Respiratory epithelial adenomatoid hamartoma: A case report

W. Frank Ingram, MD; Michael C. Noone, MD; M. Boyd Gillespie, MD

Abstract
Respiratory epithelial adenomatoid (READ) hamartoma is a recently described entity characterized by abnormal glandular formations arising from the epithelium of the nasal cavity. The etiology of the lesion is unclear and may be secondary to either sinonasal inflammation or developmental error. We present a case of a 54-year-old man with a unilateral nasal mass found to be consistent with READ hamartoma upon pathologic review. Although READ hamartomas are thought to be rare, awareness of the lesion is important since it may be confused with sinonasal adenocarcinoma, leading to overly aggressive treatment. Therefore, READ hamartoma should be included in the differential diagnosis of a unilateral nasal mass.

Case Report
A 54-year-old white man presented with a 2-year history of nasal congestion and left-sided facial pain, refractory to medical management. Computed tomography (CT), ordered by his primary care physician, revealed opacification of the left maxillary sinus with a soft-tissue density extending through the left maxillary ostium (figure 1). Additional CT findings included bony irregularity of the lateral maxillary wall and orbital floor.

The patient was referred to the otolaryngology clinic for further evaluation. His medical history was significant for a 60-pack-year smoking history and renal cell carcinoma 7 years previously that had required nephrectomy. On nasal endoscopy, a grayish, polypoid mass could be seen filling the left middle meatus. The patient denied visual change or numbness of the teeth or face. There was no adenopathy in the neck.

From the Department of Pathology (Dr. Ingram) and the Department of Otolaryngology–Head & Neck Surgery (Dr. Noone and Dr. Gillespie), Medical University of South Carolina, Charleston.
Reprint requests: M. Boyd Gillespie, MD, Department of Otolaryngology–Head & Neck Surgery, Medical University of South Carolina, 135 Rutledge Ave., Suite 1100, PO Box 250550, Charleston, SC 29425. Phone: (843) 792-6012; fax (843) 792-0546; e-mail: gillesmb@musc.edu

Discussion
The term hamartoma—from the Greek root hamartia, meaning defect or error—was initially used by Willis to describe an abnormal, disorganized overgrowth of tissue in an area where the tissue is indigenous. Willis added that, in order to consider a mass a hamartoma, it should be obvious that the mass originated by developmental error. Many entities currently called hamartomas do not meet Willis’s strict guidelines. A looser definition of hamartoma, acceptable to most pathologists today, is a benign tissue proliferation indigenous to the area in which it is found. Hamartomas are considered spontaneous, self-limiting growths whose cells cease reproducing when they reach maturity.

Sinonasal hamartomas are rare growths that arise from the Schneiderian epithelium of the nose and paranasal sinuses. READ hamartomas, originally described by Wenig and Heffner in 1995, are rare among nasal hamartomas, making them even more rare overall. In the 31 cases described by Wenig and Heffner, the presenting symptoms of READ hamartomas included nasal obstruction, nasal stuffiness, deviated septum, epistaxis, and recurrent rhinosinusitis. The duration of symptoms ranged from a few months to 8 years. Twenty-seven cases were in men, and four were in women. Patient age at presentation ranged from 27 to 81 years, with a median of 58 years. The masses were most commonly found in the nasal cavity, with the nasal septum as the predominant site. Other sites may include the nasopharynx and the ethmoid, frontal, and maxillary sinuses. CTs of the paranasal sinuses often show unilateral inflammation or mass.
Grossly, READ hamartomas are shiny, polypoid, exophytic masses with a rubbery to firm texture. Microscopically, they appear as glandular proliferations, which in some places are in direct continuity with the surface epithelium (figure 2, A). The glands are of varied sizes and are round to oval and separated by stromal tissue, unlike the cribriform glandular growth often seen in more aggressive tumors. As the name implies, the glands themselves are composed of ciliated respiratory epithelial cells, with lumina often filled with mucinous or amorphous debris (figure 2, B). It has been hypothesized that they arise from the overlying Schneiderian epithelium like the normal seromucous glands of the nasopharynx and paranasal sinuses. In addition to the abnormal glandular proliferation, the hamartomas have histologic changes typical of inflammatory sinonasal polyps, including seromucous gland proliferation, vascular and fibroblastic proliferation, stromal edema, and a mixed inflammatory cell infiltrate.

Although earlier opinion, in accordance with the Willis guidelines, held that sinonasal hamartomas were due to developmental errors, it is now thought that their development is induced by the inflammatory process. As the more modern theory predicts, READ hamartomas often arise in the setting of inflammatory polyps. The diagnosis is made by microscopic examination, and complete surgical excision is curative.

The primary danger associated with these growths is the potential for misdiagnosis. Because of their rarity, they may be confused with more aggressive lesions, such as sinonasal adenocarcinoma or inverted papilloma, resulting in an unnecessarily aggressive surgical resection. Identification of the intervening stroma between the ciliated glands of a READ hamartoma is the most reliable way to distinguish this entity from low-grade sinonasal adenocarcinoma, whose cribriform growth pattern has no intervening stroma between the glands. Mitotic figures, although rare in both entities, are more often identified in sinonasal adenocarcinoma and can occasionally be abundant in this low-grade malignancy. The relative lack of nuclear pleomorphism in low-grade sinonasal adenocarcinoma further contributes to a possible misdiagnosis of a benign lesion in these cases.
The presence or absence of a cribriform growth pattern, however, is still the most helpful microscopic characteristic for distinguishing the two lesions, which have markedly different clinical courses.

The seromucous gland proliferation of the READ hamartoma can likewise be confused with inverted papilloma. However, the gland proliferation in inverted papilloma is located only in the base of the papilloma, where it arises from the nasal epithelium and not throughout the lesion as in the READ hamartoma. In addition, READ hamartomas fail to demonstrate the locally destructive growth pattern that is commonly seen in inverted papilloma.

References