Background Acute mastoiditis (AM) is a frequent complication of acute otitis media in children. Osteomyelitis of the temporal bone, extra and intracranial abscesses, meningitis or sinus venous thrombosis (SVT) are common complications of AM. Over the last decade, a change in the etiology of AM in pediatric patients has occurred. Rates of bacteria such as Streptococcus pneumoniae, Haemophilus influenzae, and Moraxella catarrhalis are declining, while other pathogens, mainly Group A Streptococcus and Fusobacterium necrophorum are increasing.

Case Report Summary A 4-year old boy was admitted at University Hospital for Infectious Diseases ‘Dr. Fran Mihaljević’, Zagreb, during October 2019 on the 4th day of fever, vomiting, respiratory symptoms and earache. On physical examination, his vital signs were normal, he had redness and edema of the right eye without internal and external ophthalmoplegia. Otoscopy revealed purulent otorrhea in the right external auditory canal. Neck stiffness was present without a focal neurological deficit. Laboratory tests revealed elevated inflammatory parameters with a white blood cell (WBC) count of 27×10⁹/L and C-reactive protein of 213,4 mg/L. Lumbar puncture revealed pleocytosis of 7087 white cells/µL (neutrophils 85.3%), moderately elevated protein level (0.86 g/L) and glucose concentration of 1.9 mmol/L.

Empiric intravenous antibiotic therapy with ceftriaxone was started at the admission. Despite treatment, the patient was febrile with the onset of headache and somnolence. The patient underwent contrast-enhanced computer tomography (CT) which revealed signs of complete opacification of mastoid air cells with diffuse soft-tissue thickening and areas of enhancement anterior to the orbit septum along with the increase in attenuation of the right cavernous sinus. Cranial Magnetic Resonance Imaging (MRI) showed contrast filling defect in the right cavernous sinus due to sinus thrombosis. Microbiological analysis of the cerebrospinal fluid and purulent exudate revealed Fusobacterium spp. Blood culture remained sterile.

Antibiotic therapy was changed to metronidazole with the addition of low molecular weight heparin. Metronidazole therapy was maintained for 24 days, and anticoagulant therapy with warfarin was continued after the hospital discharge. The patient recovered completely without neurological sequelae.

Discussion A growing incidence of Fusobacterium spp AM and its high rate of complications suggest the need for greater awareness of this pathogen. Based on recent studies, most authors recommend the use of metronidazole in combination with third generation cephalosporin in the treatment of AM in children.