Brain abscess case reports

2023

A case of a brain abscess arising from dental sinusitis due to an incomplete infection defense mechanism linked to a post-fusion linear skull fracture. The patient initially presented with a persistent headache, which was diagnosed as frontal sinusitis. Consequently, antibiotic treatment was started. However, due to a refractory response to antibiotics, an MRI was performed, which revealed a brain abscess in the frontal lobe adjacent to the right frontal sinus measuring 40 mm in diameter. This abscess was surgically drained and cultured. Initially, the patient was treated with three antibiotics, which were eventually de-escalated. The cultures revealed nasal commensal bacteria, suggesting a direct spillover from sinusitis leading to a brain abscess. A tooth with root inflammation, which had been left untreated and resulted in bone melting of the maxillary sinus wall, was extracted. After more than eight weeks of antimicrobial therapy, improvement in the clinical and imaging findings was noted, and the patient was discharged. Brain abscesses may develop from sinusitis even after linear fractures have healed due to a continued incomplete infection defense mechanism. Moreover, root and sinus infections should undergo evaluation, including the upper dental crown using coronal computed tomography, and treatment should be initiated promptly [1].

2022

A young man was admitted due to headache and deteriorating general condition. He had a history of a surgically treated brain abscess 19 years earlier. Investigations now showed a new brain abscess. The patient was operated and received a peripherally inserted central catheter in his left arm for antibiotic treatment. A chest X-ray showed abnormal positioning of the catheter lying in a persistent left superior vena cava. One day later he experienced headache and photophobia. MRI showed reoccurrence of the brain abscess and he was reoperated. Persistent left superior vena cava was considered to be the cause of the brain abscesses and he underwent endovascular embolisation and placement of a vascular plug in his left superior vena cava.

The oxygen-rich pulmonary circulation and its immune system make it difficult for anaerobic bacteria to pass to the arterial side. In most cases persistent left superior vena cava drains into the right atrium and is asymptomatic. In 10 % of patients the persistent left superior vena cava drains directly to the left atrium and gives a right-to-left shunt. This may cause arterial bacteraemia and brain abscesses [2].

Multimodality imaging of a giant pulmonary arteriovenous fistula with brain abscess [3]

A rare case of native mitral valve AE in a 63-year-old man, with a probable COVID-19-associated invasive pulmonary aspergillosis nine months ago treated with antifungals.

In the last admission, the lethargy, neurological deficit, and septic-embolic brain abscess in brain MRI

led to suspicion of infective endocarditis. Transesophageal two-dimensional echocardiography and color Doppler flow velocity mapping showed a large highly mobile mass destroying leaflet and severe mitral regurgitation. The Surgical valve replacement is performed. The surgical valve replacement is performed. Direct microscopic examination and culture of the explanted and vegetative mass revealed Aspergillus section Fumiagati confirmed by molecular method. Despite the administration of voriconazole and transient improvement the patient expired.

As AE is a late consequence of COVID-19-associated invasive pulmonary aspergillosis, therefore, long-term follow-up of invasive aspergillosis, and prompt diagnosis of surgical and systemic antifungal therapy treatment, are warranted to provide robust management [4].

A patient with C. bantiana brain abscess and concurrent Cryptococcus neoformans pulmonary infection that occurred twenty years after his kidney transplantation. He was treated successfully with two craniotomies for cerebral abscess debridement and liposomal amphotericin B followed by planned lifelong voriconazole [5].

A woman in her 80s without substantial medical history who presented with a headache, weakness and personality changes, and was found to have a pyogenic brain abscess requiring emergent neurosurgical evacuation. The abscess grew oral flora, suspected to have reached the brain via an incidentally discovered PAVM. With drainage and antibiotics, the patient achieved a full recovery and the PAVM was embolised. To our knowledge, this is the oldest presentation of a PAVM-associated brain abscess in the published literature. Older patients may present without the typical signs and symptoms of a given illness, which complicates accurate diagnosis and treatment. Primary care physicians can help facilitate timely care and positive clinical outcomes [6].

A 40-year-old transgender female with a frontal abscess presenting several weeks following a motor vehicle crash from which she suffered multiple facial fractures and an odontogenic abscess. On computed tomography scan, the patient had multiple right-sided facial fractures, including a medial orbital wall fracture and a right sphenoid fracture extending into the superior orbital roof. There was hemorrhage notable in the right frontal lobe. Communication with the ethmoid sinuses likely provided a conduit for bacterial spread through the orbit and into the intracranial and subdural spaces.

Skull base fractures that communicate with a sinus, whether it be frontal, ethmoid, or sphenoid may increase the risk of brain abscess, especially in patients who develop an odontogenic abscess. Surgical repair of the defect is essential, and treating patients prophylactically with antibiotics may be beneficial [7].

2018

Sudo et al., present the first case of neurogenic stuttering caused by a brain abscess. The patient was a 60-year-old man admitted for a seizure and administered an anticonvulsant, after which he began stuttering. MRI revealed a brain abscess in the left frontal lobe that extended to the dorsolateral prefrontal cortex (BA (Brodmann's area) 9 and 46), frontal eye field (BA 8) and premotor cortex and

supplementary motor area (BA 6). After neurosurgical drainage and antibiotic treatment, the symptoms had resolved. This case is unique in that the therapeutic effects and localisation of the cause of stuttering were rapidly identified, allowing for a more accurate description of the neural circuitry related to stuttering [8].

A neonate with bilateral large frontal abscesses, caused by Serratia marcescens, was operated using a neuroendoscope coupled with an ultrasonic aspiration device. To our knowledge, this is the first report of such utilization of this new tool. The left abscess was surgically drained through endoscopic aspiration using ultrasonic aspirator. Clinical condition rapidly improved, and postoperative MRI of the brain revealed an almost complete resolution of the left abscess. A second endoscopic procedure was performed 1 week later, and the right abscess was endoscopically drained with the same technique. The remaining clinical course was uneventful.

Ultrasonic aspiration is effective in obtaining complete removal of the purulent material and of the dense fibrin layer adherent to the capsule. However, further studies are warranted to determine its real effectiveness, compared with the classic technique. In our opinion, it should be considered an option in more difficult cases, such as abscesses caused by aggressive germs in young or immunocompromised patients, or in case of recurrent lesions, in order to avoid craniotomy and open surgery [9].

1)
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