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Traumatic CSF leak secondary to a nasoethmoidal encephalocoele

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Abstract

Encephalocoele is a rare type of neural tube defect affecting the central nervous system at the level of the cranium [1,3-5]. They are almost always present at birth and may be associated with genetic mutations such as a partial deletion of chromosome 13q. The incidence of encephaloceles is 1 in 5000 [1-5]. This case report highlights an unusual presentation and complication of encephalocoeles.

Keywords

nasoethmoidal encephalocoele; traumatic; CSF leak; meningitis

Background

Encephaloceles are defined as a protrusion of cranial contents beyond the normal confines of the cranium. This may include meninges and CSF only (meningocele) or brain matter, meninges and CSF (meningoencephalocele) [4]. They may also include a direct connection with the ventricles (meningoencephalocystocoele) [4,5]. Encephalocoeles are classified by location. The sincipital type is the most common, with the nasoethmoidal subtype being the commonest of all. Sincipital encephalocoeles occur through defects in the frontal bone. Encephalocoeles may be further classified as pedunculated or sessile depending on their shape [1-3].

Case Presentation

We present the case of Mr. AP, a 3 year old boy who presented with a 1 year history of right sided nasal obstruction and recurrent rhinorrhoea. He was being treated for allergic rhinitis in the community with saline sprays and oral antihistamines.

On general inspection, the child was very cooperative and looked well. He had a right sided deformity in his nasal bones with an evident widening of the nasal bridge (Figure 1). Anterior rhinoscopy revealed a soft, bluish and compressible mass in the right nostril extending through the outer nasal valve (Figures 2

& 3). The nasal septum was slightly deviated to the left with a normal looking left sided nasal cavity. Both tympanic membranes were dull on otoscopic examination raising a suspicion of bilateral middle ear effusion. The latter was confirmed with Visual Reinforced Audiometry and Tympanometry. There was a mild bilateral conductive hearing loss and bilateral flat type B impedance audiometry curves.

Mr. AP was scheduled for an MRI brain and nasal sinuses for further characterisation of lesion. Two days prior to the scheduled MRI he sustained minor head injury after falling from his own height at home. This was associated with one episode of right sided epistaxis which resolved spontaneously followed by a persistent leak of clear fluid. He was admitted for observation and MRI. Fluid biochemistry of the clear fluid was positive for glucose and beta transferrin.

An MRI was performed which revealed a peripherally enhancing, cystic lesion in the right nasal passage in direct continuity with the anterior cranial fossa and anterior to the right olfactory bulb. (Figures 4-7). The extension of dura surrounding the lesion was also noted to enhance. This was in keeping with a diagnosis of nasoethmoidal encephalocele and the associated dural enhancement and restricted diffusion on Diffusion Weighted Imaging (DWI) was reported as suggestive of meningitis.

During his admission he had one single episode of fever. He was started on prophylactic intravenous piperacillin/tazobactam 1.6g/220mg three times daily. CSF biochemistry and cultures were negative and excluded an ongoing meningitis. Mr. AP did not develop any further episodes of fever during his 5 day admission. The CSF rhinorrhoea lasted for a total of 2 days.

The patient was then referred to a tertiary neurosurgical centre where the nasoethmoidal encephalocele was safely removed surgically via an endoscopic technique.

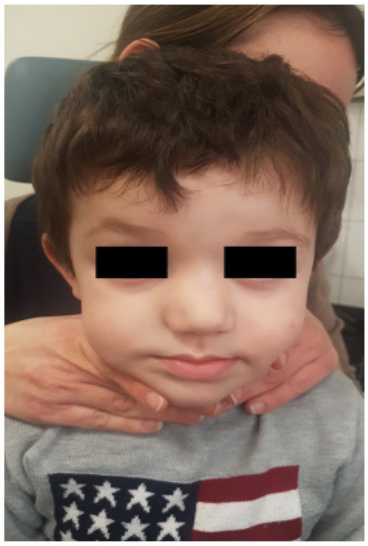

Figure 1

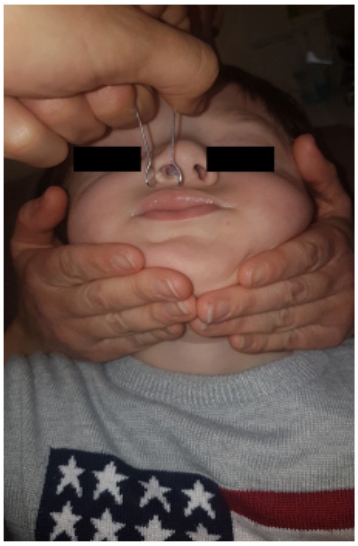

Figure 2

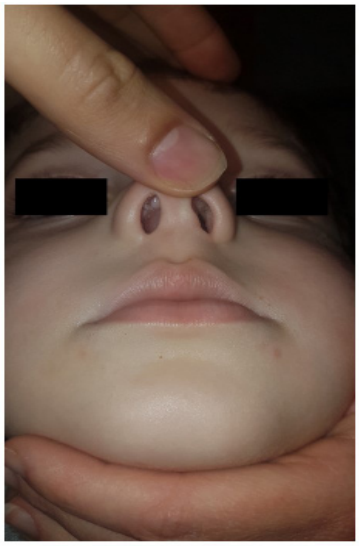

Figure 3

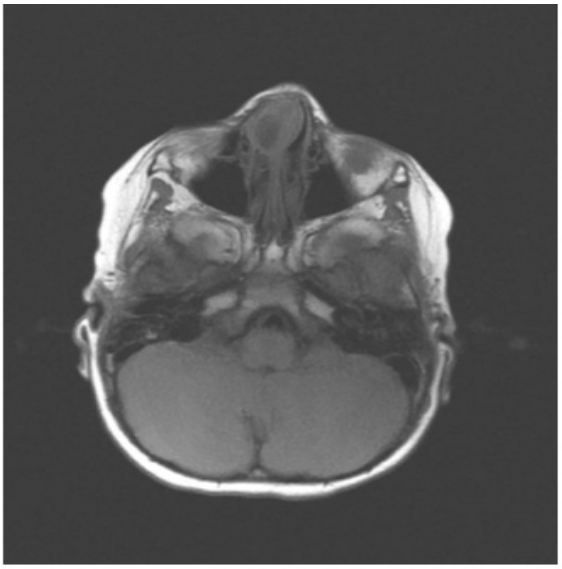

Figure 4

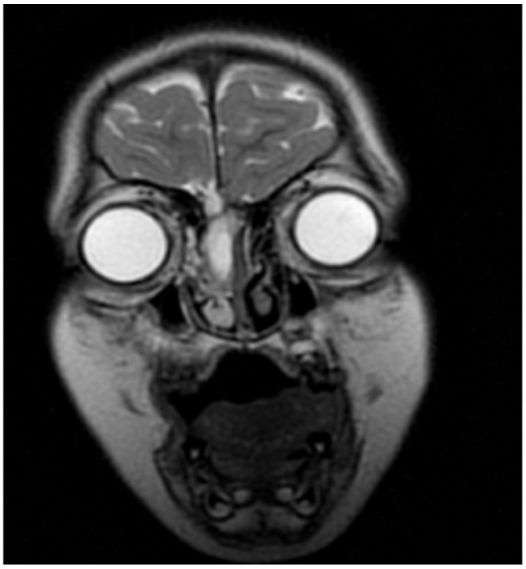

Figure 5

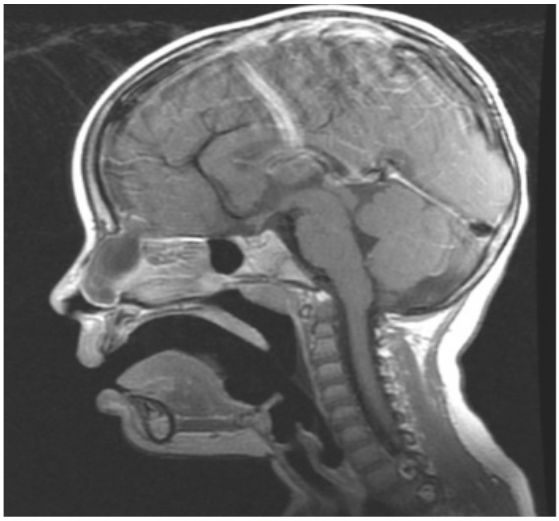

Figure 6

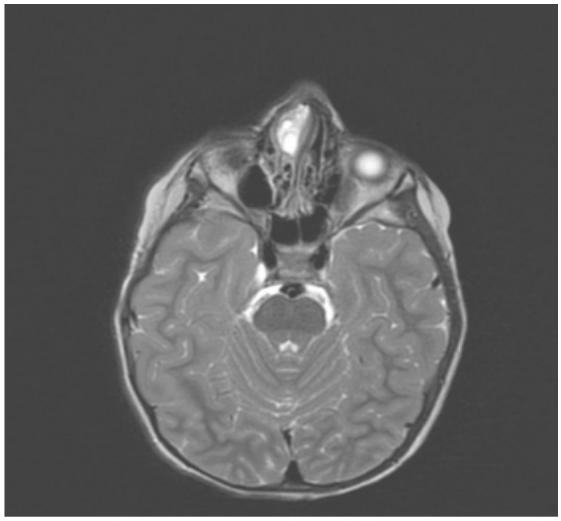

Figure 7

Conclusion

This case report highlights an unusual presentation of a nasoethmoidal encephalocoeles. Clinically encephalocoeles may be easily mistaken for nasal polyps or mucocoeles. A high index of suspicion for this diagnosis should be raised whenever paediatric patients present with a unilateral nasal lump that exhibits the above clinical features. Biopsy of the lesion should always be avoided whenever a diagnosis of encephalocoele is suspected and further characterisation of the lesion should be performed first with MRI.

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