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Persistent nasal obstruction unmasking an anterior ethmoidal meningocele in a child: A Case Report

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ABSTRACT

Anterior meningocele is a rare congenital malformation characterized by herniation of meninges through a skull base defect. We report the case of a 9-year-old child with chronic nasal obstruction, in whom brain MRI revealed an anterior ethmoidal cystic lesion consistent with a meningocele. Associated findings included sinusitis and an incidental pineal cyst. This case highlights the importance of imaging in diagnosing skull base defects and differentiating them from other nasal masses.

KEYWORDS

Anterior meningocele, Ethmoidal meningocele, Pediatric nasal obstruction, Skull base defect, MRI.

MAIN ARTICLE

INTRODUCTION

Meningoceles are congenital herniations of the meninges through a defect in the skull, often located at the anterior skull base. They may present with non-specific symptoms such as nasal obstruction, making diagnosis challenging. Magnetic resonance imaging (MRI) plays a key role in identifying the lesion, assessing its extent, and guiding management [1,2].

CLINICAL PRESENTATION

A 9-year-old female patient, with no medical history records, consulted for **persistent chronic nasal obstruction**, no signs of fever or nasal discharge were noted. Her doctor asked for a brain MRI.

MRI Findings

A well-defined anterior ethmoidal cystic lesion was identified, exhibiting an oval shape with regular contours, hyperintense signal on T2-weighted images (Figure 1A, 1B), hypointense signal on T1, and heterogeneous low signal on FLAIR sequences, without diffusion restriction and showing peripheral enhancement after Gadolinium administration. This lesion originates from a defect of the cribriform plate and causes mild deviation of the nasal septum (Figure 2). There was also a maxillo-spheno-ethmoidal sinusitis, more pronounced on the left side.

DISCUSSION

Anterior meningocele is a subtype of basal encephalocele involving herniation of meninges through defects of the anterior cranial fossa, commonly at the cribriform plate.

Clinical Presentation

Patients often present with:

- Chronic nasal obstruction
- Rhinorrhea (sometimes cerebrospinal fluid leak)
- Recurrent sinus infections [2].

In this case, **nasal obstruction** was the primary symptom.

Radiological Features [3]

MRI is the gold standard for diagnosis. Typical features include:

- CSF-like signal intensity (T2 hyperintense, T1 hypointense)
- Communication with intracranial spaces
- Lack of diffusion restriction
- Possible peripheral enhancement

The identification of a **cribriform plate defect** strongly supports the diagnosis of meningocele.

Differential Diagnosis

- Nasal polyp
- Mucocele
- Dermoid/epidermoid cyst
- Encephalocele (if brain tissue is present) [3, 4].

Associated Findings

- **Sinusitis**, likely secondary to obstruction
- **Pineal cyst**, usually incidental and benign

Management

Treatment typically involves surgical repair of the skull base defect and prevention of complications such as meningitis [3,5].

CONCLUSION

This case illustrates a classic presentation of **anterior ethmoidal meningocele** in a pediatric patient with chronic nasal obstruction. MRI plays a crucial role in diagnosis by identifying the lesion, its origin, and associated abnormalities. Early recognition is essential to guide appropriate surgical management and prevents further complications.

FIGURES

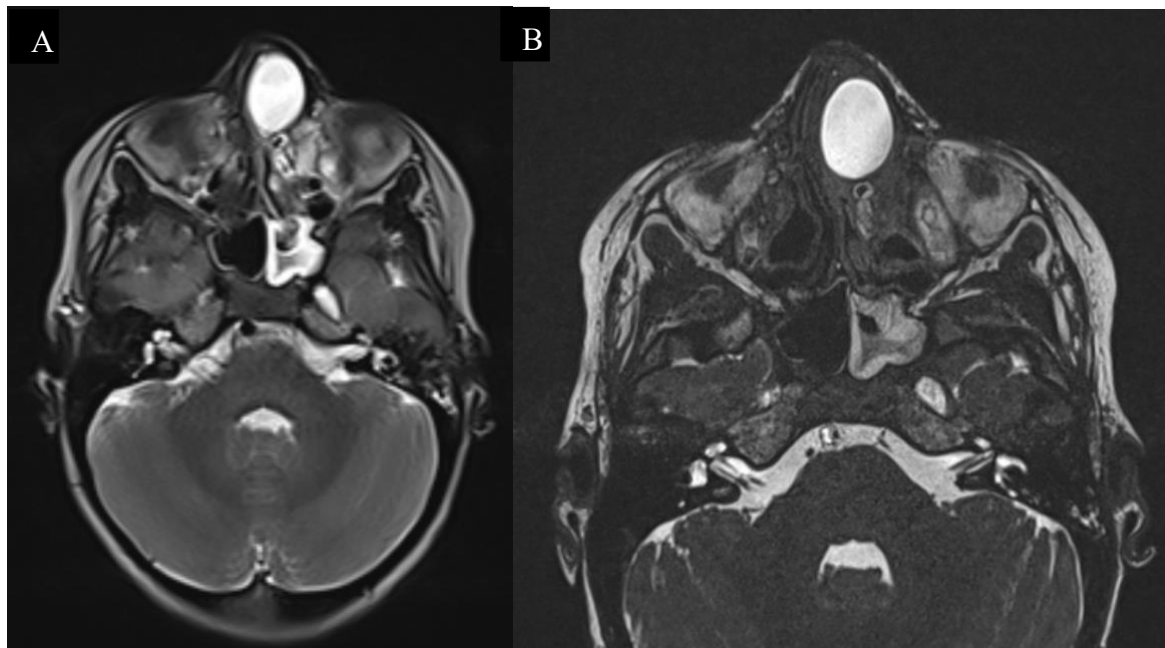


Figure 1 : Oval-shaped anterior ethmoidal cystic lesion, well circumscribed with regular margins and hyperintense on T2-weighted imaging, associated with retention-type maxillary, sphenoidal, and ethmoidal sinusitis.

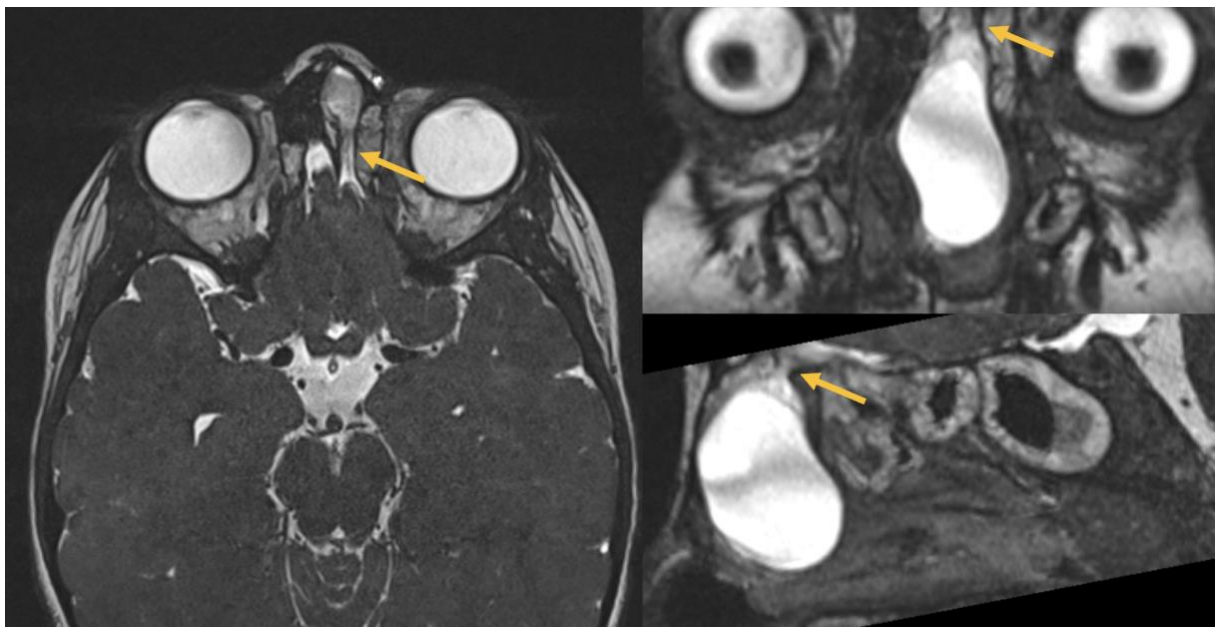


Figure 2 : This lesion originates from a defect in the cribriform plate and slightly displaces the nasal septum toward the contralateral side (Yellow arrows).

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REFERENCES

1. Rai R, Iwanaga J, Loukas M, Oskouian RJ, Tubbs RS. Brain herniation through the cribriform plate: review and comparison to encephaloceles in the same region. *Cureus*. 2018;10(7):e2961. doi:10.7759/cureus.2961.
<https://doi.org/10.7759/cureus.2961>
2. Pal NL, Juwarkar AS, Viswamitra S. Encephalocele: know it to deal with it. *Egypt J Radiol Nucl Med*. 2021;52:105. doi:10.1186/s43055-021-00489-y.
<https://doi.org/10.1186/s43055-021-00489-y>
3. Chaaban MR, Illing E, Riley KO, Woodworth BA. Endonasal endoscopic surgery for pediatric anterior cranial fossa encephaloceles: a systematic review. *Int J Pediatr Otorhinolaryngol*. 2020;132:109919. doi:10.1016/j.ijporl.2020.109919.
<https://doi.org/10.1016/j.ijporl.2020.109919>
4. Gaudio P, Biancoli E, Battistuzzi V, et al. A pathophysiological approach to spontaneous orbital meningoceles: case report and systematic review. *J Pers Med*. 2024;14(5):465. doi:10.3390/jpm14050465.
<https://doi.org/10.3390/jpm14050465>
5. Sharma A, Gaikwad SB, Mishra NK, et al. Nasal encephaloceles: clinical presentation and radiological features. *Neuroradiology Journal*. 2019;32(4):250-258.