Image Diagnosis: Allergic Fungal Sinusitis

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CASE PRESENTATION

A 29-year-old woman presented to our clinic with symptoms of allergic rhinitis for 2 years associated with nasal obstruction for 5 months. On examination, there was broadening of the root of nose (Figure 1) with multiple pale polyps in the left nasal cavity. A computed tomography scan revealed a heterogenous lesion in the left ethmoid, maxillary, sphenoid, and frontal sinuses with thinning of the bony walls (Figure 2). A provisional diagnosis of allergic fungal sinusitis was made, and the fungal debris (Figure 3) and polyps were removed completely.

Postoperative histopathology confirmed the diagnosis, and the culture from the specimen grew *Aspergillus niger* (Figure 4). The patient was started on a steroid nasal spray for three months postoperatively and recovered completely; she was asymptomatic at eight-month follow-up. The patient provided informed consent for inclusion in this report.

DISCUSSION

The term "allergic fungal sinusitis" was introduced by Robson et al[1] in 1989. Incidence depends on geographic location; most cases are in temperate regions and regions with high humidity.[2] This condition is most commonly seen in immunocompetent adolescents and young adults. The causative fungi are usually dematiaceous fungi, consisting of the genera *Alternaria, Bipolaris, Curvularia, Drechslera, Fusarium,* and *Aspergillus*.[3] Theories on pathogenesis include hypersensitivity and T-cell-mediated reactions as well as a humoral immune response.[2] Patients usually present with symptoms of allergic rhinitis, bilateral nasal obstruction, or chronic sinusitis like nasal congestion, purulent rhinorrhea, or headaches. Examination findings vary from intranasal edema and polyposis to facial disfigurement and orbital abnormalities.[2,4] The bony remodeling and/or erosion, expansion of soft tissues, and mass-like appearance of the fungus may initially create the impression of an aggressive cancer. Maintaining an appropriate level of suspicion may help clinicians recognize this entity promptly and counsel patients better.

Bent and Kuhn[5] described the most widely accepted criteria for diagnosis, which are: Gell and Coombs type I (Immunoglobulin-E-mediated) hypersensitivity to fungi, nasal polyposis, characteristic radiographic findings, eosinophilic mucin without fungal invasion into sinus tissue, and positive fungal stain of sinus contents removed at the time of surgery.[2] Blood tests show eosinophilia, and computed tomography findings often demonstrate unilateral or asymmetric involvement of the sinuses with heterogeneous signal intensity because of deposition of heavy metals such as iron and manganese.[4] Bony erosion and expansion of the involved sinuses may be seen.[3] The ethmoid sinus is the most commonly involved sinus. Treatment is largely surgical supplemented with oral corticosteroids and immunotherapy; however, recurrences are common.[2] ❖

Disclosure Statement

The author(s) have no conflicts of interest to disclose.

How to Cite this Article

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Figure 1. Patient with broadening of the root of the nose.

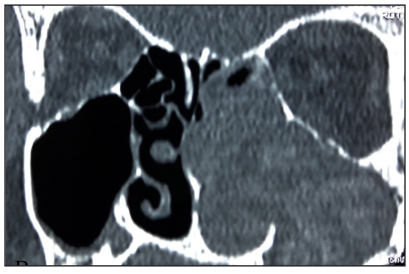

Figure 2. Computed tomography scan of the patient's head showing a heterogenous lesion in the left maxillary and ethmoid sinuses.

Figure 3. Fungal debris removed from the sinuses.

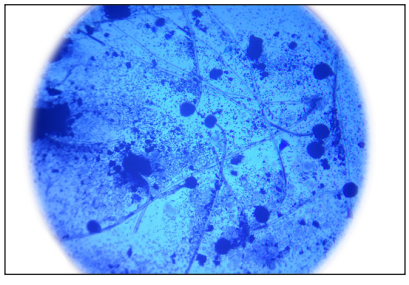

Figure 4. Microscopic view of Aspergillus niger in lactophenol blue [x40 magnification]

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