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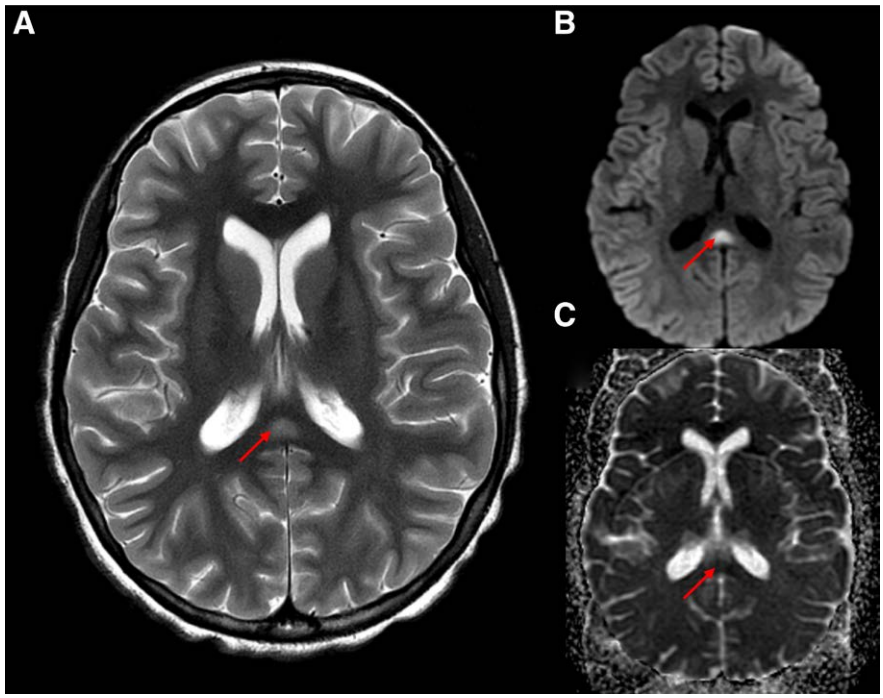


FIGURE 1. MRI axial images T2 weighted (A), DWI (B) and ADC map (C): oval lesion in the splenium of the corpus callosum (arrow) with T2 hypersignal and diffusion restriction with DWI hypersignal and ADC map hyposignal, corresponding to cytotoxic edema.

ceftriaxone. She became afebrile with progressive improvement in neurological status after 48 h and complete parasite clearance on day 3. Artemether-lumefantrine was initiated on day 5, and the patient was discharged on day 8.

CM is defined as a disturbance of consciousness in a patient with *Plasmodium* parasitemia and no other identifiable cause.[2] Despite the reported low mortality rate of pediatric imported malaria in Europe (<1%), CM entails a risk of life-threatening acute CNS effects with diffuse encephalopathy and often rapidly progressive coma, as observed in our patient.[3]

Distinctive brain MRI features involving both white and gray matter structures have been reported in a large cohort of Malawian children with CM. Increased volume, T2 hyperintensity, and Diffusion-weighted imaging (DWI) abnormalities affecting the cortical area (61.7%), subcortical and periventricular white matter (71.7%), basal ganglia (84.2%) and the corpus callosum (49.2%) were the most frequent features.[4] CLOCCS was a common MRI finding in CM, as suggested by DWI/Apparent diffusion coefficient mismatch with DWI increased signal and Apparent diffusion coefficient low signal,[4] as observed in our patient (Fig. 1). The corpus callosum, mostly the splenium, is a region vulnerable to inflammatory cytokinopathy, driven by malaria, seizures or other causes.[5] The higher density of cytokines and glutamate receptors in this area leads to high extracellular glutamate levels, inducing cytotoxic edema upon infection, which is frequently reversible.[5]

CM in children is the most severe complication of *P. falciparum* infection and needs a high suspicion index in nonendemic countries. Altered MRI and CLOCCs, although unspecific, are associated with CM.

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Treatment of Parapneumonic Effusion in Children

To the Editors:

We read the article by Lohuis et al[1] regarding conservative treatment of parapneumonic effusion in children. In their article, the authors stated that the greater amount of children with parapneumonic effusion (PPE) could be treated conservatively with antibiotics only, especially in the absence of mediastinal shift, pleural septations/pockets, pleural thickening or extensive effusions. In a cohort of 136 patients, 117 patients (86%) were treated conservatively and 19 (14%) underwent pleural drainage. They found patients undergoing pleural drainage had mediastinal shift more frequently compared with conservatively treated patients (58% vs. 3%, difference 55%; 95% confidence interval: 32%–77%). In the study patients treated conservatively, median

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duration of hospitalization was 5 days (Interquartile range: 4–112) compared with 19 days (Interquartile range: 15–24) in the drainage group ($P < 0.001$), without significant difference in readmission rate (11% vs. 4%).

Children with pneumonia can admit initially with an effusion that is in any one of the stages of evolution. The stage of evolution of the parapneumonic process and what therapy has already been provided is the key point for treatment. As in the study of Lohuis et al[1] not all the patients were evaluated with ultrasonography, it is not possible to state how benign or complicated were PPE in the initial phase, since the cohort is not large enough to generalize to whole population and it is not easy to say PPE could be treated conservatively with antibiotics only, this statement might change due to geographic location, immunization schedules or surveillance data. For patients with parapneumonic effusions, clinicians can use ultrasound to quantify and characterize pleural fluid to determine whether diagnostic or therapeutic drainage is indicated, as well as to guide whether intrapleural fibrinolytics or surgical treatment is needed.[2]

In our center, 48 patients between 1 and 17 years of age from January 2011 to December 2016 were diagnosed with PPE, tube thoracostomy was performed in 43 of 48 (89.6%). Patients treated with fibrinolytic therapy was 22 (45.8%) and the mean dose was 5.18 ± 2.59 (1–9) in total. Fibrinolytic therapy was significantly higher in PE stage (II) than the other stages ($P = 0.001$). Intensive care need was 20.8% (n = 10), while total hospital stay was 23.58 ± 8.69 (3–47) days. Thoracotomy/decortication or Video assisted thoracoscopic surgery were required in 5 (10.4%) patients. There was no significant relationship between the operation and fibrinolytic treatment status of patients. The complication rate was 41.6% in total.[3]

Similarly, Lohuis et al[1] also discussed that thoracic ultrasound could play a more important role in the decision making for the favorable treatment option with either conservative management or pleural drainage. Their study suggests that a Computed tomography scan does not play a major role in the diagnosis and treatment of PPE in children. These studies highlighting therapy of parapneumonic effusion in children are very helpful to guide clinicians and more randomized controlled trails are warranted.

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Device-associated Meningitis due to *Elizabethkingia meningoseptica*: A Therapeutic Challenge

To the Editors:

Elizabethkingia meningoseptica causes life-threatening infections in humans, especially in immunocompromised patients and infants with low birth weights.

It is one of the main causes of meningitis in pediatric and immunocompromised patients in the context of nosocomial diseases associated with devices and is also related to low-birth-weight infants and prematurity[1]

Due to their resistance to many commonly used antibiotics (beta-lactams, carbapenemics, aminoglycosides, etc.), clinicians face treatment challenges.[2]

There are currently few publications on pediatric cases regarding *E. meningoseptica* device-associated meningitis with breakthrough resistance to trimethoprim-sulfamethoxazole (TMP/SMX) while treatment with dual intravenous (IV) therapy with TMP/SMX and high-dose ciprofloxacin requiring intraventricular ciprofloxacin for eradication.

This letter is written to describe a case that posed a diagnostic challenge in our center. A 1-month-old female patient with hydrocephalus secondary to a history of myelomeningocele that required correction at birth with a ventriculoperitoneal (VP) shunt system presented during her prolonged hospitalization with device-associated meningitis due to *E. meningoseptica* initially susceptible to TMP/SMX MIC <16 μg/L, follow-up cerebrospinal fluid (CSF) cultures remained positive for the same pathogen with TMP/SMX breakthrough resistance acquired (MIC > 64 μg/L) (Table 1). Different antibiotics were tested in vitro and showed resistance to vancomycin, minocycline, and rifampicin, maintaining only susceptibility to ciprofloxacin without achieving eradication with systemic dual high-dose IV therapy.

Intraventricular antimicrobial therapy with ciprofloxacin was proposed based on a case report in the literature: 21 days of systemic treatment combined with Intrathecal therapy, and another 21 days of systemic therapy alone. Negative CSF cultures were obtained after 6 days of dual therapy plus intraventricular ciprofloxacin with clinical improvement in the patient and replacement of the VP shunt.

Although recent literature suggests that antibiotics such as fluoroquinolones can achieve good concentrations in the CSF fluid after IV administration and do not suggest their use in intraventricular or intrathecal routes,[3] and that the FDA has not approved any antimicrobial agent for intraventricular use,[3,4] when therapeutic options are limited due to multidrug-resistant pathogens in central nervous system infections, intraventricular/intrathecal antibiotic therapy with fluoroquinolones appears to be a viable option in the absence of other available treatments. More studies are required, particularly in cases, such as the one presented for antibiotics that theoretically achieve adequate CSF concentrations when only IV route is used.

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All procedures were performed in accordance with the ethical standards of the institutional and/or national research committee and the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

A.J. and A.F.A. contributed to the design and implementation of the research, C.A., Y.V. and V.M. to the analysis of the results and to the writing of the manuscript. A.F.A. conceived the original and supervised the project.

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