Streptococcus pyogenes

Streptococcus pyogenes is a beta-hemolytic bacterium that belongs to Lancefield serogroup A, also known as Group A Streptococcus (GAS).

Streptococcus pyogenes is rarely seen, and is grown in only 2% of sinusitis and otitis media cultures.

It has rarely been reported as a cause of brain abscess. There have been five reported cases in terms of PubMed-based search but no reported case of brain abscess caused by Streptococcus pyogenes as a result of penetrating skull injury till 2010.

Streptococcus pyogenes is a rare but aggressive cause of streptococcal meningitis, which often evolves in a poor outcome with fatal consequences.

Any penetrating lesion showing a connection between the lamina cribrosa and ethmoid sinus may result in brain abscess caused by Streptococcus pyogenes. These patients should be treated urgently to repair the defect and drain the abscess with appropriate antibiotic therapy started due to the fulminant course of the brain abscess caused by this microorganism [1)].

Capua et al. describe 3 new cases of GAS brain abscess in previously healthy children treated by us between 2015-2016 and review the 5 cases reported in the literature since 1988. All 8 children received early empiric antibiotic therapy and surgical intervention, and 5 made a full recovery. GAS brain abscess is a rare infection; however its incidence may be rising. We suggest that if patients show symptoms such as fever, vomiting, and lethargy, with contiguous infection such as otitis media, mastoiditis, sinusitis, or meningitis, GAS brain abscess should be suspected. Prognosis is expected to be good with early implementation of appropriate treatment [2)].

A 36-year-old woman admitted to the emergency department of a hospital three days after the onset of earache and otorrhoea. When the patient developed an emergent refractory status epilepticus, the CT scan of the brain showed an unusual pneumocephalus. However, the MRI study of the brain revealed a pachymeningitis with partial thrombosis of the right transverse sinus and subdural empyema due to a S. pyogenes otitis media. Prompt diagnosis and the specific findings of the MRI allowed rapid correct treatment and thus led to a good outcome for the patient [3)].

1)
Gulsen S, Aydin G, Cömert S, Altinors N. Rapid Development of Brain Abscess Caused by Streptococcus Pyogenes Following Penetrating Skull Injury via the Ethmoidal Sinus and Lamina Cribrosa. J Korean Neurosurg Soc. 2010 Jul;48(1):73-8. doi: 10.3340/jkns.2010.48.1.73. Epub 2010 Jul 31. PubMed PMID: 20717517; PubMed Central PMCID: PMC2916153.
2)
Capua T, Klivitsky A, Bilavsky E, Ashkenazi-Hoffnung L, Roth J, Constantini S, Grisaru-Soen G. Group A Streptococcal Brain Abscess in The Pediatric Population - Case Series and Review of The Literature. Pediatr Infect Dis J. 2018 Feb 16. doi: 10.1097/INF.0000000000001947. [Epub ahead of print] PubMed PMID: 29462105.
3)
Gritti P, Lanterna AL, Sarnecki T, Brembilla C, Agostinis C, Rizzi M, Lorini FL. What is hiding behind

bubbles of air? An unusual Streptococcus pyogenes meningitis. Infez Med. 2014 Dec 1;22(4):317-321. PubMed PMID: 25551849.