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ABSTRACT

ESNR 2025

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EUROPEAN SOCIETY OF NEURORADIOLOGY
Diagnostic and Interventional
ESNR 48th ANNUAL MEETING
15th AOCNR ANNUAL MEETING
34th TSNR ANNUAL MEETING
17th – 21st September 2025
Istanbul, Türkiye

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ESNR PRESIDENTIAL ADDRESS

It is a great pleasure to welcome you to the 48th ESNR Annual Meeting, which this year will be held from 17 to 21 September in the vibrant metropolis of Istanbul, Turkey. This edition takes on special significance as it is organized jointly with the 15th Asian–Oceanian Congress of Neuroradiology and Head and Neck Radiology and the 34th Annual Meeting of the Turkish Society of Neuroradiology. Together, under the motto "Bridging Continents and Joining Cultures," we invite colleagues from Europe, Asia, Oceania and beyond to unite in a common pursuit of excellence and innovation. I wish to extend warm acknowledgements and thanks to Congress Presidents Prof. Cem Calli and Prof. E. Turgut Tali, whose leadership has been instrumental in shaping this exceptional gathering. Their vision underscores the unique scientific and cultural identity that defines this year's congress.

The scientific programme is designed to engage and inspire. We will explore a wide spectrum of themes, from brain and spine imaging to head and neck, paediatrics, artificial intelligence, and glymphatic research through immersive formats including lectures, workshops, case discussions, panel conversations and fireside chats. Particularly noteworthy is the thematic Deep Dive in Neurodegeneration session, which promise focused and impactful learning on one of the major hot topics in today's neuroimaging, and the dedicated contributions of our ESNRise community, whose perspectives on the future of our discipline continue to stimulate important dialogue and innovation.

This meeting will also be the occasion to celebrate the achievements of some of our most distinguished colleagues. The ESNR Honorary Membership will be awarded to Professors Athanasios Gouliamos (Greece), Bernhard Schuknecht (Switzerland), Pia Maly Sundgren (Sweden), Marjo van der Knaap (the Netherlands) and Johan Van Goethem (Belgium) during the traditional Honorary Members and Awards Ceremony, scheduled for Thursday afternoon in the plenary hall. I warmly invite you to attend and join us in recognising the remarkable contributions these individuals have made to our specialty. Furthermore, I am particularly pleased to highlight the "ESNR meets Italy" session, organized by the Italian Association of Neuroradiology and scheduled for Saturday morning; this session will provide a special platform to share Italian excellence in neuroradiology, demonstrating the importance of regional expertise within our European community and promoting intercultural exchange among participants.

Beyond science, Istanbul will offer numerous occasions for personal connection and cultural immersion. Whether during coffee breaks, social functions or informal conversations, this city, where East and West seamlessly converge, serves as the perfect backdrop to renew existing relationships and forge new collaborations.

I look forward to meeting each of you in Istanbul. Together, may this be a meeting of profound scientific insight, cultural richness, and lasting connections; one that will resonate in our minds long after we return home.

Warm regards,

Prof. Andrea Rossi
President, ESNR – 2025

WELCOME ADDRESS

Dear Friends, Dear Colleagues,

It is with great honor and genuine excitement that we welcome you to the first joint congress of the Asian-Oceanian, European, and Turkish Societies of Neuroradiology, taking place in the magnificent city of Istanbul, Türkiye, from 17th to 21st September 2025.

This year marks a historic moment for our community, as three major neuroradiological societies come together for the first time, united under the theme: **"Bridging the Continents and Joining the Cultures"** In a city that literally connects East and West, we will gather to connect minds, share knowledge, and inspire one another across borders and generations. Over the course of five days, we will delve into the latest advances in Diagnostic and Interventional Neuroradiology, with a strong focus on global collaboration and innovation. From deep dives into neurodegeneration to AI-driven imaging solutions, from complex spinal interventions to pediatric and head & neck neuroradiology, the scientific program promises to be both comprehensive and forward-thinking.

Our distinguished speakers and participants from across the globe will illuminate emerging trends and open new avenues for research, clinical practice, and interdisciplinary dialogue.

This congress is more than just a meeting—it is a celebration of unity in diversity, of scientific excellence grounded in cultural exchange. As we engage in plenary lectures, symposia, fireside chats, and interactive case discussions, we will also have the chance to build lasting friendships and professional connections.

And of course, beyond the academic program, we invite you to experience the rich history, dynamic energy, and timeless beauty of Istanbul. From the majestic Bosphorus to the Grand Bazaar, the city's spirit will surely leave a mark on all of us. We look forward to welcoming you to what promises to be an unforgettable journey—a congress that will not only broaden our knowledge but also strengthen the global bonds of our neuroradiology community.

Welcome to Istanbul, for the 48th ESNR Annual Meeting & 15th Asian-Oceanian Congress of Neuroradiology and Head and Neck Radiology & 34th Annual Meeting of the Turkish Society of Neuroradiology!

Warm regards,

Prof. Cem Calli
Congress President, 48th ESNR Annual Meeting
Prof. Turgut Tali
Congress President, 15th Asian-Oceanian Congress of Neuroradiology and Head and Neck Radiology
Prof. Gulgun Yilmaz Ovali
Congress President, 34th Annual Meeting of the Turkish Society of Neuroradiology

infants younger than 3 months. All images were independently evaluated by two senior neuroradiologists and one radiology trainee.

Results: Among 4,273 brain MRIs, 895 (21%) showed hemorrhagic lesions. SPH was identified in 33 neonates (3.68%), with a mean age at diagnosis of 15 days (range 0–61). SPH was monofocal in 90% of cases, most frequently involving the temporal (54.5%), frontal (36.4%), and parietal (12.1%) lobes. No posterior fossa involvement was observed. SPH was associated with intraparenchymal hemorrhage in 84.8%, deep medullary vein congestion in 69.7%, and diffusion restriction in the adjacent cortex in 66.7%.
A characteristic "yin-yang" imaging pattern was observed in the majority of cases, which may serve as a potential diagnostic clue for SPH differentiation. Follow-up MRI was available for 24 patients (72.7%); no cases showed progression of the hemorrhage. However, 91.6% (22/24) developed focal areas of encephalomalacia at the hemorrhagic site.

Conclusion: Subpial hemorrhage exhibits a characteristic MRI appearance and is commonly associated with intraparenchymal hemorrhage, cortical involvement, and venous congestion. The presence of the "yin-yang" sign can facilitate radiologic diagnosis. Although subpial hemorrhage is generally non-progressive, it often results in encephalomalacic changes, underscoring the importance of post-hemorrhagic imaging follow-up. Further research is warranted to clarify long-term clinical outcomes and to develop standardized imaging and monitoring protocols.

4-O11
RADIOMICS-BASED CLASSIFICATION OF PEDIATRIC MEDULLOBLASTOMA AND POSTERIOR FOSSA EPENDYMOMA USING MRI

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Introduction: Posterior fossa tumors (PFTs) represent approximately 50% of all pediatric brain tumors. Among these, medulloblastoma (MB) and ependymoma (EP) are the most common subtypes, frequently overlapping in both location and imaging characteristics—particularly within the fourth ventricle. Radiomics enables the extraction of quantitative features from MRI and holds promise for enhancing diagnostic differentiation. However, radiomics applications in pediatric PFTs remain limited. This study aims to identify radiomics-based differences between MB and EP and to evaluate the performance of machine learning techniques in their classification.
Methods: The study included 26 patients (14 EP, 13 MB). Mean ages were 7.5 (EP) and 9.1 (MB). EPs were mostly in the fourth ventricle or pontocerebellar cistern; MBs were mainly in the fourth ventricle. MRI sequences (T1, T1C, T2, and FLAIR) were preprocessed using the CaPTk BraTS pipeline. Tumors were manually segmented into four subregions: cystic/necrotic core, peritumoral edema, non-enhancing tumpr and enhancing tumor. More than 100 radiomic features were extracted using PyRadiomics and subsequently normalized. Class imbalance was addressed using SMOTE and random undersampling (RUS). Feature selection was performed using random forest importance (RF_importance) and ReliefF methods. Three classifiers—Random Forest (RF), Support Vector Machine (SVM), and Multi-Layer Perceptron (MLP)—were evaluated using 5-fold cross-validation and balanced accuracy as the performance metric.

Results: In the nested cross-validation analysis, the highest sequence-level balanced accuracy was achieved using radiomic features from the T1 sequence (83%) with an SVM classifier. T1C and T2 sequences followed with 80% and 70% accuracy, respectively. At the subregion level, the best performance was observed in the necrotic region of the T1C (80%, SVM), followed by the enhancing tumoral region of T1C (77%, SVM), the non-enhancing tumoral region of T1 (73%, SVM), and the peritumoral edema of FLAIR (70%, RF). These findings suggest that certain tumor subregions provide distinct radiomic signatures for differentiating EPs from MBs. The lowest performance was seen in the non-enhancing region of T2 (47%, SVM).

Discussion and Conclusion: This study demonstrates that MRI-based radiomic features, combined with machine learning, can differentiate between pediatric medulloblastomas and ependymomas by capturing tumor heterogeneity. Among tumor subregions, necrotic and enhancing components demonstrated the highest discriminative performance, while non-enhancing regions yielded lower accuracy, possibly reflecting greater internal heterogeneity. Limitations include small sample size and lack of molecular data. Future multicenter studies with molecular profiling may improve diagnostic accuracy and biological interpretation.

Keywords: Radiomics, Machine learning, Pediatric brain tumors

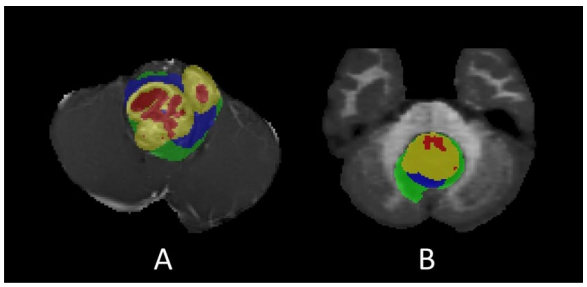


Figure 1: Tumor segmentation of posterior fossa ependymoma (A) and medulloblastoma (B). Images demonstrate manual segmentation on T1C into four subregions: cystic/necrotic core (Label 1), peritumoral edema (Label 2), non-enhancing tumor component (Label 3), and enhancing tumoral component (Label 4).

4-O12
CONTINUE IGNORING IT? CALCIFICATIONS OF THE INTRACRANIAL ARTERY WALLS IN PEDIATRIC PATIENTS

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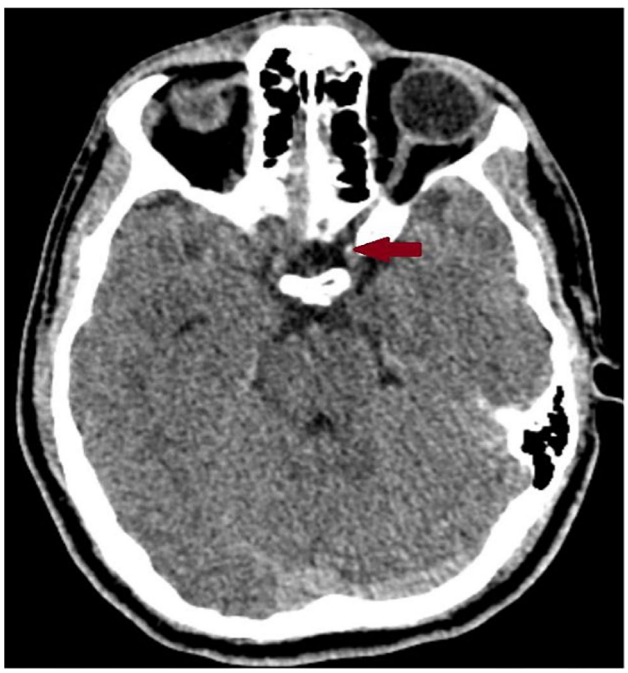
Introduction: This study aimed to ascertain the prevalence of calcifications in the carotid and vertebral arteries, identify the predominant locations of these calcifications, and explore potential associations with various diseases to assess their clinical significance through the evaluation of brain CT images in a pediatric patient population.

Methods: From January 2022 to February 2025, the CT images of 550 pediatric patients who received non-contrast brain CT scans at our center during emergency department or outpatient clinic visits were retrospectively assessed for calcification in the carotid and vertebral arteries. Two observers conducted assessments to ascertain the existence, location, and stenosis of calcifications. The internal carotid artery was segmented into seven divisions, whereas the vertebral arteries were categorized into four segments. A minimum diameter of 1 mm was established as acceptable for the presence of calcification. Any congenital or acquired diseases were documented.

Results: Intracranial artery wall calcifications have been discovered in 146 out of 550 cases, representing 26.5% of the children under 18. Calcification was detected in the vertebral arteries of 24 patients (4.3%) and in the carotid arteries of 122 patients (22.2%). Patients were categorized into four distinct groups based on age: under 2 years, 2 to 6 years, 7 to 12 years, and 13 to 18 years. The comparison among these four groups indicated that the incidence of calcification escalated with age. No substantial difference was observed when analyzed by gender. Calcifications of the carotid artery were predominantly observed in the carotid siphon or supraclinoid segments, while calcifications of the vertebral artery were primarily noted in the V4 segment. Data from the systemic diseases assessment in patients with and without calcification were documented. The correlation between calcifications and systemic diseases could not be established.

Conclusion: We have highlighted arterial calcifications in this population by demonstrating that calcifications in the intracranial segments of the carotid and vertebral arteries may commence as early as childhood and become more prevalent in late adolescence. The absence of correlation between these calcifications and systemic diseases indicates that their physiopathology is linked to turbulent arterial flow rather than early atherosclerosis.





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