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Medial orbital protrusion - a potentially hazardous anomaly during endoscopic sinus surgery

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Abstract
We report the case of a 57-year-old patient with a presumed developmental anomaly of the medial orbital wall. The resultant protrusion of orbital contents into the ethmoidal complex was clearly demonstrated on coronal computed tomography (CT) scans of the paranasal sinuses. This anomaly presents a high risk of iatrogenic injury to the medial rectus and orbit during functional endoscopic sinus surgery and has not previously been described.

Key words: Orbit; Endoscopy; Ethmoid sinus, anatomy

Case report

A 57-year-old woman presented with a two-year history of nasal obstruction, which was more marked on the right, and associated with clear rhinorrhoea, post-nasal discharge and occasional epistaxis; she reported no symptoms of acute sinusitis or visual disturbance, and gave no history of previous nasal surgery or trauma.

Clinical examination revealed markedly oedematous inferior turbinates, but endoscopic examination failed to reveal any further pathology. The patient's symptoms failed to settle following appropriate medical treatment with a topical nasal steroid spray, and a CT scan of the paranasal sinuses was performed.

The scan was initially reported by a consultant radiologist as normal. On subsequent review of the coronal scans, an abnormality of the medial wall of the right orbit was clearly seen (Figures 1 and 2) with bony protrusion into the ethmoidal complex. The smooth bony deformity around the defect suggested that it was long-standing and probably developmental. Orbital fat and part of the medial rectus muscle could be seen herniating through the defect. The patient is currently being managed conservatively in view of these findings.

Discussion

When analysing CT scans performed on patients during evaluation for functional endoscopic sinus surgery attention is focused on abnormal opacification evident within the paranasal sinuses, and on abnormalities of the nasal septum and the middle meatus; thus, variations of sinus air

FIG. 1
CT scan image demonstrating medial protrusion of the right medial orbital wall.

FIG. 2
Orbital fat and medial rectus muscle seen herniating through the defect.

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cell extension or of other bony anatomy may be overlooked as initially occurred in the above case. Many such variants are common and well-documented (Lloyd *et al.*, 1991; Earwaker, 1993; Olivero *et al.*, 1995). Dehiscence of the lamina papyracea has been noted as a congenital or post-traumatic finding, but we believe that protrusion of an intact medial orbital wall and the contained orbital contents into the ethmoid complex has not previously been reported. Detection of such an anatomical variant of the orbital wall is vital as the orbital contents would be at great risk during surgery. This abnormality was easily visualized in this patient as the surrounding ethmoidal sinuses were normal and clear. However, in the presence of chronic rhinosinusitis with retained secretions, polyps and inflamed mucosa, the opaque pathological ethmoidal sinuses would have a similar density on CT scanning to the herniated orbital tissues. The orbital abnormality could hence be easily overlooked. Subsequent ethmoidal surgery would then risk inadvertent damage to the protruding medial orbital wall and medial rectus injury or orbital infection.

References

Earwaker, J. (1993) Anatomic variants in sinonasal CT. *Radiographics* **13(2):** 381–415.

Lloyd, G. A. S., Lund, V. J., Scadding, G. K. (1991) CT of the paranasal sinuses and functional endoscopic surgery: a critical analysis of 100 symptomatic patients. *Journal of Laryngology and Otology* **105:** 181–185.

Olivero, P. J., Benson, M., Zinreich, S. J. (1995) Update on imaging for functional endoscopic sinus surgery. *Otolaryngologic Clinics of North America* **28:3:** 585–608.

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