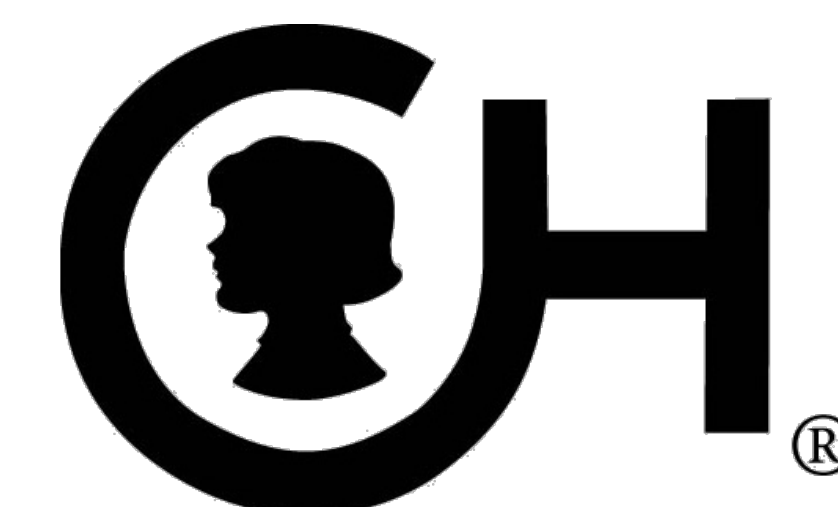


Clival Osteomyelitis with Retropharyngeal and Epidural Abscesses in a Child



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ABSTRACT

PURPOSE: Osteomyelitis of the clivus is a rare, life threatening infection in children and can develop from adjacent sinonasal and temporal bone infection. It has been postulated that patients with congenital anomalies of the clivus including fossa navicularis may be at increased risk for extension of nasopharyngeal infections into the clivus. This is the first report describing association with both intracranial and retropharyngeal collections.

METHODS: Case report and literature review

RESULTS: Very few case reports of clival osteomyelitis have been described in children. We present the case of a 3-year-old immunocompetent female who underwent MRI of the brain after developing esotropia 11 days into a workup for fever and abdominal pain. MRI showed hyperintensity of the clivus with both retropharyngeal and epidural collections. Treatment included of trans-oral incision and drainage of the retropharyngeal abscess, culture and IV antibiotics. No drainage of the intracranial portion of the infection was performed. Review of the CT scan showed the presence of a fossa navicularis. The patient improved clinically following drainage, and a repeat MRI one week later showed resolution of the epidural and retropharyngeal collections. There has been no recurrence of symptoms.

CONCLUSIONS: Fever of unknown origin with development of cranial neuropathy warrants urgent imaging to examine for intracranial pathology. In this patient with both retropharyngeal and retroclival epidural collections, retropharyngeal incision and drainage was sufficient for treatment. There is a high prevalence of fossa navicularis in the reported cases of pediatric clival osteomyelitis, warranting additional research into its significance.

CASE REPORT

PATIENT: 3 year-old female with no prior medical history

PRESENTATION: The patient presented to the emergency room with a history of fever 101-103°F, malaise abdominal pain and diarrhea for about 1 week. She was admitted to the medical team and treated for suspected viral illness. Four days into the hospital course, the patient developed intermittent esotropia and an MRI was ordered, revealing retropharyngeal abscess, clival osteomyelitis and epidural fluid collection. She had no meningeal signs or symptoms. Upon questioning, parents reported a runny nose 2-3 days prior to initial fever onset but no other sinonasal or pharyngeal symptoms. Physical examination revealed intermittent bilateral cranial nerve (CN) 6 paresis and fullness in the nasopharynx on fiberoptic scope exam. Lumbar puncture revealed no signs of infection in the CSF.

SURGICAL INTERVENTION: After consulting with neurosurgery, she was taken to the operating room for a transoral incision and drainage of the retropharyngeal abscess. No neurosurgical intervention was performed. Copious pus was obtained and cultured and the wound was gently irrigated with saline. Culture of the purulence grew Methicillin Sensitive *Staphylococcus aureus* (MSSA).

POST-OPERATIVE COURSE: She was treated with IV Ampicillin + Sulbactam for 4 weeks followed by one week of oral Amoxicillin + Clavulanic acid. A planned follow-up MRI was performed 1 week postoperatively; this showed near complete resolution of the epidural collection. The patient was discharged home on the 8th postoperative day with significantly improved but still occasional esotropia.

FOLLOW-UP: At the 2-month follow-up visit with ophthalmology, the CN6 palsy had resolved. She has no permanent sequela or morbidity. There has been no further intervention or imaging needed.

DISCUSSION

The fossa navicularis is a bony defect in the clivus. A previous anatomic study of dry skulls and CT scans¹ included specimens and scans from patients age 3-75 years (mean 33 years). The fossa navicularis was found in 3-5% of these specimens/scans. Its origin is unknown but felt to be an embryologic remnant or defect.

Two other case reports have been published similar to the one presented here, one describing a 5-year-old girl² and the other a 12-year-old girl.³ Both also presented with nonspecific symptoms developing into neurologic signs. One had a retropharyngeal collection that was drained, the other had no collection and was treated with antibiotic therapy.

As it has not been studied, there is no evidence to link the fossa navicularis to increased risk for more severe clival infections and osteomyelitis. There have been now 3 case reports of association of clival osteomyelitis, a retropharyngeal collection and a fossa navicularis, all in children. Additional anatomic studies in children would be helpful in understanding the development and presence of this structure.

CONCLUSIONS

In this case of a patient with both retropharyngeal and epidural collections in addition to clival osteomyelitis, the patient was able to be successfully treated with drainage of only the retropharyngeal collection and culture driven intravenous antibiotics.

It is unknown whether a fossa navicularis may play a role in the the development or extent of infection in the clivus. Further investigation is needed.

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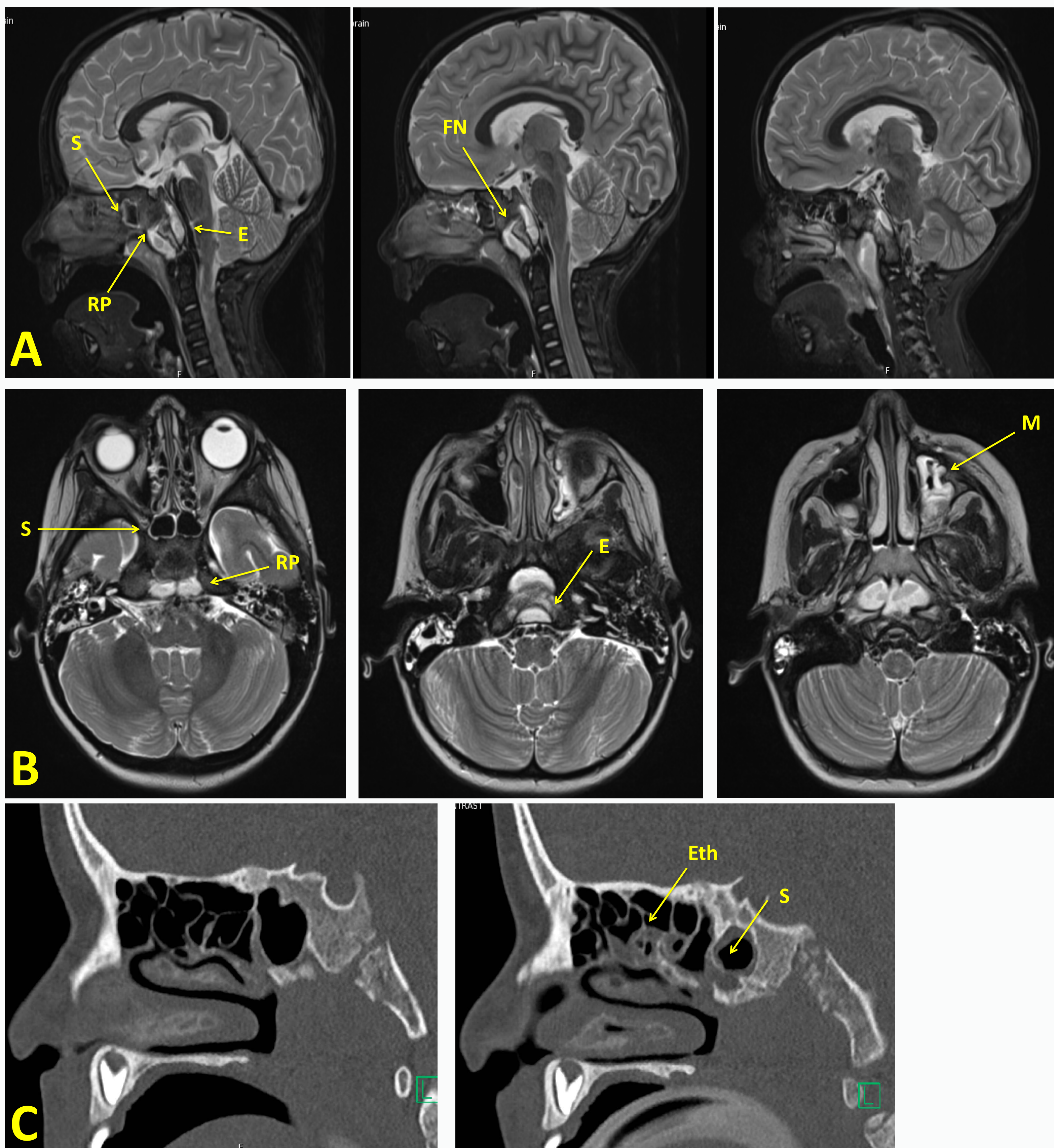


Figure 1:

Row A: Sagittal T2 with gadolinium MRI showing retropharyngeal (RP) and epidural (E) collections as well as clival enhancement. In the middle image, the fossa navicularis (FN) channel can be partially seen with fluid within it. Left maxillary sinus (M) mucosal thickening was present but no opacification or air-fluid levels. S: Sphenoid sinus

Row B: T2 Axial MRI images in sequence from superior to inferiorly showing the collections and clivus.

Row C: Pre-operative sagittal CT scan showing immature suture lines and clival changes due to osteomyelitis. Mild mucosal inflammation in the ethmoid (Eth) and sphenoid (S) sinuses was present.

Row D: 1 week post incision and drainage of retropharyngeal component. Epidural collection is nearly resolved.