Bilateral asymmetric mucoceles of the paranasal sinuses: A first case report

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Abstract
Bilateral paranasal sinus mucoceles are rare. To date, only 5 cases have been reported in the English-language literature. All were bilaterally symmetrical. We present a patient with bilateral asymmetric mucoceles. This patient had a symptomatic mucocele of the right ethmoid sinus with orbital extension and an asymptomatic mucocele involving the left maxillary sinus with retroorbital extension. The latter was an incidental finding on radiologic evaluation. This is the first case report of bilateral mucoceles with asymmetric involvement of the paranasal sinuses.

Introduction
Mucoceles are benign expansile paranasal sinus lesions. The majority of the mucoceles reported involve the frontoethmoidal sinuses, followed by the sphenoid and maxillary sinuses. Mucoceles are cyst-like structures lined with secretory respiratory mucosa of pseudostratified columnar epithelium.1 Bilateral mucoceles are rare; only 5 cases have been reported. In all of these patients, the lesions were bilaterally symmetric. They included mucoceles of the frontal sinuses,2 bilateral pansinuses with orbital and intracranial extension,3 maxillary antra,4,5 and ethmoid sinuses.6 Our patient presented with right-sided proptosis. Radiologic evaluation showed a mucocele of the ethmoid sinus with orbital extension on the same side and a maxillary sinus mucocele with orbital extension on the contralateral side. The latter site was totally asymptomatic, although radiologically extensive. No other cases of bilateral, asymmetric mucoceles of the paranasal sinuses have been published.

Case report
A 65-year-old woman presented to the ENT department of Christian Medical College Hospital at Vellore, which is in South India, complaining of prominence of the right eye with swelling at the inner angle, of 3 months' duration. The swelling was not tender and was progressively increasing in size. She had no associated history of nasal obstruction, discharge, epistaxis, loss of vision, or diplopia. There was no previous history of trauma or surgery.
Clinical examination revealed a 3 × 3-cm, nontender, cystic swelling in the right medial canthus, which was pushing the eyeball laterally. There was no other facial swelling. Anterior rhinoscopy and diagnostic nasal endoscopy revealed a markedly enlarged right middle turbinate with no other abnormality. The left nasal cavity and the oral cavity were normal, as were vision and eye movements. No other systemic abnormality was detected. Routine blood investigations were within normal limits.

Subsequently, computed tomography (CT) revealed two nonenhancing soft-tissue lesions involving the bilateral paranasal sinuses with orbital extension. One was 4 × 2.2 × 3 cm in size and was located in the right anterior group of ethmoid air cells, with expansion and remodeling of surrounding bony lamella. The lamina papyracea was breached with extension into the extracranial compartment of the right orbit, displacing the medial rectus muscle and eyeball laterally (figure 1, A and B). Anteriorly, the lesion was bulging out in the region of the medial canthus. Posteriorly, it extended up to the middle group of ethmoid air cells. Superiorly, the lesion was contained by the cribiform plate; inferiorly, it extended into the nasal cavity.
The second lesion was 3.4 × 2.8 × 4 cm in size, involving the left maxillary sinus with expansion and remodeling of the walls. The medial wall of the maxillary sinus was thinned out. Anteriorly and laterally, the lesion was contained in the maxillary sinus (figure 2). Superiorly, the lesion extended through the orbital floor in the retroocular region, displacing the inferior rectus muscle superiorly (figure 1, B).
The right maxillary sinus, both sphenoids, and the left ethmoidal air cells were clear. The eye globe and its contents appeared normal. The frontal sinuses were hypoplastic bilaterally.
The patient had endoscopic decompression of both mucoceles at the same anesthetic sitting. The postoperative period was uneventful, and she was discharged on the second day. Follow-up for 8 months showed no evidence of recurrence.

Discussion
The majority of paranasal sinus mucoceles occur in the frontal sinus (60%), followed by the ethmoid sinus.
(30%). Only 10% are localized in the maxillary sinuses, and they are rarely localized to the sphenoid sinus. In one series, mucoceles were bilateral in 4% of cases. Fifty percent of patients with mucoceles have a history of prior infection, 25% have a history of trauma, and 10% have a prior allergic history. In some cases, there is histologic evidence of an increase in the number of secretory cells in the lining membrane; hypersecretion of mucus may be a contributory factor. Unlike mucoceles of the frontal sinus, which can be diagnosed on clinical examination and plain x-ray, mucoceles of the maxillary antra, sphenoid sinuses, and the ethmoids can be missed entirely. In our patient, CT revealed an extensive, contralateral mucocele that was not noted on clinical examination. For these reasons, CT is the primary imaging method of choice. CT in the axial and direct coronal planes is the optimum method of showing the bone expansion that occurs in mucocele formation. The bony outline becomes more rounded as the bone remodels in response to growing pressure within the sinus cavity. Magnetic resonance imaging is best reserved for mucocele formation secondary to sinonasal tumors, because in these patients only the lining membrane of the mucocele will enhance after intravenous contrast.

Treatment of paranasal sinus mucoceles, including complex ones, is managed endoscopically. In our patient, because two lesions were identified by CT scan, both were treated at the same time by endoscopic approach.

References