Bilateral Mucopyocele of the Torus Tubarius Presenting as Headache

Cystic lesions of the nasopharynx are typically asymptomatic and are often discovered incidentally with imaging or endoscopic examination. The etiology of these lesions can be either congenital or acquired. Acquired lesions, such as mucoceles, salivary duct cysts, oncocytic (Warthin) cysts, intra-adenoid cysts, and abscesses, occur throughout the nasopharynx and are associated with local trauma, such as surgery, radiation, or neoplastic or infectious processeses. Given their natural history, bilateral acquired lesions are an exceedingly uncommon presentation.

Mucoceles are mucus-filled pseudocysts commonly occurring in the oral cavity, including the buccal mucosa, lips, and tongue. The pathophysiologic mechanism relates to trauma of minor salivary glands allowing extravasation of mucin and subsequent cyst formation. When infected by pathogens, mucoceles are referred to as mucopyoceles.

Untreated mucopyoceles can erode soft tissue and bone and extend into adjacent cavities. Critical structures, such as the brain and orbit, are separated from the sinuses by only a thin layer of mucosa and bone. For this reason, in patients with sinonasal mucopyocele, surgical treatment is indicated to avoid the potentially catastrophic sequelae, including spontaneous cerebrospinal fluid rhinorrhea, orbital, and intracranial infections.

Herein, we describe the unusual presentation and clinical course of a patient with refractory headaches with incidental bilateral nasopharyngeal cysts, appearing to arise from the torus tubarius on brain magnetic resonance imaging (MRI), later confirmed to be mucopyoceles.

**Report of a Case** | A male veteran in his 40s with a history of post-traumatic stress disorder, traumatic brain injury, and chronic headaches presented to our clinic for evaluation after an MRI ordered for neuropsychiatric evaluation showed bilateral nasopharyngeal lesions (Figure 1) with restricted diffusion on the diffusion weighted sequence. At presentation, the patient reported tension-like headaches for several months, unrelieved by medical treatment. The patient had undergone a ton-
silectomy and adenoectomy in childhood and had not experienced any sinonasal symptoms, radiation exposure, or trauma.

Findings from a head and neck examination, including flexible nasopharyngolaryngoscopy, showed bilateral fullness of the nasopharynx. The submucosal lesions appeared to be within the torus tubarii (Figure 2). The differential diagnoses included mucocele, mucopyocele, adenoidal hypertrophy, and a malignant lesion.

The patient was subsequently taken to the operating room, where endoscopic biopsies revealed cystic lesions filled with purulence (Figure 2). Suspecting bilateral mucopyocele, the lesions were marsupialized using microdebrider. Results from cultures, pathologic examination, and flow cytometry studies were sent for evaluation. The pathology report revealed benign respiratory mucosa with reactive lymphoid hyperplasia and mild chronic inflammation. Cultures grew Staphylococcus lugdunensis, consistent with a diagnosis of mucopyoceles. On discharge, the patient was prescribed nasal saline irrigation and a 10-day course of sulfamethoxazole and trimethoprim. At the 6-week follow-up, he reported resolution of his headache symptoms, and the operative site was noted to be healing well.

Discussion | Nasopharyngeal cysts are a relatively common incidental finding on MRI. In a recent review of 3000 randomized MRI scans, 14% of patients showed evidence of nasopharyngeal cysts. However, the clinical significance and criteria for intervention for incidental nasopharyngeal lesions are not well established.

We present a rare case of bilateral nasopharyngeal mucopyoceles discovered on MRI in a patient with chronic headache. The patient endorsed resolution of symptoms following incision, drainage, and marsupialization of the lesions and antibiotic treatment.

We suspect it is possible that even subtle infectious pathologic abnormalities can trigger a similar inflammatory pathway as described herein for rhinogenic pain and manifest as chronic refractory headache. Therefore, in instances of headache refractory to medical treatment, patients should undergo a complete head and neck examination including endoscopy and imaging studies, which may indicate an occult process. Incidental sinonasal abnormalities, like mucopyoceles, may be clinically significant and warrant further evaluation and treatment.

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