Tectal Glioma with Concurrent Intracerebral Abscess Secondary to Infected Sphenoid Encephalocele

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ABSTRACT

Tectal glioma, a slow-growing, benign neoplasm of the roof plate of the midbrain, is a rare disease that is predominantly observed in pediatric patients. When symptomatic, patients often present with obstructive hydrocephalus secondary to involvement of the cerebral aqueduct. Here, we detail the nuanced clinical presentation and hospital course of a 12-year-old boy with Hemophilia A who presented with chronic hydrocephalus and meningismus secondary to concurrent tectal glioma with infected sphenoid encephalocele and intracerebral abscess.

A previously healthy 12-year-old boy presented to the emergency department with severe, generalized headaches, altered mental status, nuchal rigidity, and fever. CT scan of the head revealed severe triventricular hydrocephalus (**Fig. 1**). Cerebrospinal fluid (CSF) sampling and culture confirmed the diagnosis of meningitis, in which a 6-week regimen of intravenous ceftriaxone was initiated. MRI of the brain revealed a tectal lesion (**Fig. 2**) and a sphenoid sinus infection. The infection communicated with a left temporal lobe abscess (**Fig. 3**), presumptively due to an infected sphenoid encephalocele (**Fig. 4**) resulting from the tectal lesion and prolonged increase in intracranial pressure. The patient underwent endoscopic third ventriculostomy and later developed clear rhinorrhea concerning for CSF leak. He returned to the operating room for an endoscopic transpterygoid approach (EETA) to repair the encephalocele. He recovered well and experienced no further complications.

A comprehensive assessment of imaging and laboratory findings is crucial in identifying coexisting pathologies in the context of a nuanced clinical picture. This case emphasizes the potential utility and adaptability of the EETA to sphenoid sinus encephalocele repair in pediatric patients.

INTRODUCTION

Tectal glioma, a slow-growing, benign neoplasm of the roof plate of the midbrain, is a rare disease that is predominantly observed in pediatric patients. When symptomatic, patients often present with obstructive hydrocephalus secondary to involvement of the cerebral aqueduct. Here, we detail the nuanced clinical presentation and hospital course of a 12-year-old boy with Hemophilia A who presented with chronic hydrocephalus and meningismus secondary to concurrent tectal glioma with infected sphenoid encephalocele and intracerebral abscess.

METHODS

The patient's electronic medical record was retrospectively reviewed to composite this case report.

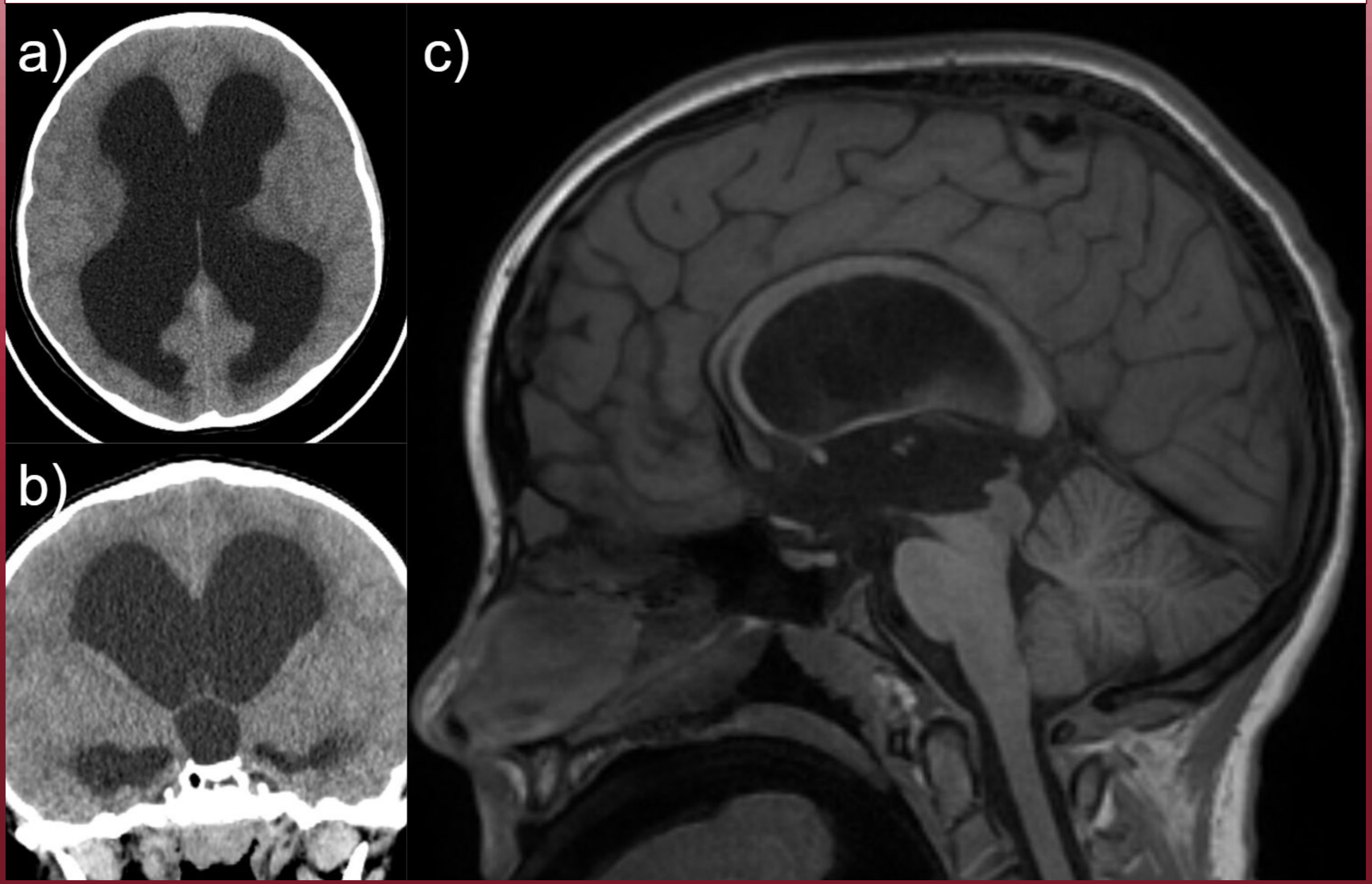

Figure 1: (A-b) non-contrast CT scan demonstrating chronic severe triventricular hydrocephalus in the axial and coronal planes, and (c) SPGR MRI demonstrating triventricular hydrocephalus in the sagittal plane.
Abbreviations: SPGR = spoiled gradient recalled echo

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RESULTS

A previously healthy 12-year-old boy presented to the emergency department with severe, generalized headaches, altered mental status, nuchal rigidity, and fever. CT scan of the head revealed severe triventricular hydrocephalus (**Fig. 1**). Cerebrospinal fluid (CSF) sampling and culture confirmed the diagnosis of meningitis, in which a 6-week regimen of intravenous ceftriaxone was initiated. MRI of the brain revealed a tectal lesion (**Fig. 2**) and a sphenoid sinus infection. The infection communicated with a left temporal lobe abscess (**Fig. 3**), presumptively due to an infected sphenoid encephalocele (**Fig. 4**) resulting from the tectal lesion and prolonged increase in intracranial pressure. The patient underwent endoscopic third ventriculostomy and later developed clear rhinorrhea concerning for CSF leak. He returned to the operating room for an endoscopic transpterygoid approach (EETA) to repair the encephalocele. He recovered well and experienced no further complications.

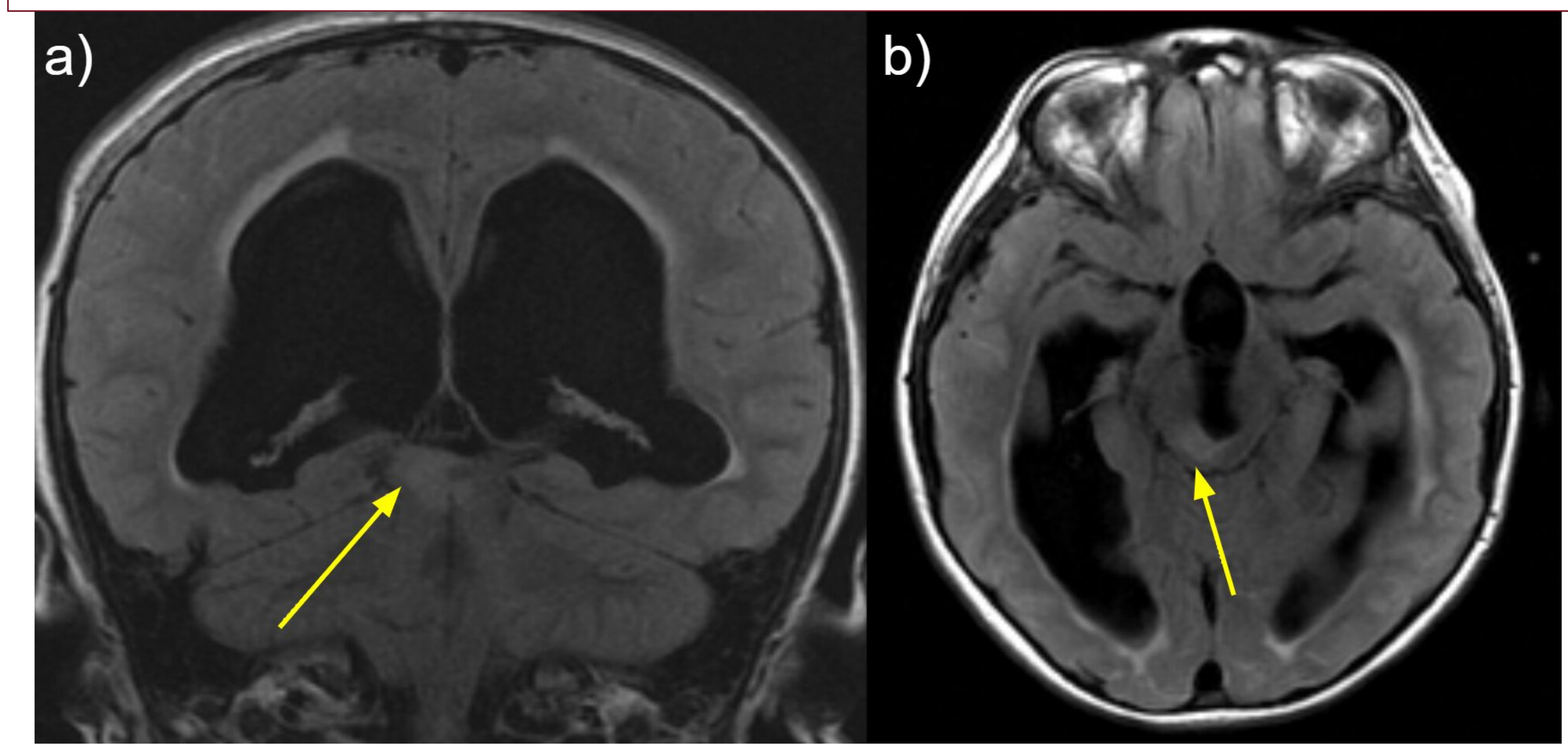

Figure 2: T2-weighted MRI FLAIR image in the (a) coronal and (b) axial planes demonstrating a hyperintense tectal lesion concerning for low grade glioma.

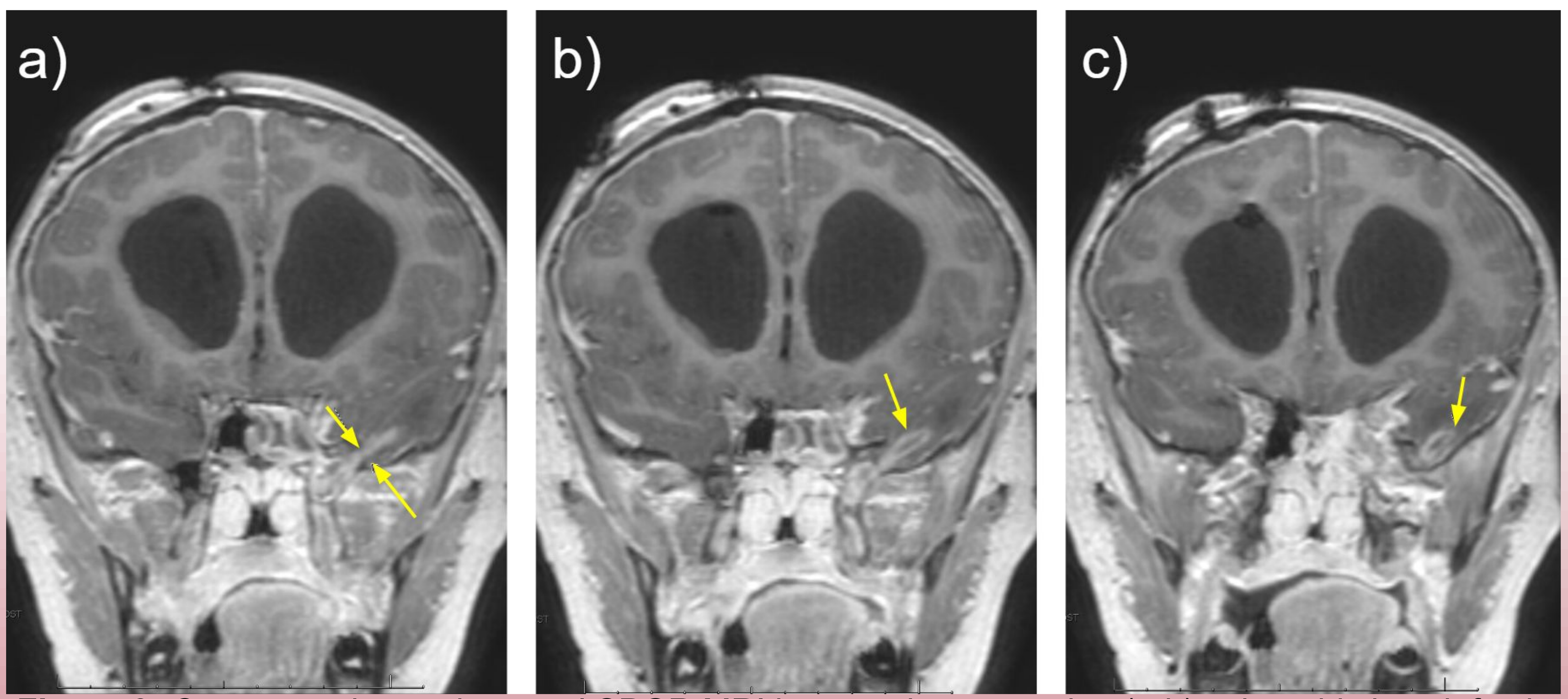

Figure 3: Contrast-enhanced coronal SPGR MRI images demonstrating (a-b) sphenoid sinus infection communicating with (c) a temporal lobe ring-enhancing lesion concerning for abscess.
Abbreviations: SPGR = spoiled gradient recalled echo

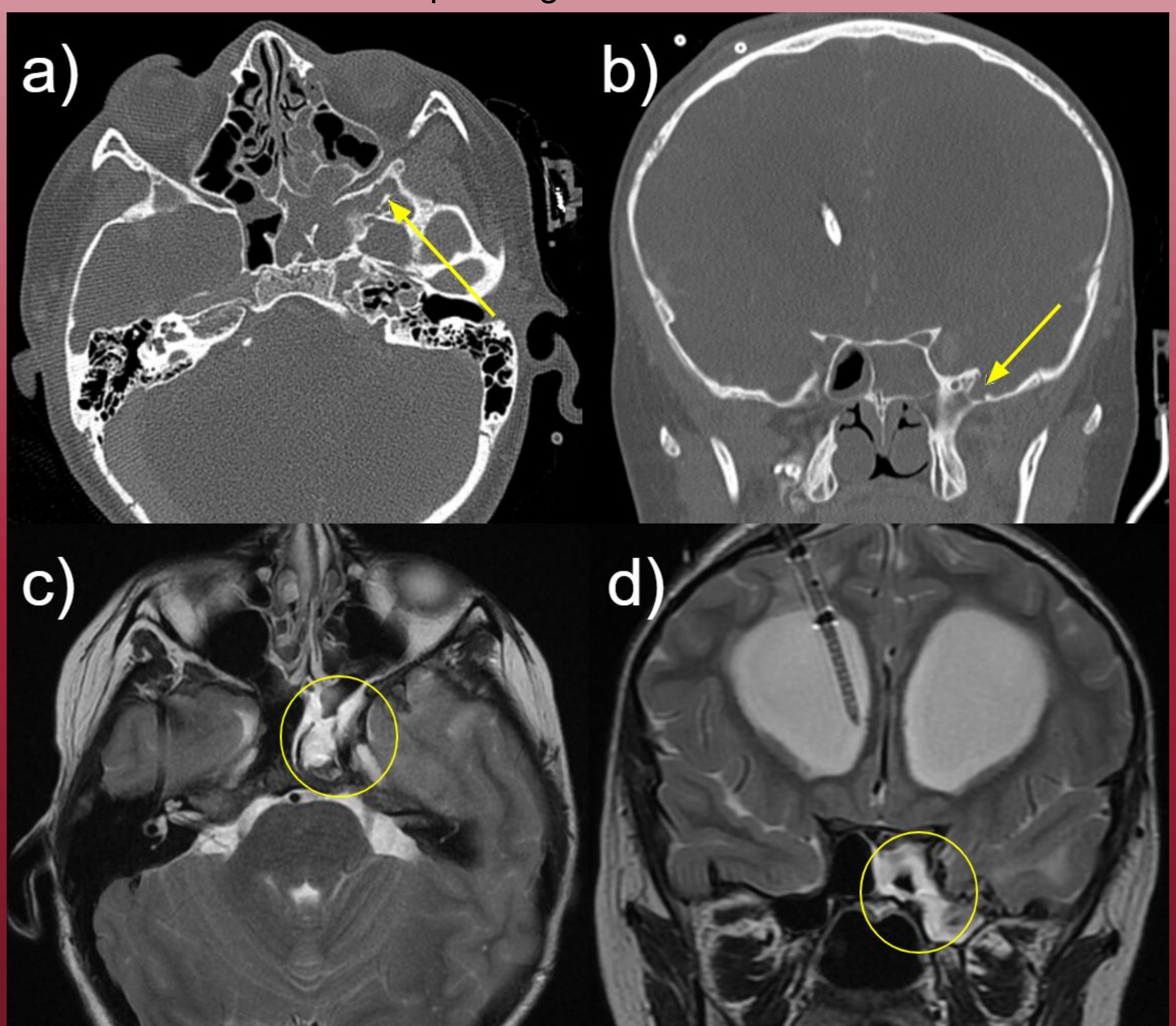

Figure 4: CT scan in the (a) axial and (b) coronal planes demonstrating a left sphenoid sinus lateral wall defect. Noncontrast T2 MRI in the (c) axial and (d) coronal planes demonstrating enhancement of the protruding encephalocele tissue in the left sphenoid sinus.

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CONCLUSION

A comprehensive assessment of imaging and laboratory findings is crucial in identifying coexisting pathologies in the context of a nuanced clinical picture. This case emphasizes the potential utility and adaptability of the EETA to sphenoid sinus encephalocele repair in pediatric patients.