias4 (Figure 2), showing an oval cricoid outlet, the shaft of a TT leaving an open space anterior and posterior of the tube for escaping air and possibly for aspiration. His assertions are not based on scientifically proven knowledge. The author mixed up distensible and rigid structures and quoted literature incorrectly.Documenting for the first time the details of the anatomy of the pediatric larynx in an autopsy study by anatomists (Isa et al5), data in the large historical review3 were confirmed that none of the very popular cuffed Microcuff© tubes fit correctly into the larynges and tracheas they are designed for (Figure 3).

Keywords: Tracheal tubes, Types, Cuffs

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Effect Of High-Flow Nasal And Buccal Oxygenation On Safe Apnoea Time İn Children With Open Mouth

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INTRODUCTION/ PURPOSE: Applying High-flow nasal oxygenation (HFNO) during apnoea is reported to prolong safe apnoea time in children while keeping their mouth closed. This prospective study compared the effect of HFNO and buccal oxygenation (BO) in children when the patients' mouth are kept open, similar condition to airway management.

MATERIALS and METHOD: Children between 0-10 years old undergoing general anaesthesia were enrolled and randomly assigned to group using HFNO or BO. After induction of general anaesthesia including neuromuscular blockade, oxygenation via bag-mask was provided until expiratory oxygen concentration reaches 90%. Afterward, the ventilation was stopped, keeping patients' mouth open. During apnoea, the HFNO group received oxygenation at a ratio of 2L/min/kg. On the contrary, oxygen was delivered to the buccal space through an oral RAE tube at a ratio of 0.5L/min/kg in BO group. Time until pulse oximetry reaches 92% was recorded as 'apnoea time'. If pulse oximetry was maintained until two-fold of the 'apnoea time' from literature according to age, success in 'safe apnoea' was declared and ventilation was resumed.

FINDINGS: Total 20 children were enrolled, 10 each on both groups. In the HFNO group, all the patients succeeded in 'safe apnoea'. In the buccal group, only one (10%) patient who were 3 months old recorded apnoea time of 119s, which is 109% of previous data, failed in 'safe apnoea'. The difference in the rate of 'safe apnoea' was not statistically significant (P=1.000). End-tidal carbon dioxide, transcutaneous carbon dioxide or oxygen reserve index at the restart of ventilation did not differ between two groups.

DISCUSSION / CONCLUSION: We suggest that HFNO is effective in prolongation of safe apnoea time even when the patients' mouth are open. BO is also effective in prolongation of safe apnoea time in the same condition.

Keywords: High-flow nasal oxygenation, Buccal oxygenation, Apnoea, Paediatric anaesthesia

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Comparison Of Ultrasound Guided Costoclavicular Lateral Versus Supraclavicular Brachial Plexus Block İn Pediatric Patients Undergoing Upper Extremity Surgery

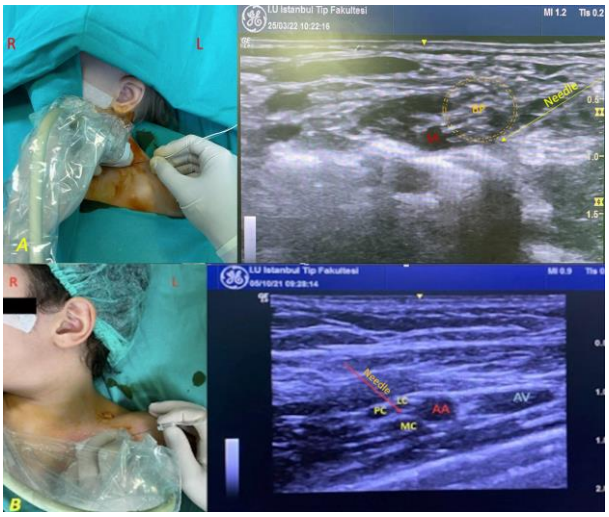
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INTRODUCTION/ PURPOSE: Ultrasound (US) guided costoclavicular lateral block (LCB) has been defined as a powerful alternative to other traditional brachial plexus blocks lately (1,2). We aimed to compare performance and analgesic features of LCB versus supraclavicular brachial plexus block in pediatric hand surgery patients. Our primary outcome was block performance time.

MATERIALS and METHOD: After obtaining Istanbul Faculty of Medicine Clinical Research Ethics Committee approval (2020/46); aged between 2-10 patients, who were scheduled for upper extremity surgery, were randomly assigned to costoclavicular lateral (Group LC, n=25) or supraclavicular (Group SC, n=20) brachial plexus block groups. Following general anaesthesia induction, costoclavicular lateral or supraclavicular brachial plexus block (0.5 ml/kg 0.25% bupivacaine) was applied according to randomization for postoperative analgesia (Figure 1). Performing properties (Block performance time, ultrasonographic needle tip and shaft visualization difficulty, number of needle maneuver), postoperative comfort parameters (Time-to-first pain, sleep duration, vomiting incidence, hemidiaphragmatic paralysis occurrence), and postoperative acute pain severity (FLACC) were evaluated.

Image 1A and 1B



Demostrations of Supraclavicular (A) and Costoclavicular lateral brachial plexus block (B). R: Right, L: Left, SA: Subclavien Artery, BP: Brachial Plexus, AA: Axillary Artery, AV: Axillary Vein, PC: Posterior Cord, LC: Lateral Cord, MC: Medial Cord.

FINDINGS: Group LC required less time to complete intervention (67[47-92] sec vs 127.5[85-180] sec, $p<0.01$). Also, FLACC pain scales were lower at 6th hour in Group LC (0[0-0] vs 0[0-3], $p<0.05$). Time-to-first pain was also similar ($p>0.05$). Other comfort parameters were statistically similar, except vomiting incidence which was higher in Group SC ($p<0.05$). Group SC patients exhibited more hemidiaphragmatic paralysis (0 vs 7 (35%), n (%), $p<0.01$) (Table 1 and 2).

Table1

A	Group LC (n=25)	Group SC (n=20)	*P*
Age (years)	3,7 ± 2,1	4,8 ± 2,3	0,12
Male/Female (n) (%)	9 (36%) / 16 (64%)	14 (70%) / 6 (30%)	0,02[a]
BMI (kg/m^2)	18,2 ± 4,5	16,5 ± 4,1	0,18
ASA I/II	21 (84%) / 4 (16%)	16 (80%) / 4 (20%)	1
Anesthesia duration (min)	108,5 ± 62,4	141,7 ± 47,9	0,06
Surgery duration (min)	84,4 ± 57,9	114,7 ± 44,6	0,06
The number of patients required additional fentanyl bolus (n) (%)	4 (16%)	3 (15%)	1
B	**Group LC (n=25)**	**Group SC (n=20)**	***P***
Ideal US-guided brachial plexus cords visualization/needle pathway planning time (sec)	14 [11-23]	14 [10,5-23,8]	0,95
Block performance time (sec)	62 [47-92]	127,5 [85-180]	<0,01[b]
Needle tip visualization difficulty*	4 [3-5]	4 [3-5]	0,61
Needle shaft visualization difficulty*	4 [3-5]	4 [3-4]	0,43
Number of needle maneuvers to reach target	1 [1-2]	2 [1-3]	0,08
Requirement of additional needle maneuver due to insufficient LA distribution	16 (64%)	10 (50%)	0,34
Total procedure difficulty according to the clinician*	4 [4-5]	4 [3-5]	0,2
Ipsilateral hemidiafragmatic paralysis**	0 (0%)	7 (35%)	<0,01[b]
C	**Group LC (n=25)**	**Group SC (n=20)**	***P***
Time-to-first pain (min)	494,3 ± 256,3	447,3 ± 217,2	0,56
Ipsilateral hemidiaphragmatic paralysis**	0 (0%)	7 (35%)	<0.01[a]
Total dose of morphine for additional analgesia	0 [0-0]	0 [0-0]	0,65
Sleep duration (hour)	7,3 ± 1,5	7,3 ± 1,5	0,89
POV (n) (%)	0	7 (35%)	<0,01[a]
Patient satisfaction	3 [3-3]	3 [3-3]	0,46
Surgeon satisfaction	3 [3-3]	3 [3-3]	0,82

A: Demographic and procedural data. Data are shown as number (n), percentage (%), and mean+SD. B: Block performance features and postprocedural complications. Data are shown as median(IQR), number (n), and percentage (%). C: Postoperative clinical data regarding comfort parameters. Categorical data are presented as number (n), and percentage (%). *: 5-point Likert scale, **:Reduction in diaphragmatic movement during sniff test. a: Chi square b: Mann Whitney-U test. LC: Lateral costoclavicular brachial plexus block, SC: Supraclavicular brachial plexus block, BMI: Body mass index. US: Ultrasound, LA: Local Anesthetics. POV: Postoperative vomiting.

Table 2

FLACC	Group LC (n=25)	Group SC (n=20)	*P*
0 min.	2 [0-3]	3 [0-6]	0,2
30th min.	1 [0-2]	0 [0-3]	0,6
1st hour	0 [0-2]	0 [0-2]	0,89
2nd hour	0 [0-2]	0 [0-2]	0,57
4th hour	0 [0-1]	0 [0-3]	0,43
6th hour	0 [0-0]	0 [0-3]	0,02[a]
12th hour	0 [0-0]	0 [0-3]	0,2
18th hour	0 [0-0]	0 [0-0]	0,66
24th hour	0 [0-0]	0 [0-0]	0,48

Postoperative FLACC pain rating scales. Data are presented as median (IQR).LC: Lateral costoclavicular brachial plexus block, SC: Supraclavicular brachial plexus block. a: Mann Whitney-U Test

DISCUSSION / CONCLUSION: US guided lateral costoclavicular approach represented less difficulty and less complications than US guided supraclavicular block for pediatric upper extremity surgeries. Analgesic efficacy was similar for both techniques.

Keywords: Acute pain, Infraclavicular block, Supraclavicular block, Pediatric anesthesia

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Addition Of Magnesium Sulfate To Bupivacaine İmproves Analgesic Efficacy After Tonsillectomy

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INTRODUCTION/ PURPOSE: We aim to compare the wound infiltration (peritonsillar fossa) of magnesium sulphate combined with bupivacaine, bupivacaine alone and saline solution on post- tonsillectomy pain in children. The accessory goals were to assess how magnesium sulfate infiltration affected the incidence of nausea and vomiting as well as the prevention of laryngospasm.

MATERIALS and METHOD: This study is a prospective; double blinded and randomized clinical trial. Patients were randomized into three groups . Group 1 received saline solution (NaCl), group 2 received 0.25% bupivacaine (1 mg/kg) and group 3 received magnesium sulphate (5 mg/kg) and 0.25% bupivacaine (1 mg/kg) after tonsillectomy using three-point technique.The mCHEOPS scale was used to assess pain. The occurence of laryngospasm, nausea and vomiting was monitored.

FINDINGS: Seventy-five children undergoing tonsillectomy were enrolled. The mCHEOPS scores of the group 3 were significantly lower than those of the group 2 and 1 ($P < 0.001$).Group 3 took longer to administer the first analgesic than the groups 2 and 1 ($P < 0.001$). The mean consumption of additional analgesic drugs was lower for the group 3 than the other groups ($P < 0.001$). There were no episodes of laryngospasm in the group 3 in comparison with the other groups. There was no statistically significant difference in the incidence of nausea and vomiting ($P = 0.628$).

DISCUSSION / CONCLUSION: The adjunction of magnesium sulphate to bupivacaine proved to provide more efficient pain control than bupivacaine alone. However, the small number of participants and the absence of sampling at the P level of 0.005 do not allow to conclude with absolute certainty.

Keywords: magnesium sulfate, bupivacaine, analgesia, tonsillectomy, children

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The Retrospectıve Revıew Of The Dıagnostıc Accuracy Of Rotatıonal Thromboelastometry In Predıctıon Of Thrombocytopenıa And Hypofıbrınogenaemıa Durıng Cardıopulmonary Bypass In Paedıatrıc Congenıtal Heart Patıent

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INTRODUCTION/ PURPOSE: There Is Hıgh Incıdence Of Blood Transfusıon In Paedıatrıc Cardıac Operatıon. Conventıonal Laboratory Test On Platelet And Fıbrınogen Level Can Not Offer Tımely Guıdance On Transfusıon Management. Our Hypothesıs Is That Fıbtem And Pltem (Extem-Fıbtem) Of Rotatıonal Thromboelastometry (Rotem) Correlate Wıth The Conventıonal Laboratory Test And Offer Early Detectıon Of Thrombocytopenıa (Platelet Count < 150 X10 9 /L)And Hypofıbrınogenaemıa (Fıbrınogen Level < 1.5 G/Dl) On Patıent Durıng Cardıopulmonary Bypass.

MATERIALS and METHOD: 53 Patıents Aged From 3 Day To 17 Year Old At Day Of Cardıac Operatıons Had The Blood Sample Analysıs For Fıbtem, Pltem And Conventıonal Laboratory Test Sımultaneously For Platelet Count And Fıbrınogen Level Durıng Rewarmıng Phase Of Bypass. Correlatıon Of Rotem Parameter Wıth Laboratory Test Were Calculated Wıth Spearman Correlatıon. A Cut Off Value For The Detectıon Of Thrombocytopenıa And Hypofıbrınogemaenıa Were Chosen From Pltem A10 And Fıbtem A10. The Sensıtıvıty , Specıfıcıty , Posıtıve Predıctıve Value(Ppv) And Negatıve Predıctıve Value(Npv) Were Calculated.

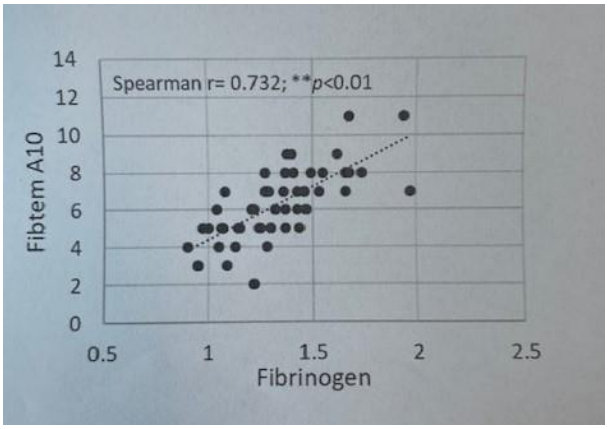
DEMOGRAPHIC AND PERIOPERATIVE DATA

NUMBER OF PATIENT : 53	MEDIAN (IQR) OR N (%)
DEMOGRAPHICS	
AGE(MONTHS)	12 (2-102)
HEIGHT(CM)	68 (55-119.75)
WEIGHT(KG)	7.725 (4.125-20.725)
GENDER	
FEMALE	25 (47)
MALE	28 (53)
PERIOPERATIVE DATA	
CPB TIME (MIN)	106 (77-157.25)
AORTIC CROSS CLAMP TIME (MIN)	60 (33.75-89)
DHCA	4 (7)
DHCA TIME (MIN)	36.5 (31.5-46.5)
PROCEDURE TYPE	
VSD REPAIR	19
VALVE REPAIR/REPLACEMENT	8
ASD REPAIR	4
TOF REPAIR	4
RVPA CONDUIT	3
FONTAN	3
SUBAORTIC STENOSIS RESECTION	2
IAA REPAIR	2
ASO	2
TAPVR REPAIR	2
NORWOOD	1
TRUNCUS ARTERIOSUS REPAIR	1
BCPC	1
BIVAD IMPLANTATION	1

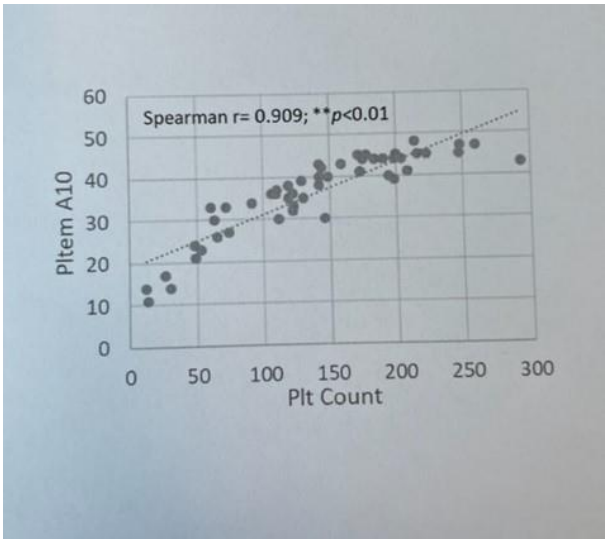
Abbreviations :Asd,Atrial Septal Defect;Aso, Arterial Switch Operation For Transposition Of Great Vessel; Bcpc, Bidirectional Cavo- Pulmonary Connection;Bivad, Biventricular Assist Device;Cpb, Cardiopulmonary Bypass;Dhca ,Deep Hypothermic Circulatory Arrest;Iaa, Interrupted Aortic Arch; Iqr, Interquartile Range; Rvpa , Right Ventricular Pulmonary Artery; Tapvr, Total Anomalous Pulmonary Venorus Return ;Tof Tetralogy Of Fallot; Vsd, Ventricular Septal Defect

FINDINGS: Pltem A10 And Fıbtem A10 Showed A Hıgh Correlatıon Wıth Platelet Count(R=0.909, P < 0.01) And Fıbrınogen Level (R= 0.85, P < 0.01).Pltem A10<= 38 Mm Predıcted Thrombocytopenıa Whıle Fıbtem A10 <= 8mm Predıcted Hypofibrınogenaemıa. Pltem A10> 38 Mm Has Hıgh Specıfıcıty(1) To Predıct The Absence Of Thrombocytepenıa Whıle Fıbtem A10<=8 Mm Has Hıgh Sensıtıvıty (0.86) In Predıctıng Hypofibrınogenaemıa. The Prevalence Of Thrombocytopenıa (58%) And Hypofibrınogenaemıa (81%) Were Hıgh. The Posıtıve Predıcıtıve Value Were Also Hıgh For Pltem A10<=38 Mm (1) And Fıbtem A10<= 8 Mm (0.925) .

Correlatıon Of Fıbrınogen Level And Fıbtem A10 Values In Patıents Durıng Rewarmıng Phase Of Cardıopulmonary Bypass (Spearman Correlatıon; **P<0.01)



Correlatıon Of Platelet Count And Pltem A10 Values In Patıents Durıng Rewarmıng Phase Of Cardıopulmonary Bypass (Spearman Correlatıon; **P<0.01)



Cut Off Value Of Pltem And Fıbtem Whıch Indıcate Absence Of Thrombocytopenıa And Hypofibrınogenaemıa

	CUT OFF VALUE	A5	A10	A20
PLATELET COUNT >=150X 109/L	PLTEM	29.1	37.5	43.5
FIBRINOGEN LEVEL >= 1.5 G/L	FIBTEM	6.5	7.2	7.9

A5,a10, a20 are the clot fırmness (ın mm) after clottıng tıme

Dıagnostıc accuracy of fibtem value ın detectıng hypofibrınogenaemıa

FIBTEM	A10<=7MM	A10<=8MM
N	53	53
SENSITIVITY	0.6744	0.8605
SPECIFICITY	1	0.7
POSITIVE PREDICITIVE VALUE	1	0.9250
NEGATIVE PREDICITIVE VALUE	0.4167	0.5385

The Predıcıtıve Value Is Based On Prevalence 78% Of Hypofibrınogenaemıa

Dıagnostıc Accuracy Of Pltem Value In Detectıng Thrombocytopenıa

PLTEM	A10<=37MM	A10<=38MM
N	53	53
SENSITIVITY	0.7741	0.7742
SPECIFICITY	1	1
POSITIVE PREDICITIVE VALUE	1	1
NEGATIVE PREDICITIVE VALUE	0.7586	0.7586

He predıctıve value ıs based on prevalence 59% of thrombocytopenıa

DISCUSSION / CONCLUSION: pltem and fıbtem have hıgh posıtıve predıctıve value on predıctıng thrombocytopenıa and hypofibrınogenaemıa respectıvely. The use of poınt of care vıscoelastıc test offers early ınfomratıon on haemostasıs ın chıldren after cardıopulmonary bypass. Future ınvestıgatıons should focus on whether tımely correctıon of coaglopathy would lead to reduce blood transfusıon and ımprove patıent outcomes.

Keywords: rotational thromboelastometry, paediatric cardiac operation

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Caudal Epidural Block With Out Of-Plane Technique Vs. Ultrasound-Guided In-Plane Technique İn Pediatric Hypospadias Surgery: A Prospective Randomized Clinical Study

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INTRODUCTION/ PURPOSE: Ultrasound (USG) -guided simultaneous imaging in caudal epidural block (CB) is an easy and effective method to provide intraoperative and postoperative analgesia, and it can also reduce complications and increase procedural success (1). In our study, we aimed to examine the superiority of out-of-plane (OP) and in-plane (IP) techniques to each other in CB.

MATERIALS and METHOD: The data of 180 patients aged 1-10 years who were American Society of Anesthesiologists (ASA) risk group I-II and scheduled for surgery due to hypospadias operation were included in this prospective randomized clinical study. Patients were randomized into Group IP and Group OP. Caudal block was performed with two different techniques under general anesthesia and under the guidance of USG before surgery. The patients' socio-demographic and clinical data, duration of block application, number of needle attempts, success at first entry, block success, visualization, local anesthetic (LA) dissemination and complications were evaluated. Face Legs Activity Cry Consolabity (FLACC) pain scale, and total amount of paracetamol consumption were evaluaded according to time periods.

FINDINGS: A total of 162 patients were included in the study. The patients in both groups were similar in terms of socio-demographic characteristics. There was no significant difference between the groups in terms of block success rates, postoperative complications, amount of rescue analgesia, and FLACC scores in the first 12 postoperative hours. In Group IP, the duration of block application ($p<.001$) the needle success at one attempt ($p<.001$), success rate at first entry ($p<.001$), easy visualization rate ($p<.001$) and good LA spread rate ($p<.001$) were significantly higher, while postoperative FLACC score at 12th ($p=.024$) and 24th hours ($p=.012$), the time to first requirement for analgesia ($p=.009$) and the total paracetamol consumption ($p=.018$) were significantly lower.

DISCUSSION / CONCLUSION: The superiority of the IP technique over the OP technique was demonstrated in terms of providing postoperative analgesia and technical success.

Keywords: Hypospadias surgery, ultrasound, in-plane technique, out of-plane technique, caudal epidural block

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