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CASE REPORT

Antrochoanal polyp as a rare presentation of fungal ball

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Keywords

antrochoanal polyp, fungal ball.

Abstract Fungal ball is an extramucosal mycosis. The patient may present with facial pain, nasal blockage, purulent nasal discharge and cacosmia, the fungal ball being present unnoticed for years. Some patients do present as having other nasal problems and later on are found out to have a fungal ball incidentally. We present a case of 38 year-old man who was clinically diagnosed as having left antrochoanal polyp. Intraoperatively, a fungal ball was discovered in the left maxillary antrum.

Introduction

Fungal ball is a non-invasive form of fungal sinusitis. It is an extramucosal fungus proliferation which fills completely one or more paranasal sinuses (deShazo *et al*.., 1997); the most common sinus involved being the maxillary, followed by sphenoid. Involvement of the ethmoid, frontal and multiple sinuses are rare (Ferguson, 2000), the clinical presentation varying from purulent nasal discharge with localized facial pain to some that may have it unnoticed.

Case summary

A 38 year-old man developed persistent left nasal obstruction for one year duration and an associated purulent left nasal discharge; however there was no facial pain. On examination, the nasal septum was deviated to the right with a nasal spur impinging the middle turbinate. A pedunculated left nasal polyp was noted arising from maxillary sinus and extending to posterior choana.

Functional endoscopic sinus surgery was performed and a friable left antrochoanal polyp identified and removed through accessory ostium and sent for histopathological examination. A natural ostium was performed and the polypoidal mucosa in the antrum was removed and upon inspection of the maxillary sinus, a fungal ball was noted in the anteroinferior wall of maxillary sinus (Figure 1). The fungal ball was extracted and sent for culture and histopathological examination. The fragility of anterior wall of ethmoid bulla suggested that fungal infection might appears first in the sinus before the antrochoanal polyp.

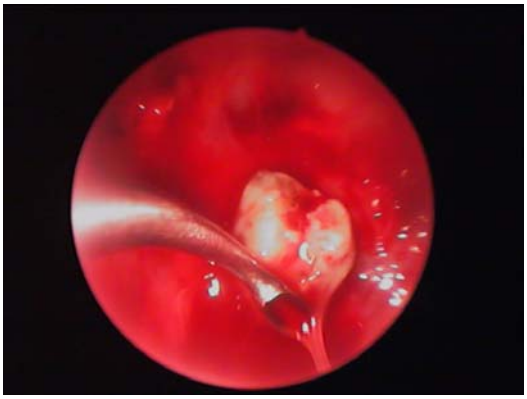

Figure 1 Endoscopic finding during surgery showed fungal ball in the maxillary sinus.

Microscopic findings of the fungal ball specimen showed numerous septate fungal hyphae with bacterial colonies, the Periodic Acid Shift (PAS) stain was positive for fungal hyphae. As for the antrochoanal polyp specimen, histopathological examination showed polypoidal masses lined by respiratory type epithelium, the stroma was mildly infiltrated by inflammatory cells, mainly lymphoplasma cells and eosinophils. Fungal bodies and hyphae were not seen in the polyp. The pathological diagnosis was a fungal infection suggestive of *Aspergillus* infection with an associated inflammatory polyp. Fungal culture revealed no growth.

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The patient was well post operatively and during follow up with no signs of recurrence. Nasoendoscopy showed no more fungal growth with good healing.

Discussion

The presence of fungal ball in the sinuses usually will produce symptoms which mimic chronic rhinosinusitis, rarer symptoms include blurred vision, proptosis, and epistaxis (Ferguson, 2000). In a review of 109 patients with fungal balls, ten percent had an associated polyp. Polyps are a non specific response to a variety of inflammatory conditions and have a baseline incidence in the population of 2% (Klossek *et al*., 1997). On the other hand, the incidence of nasal polyp with fungal ball is even smaller. Collins *et al.* in 2003 studied 349 patients with chronic rhinosinusitis undergoing endoscopic sinus surgery, all of them with nasal polyposis and thick fungal-like sinus mucin. There was only one patient who had fungal ball (Collins *et al*., 2003). Very rarely a fungal ball is associated with large polyps protruding in the vestibule or nasal cavity (Wu *et al*., 2005).

In our case, the patient's presentation was consistent with the endoscopic examination findings. It was an antrochoanal polyp with a fungal ball as an incidental finding during surgery. The mass was cheesy, clay-like material (Figure 2) and was strongly suggestive of fungal ball (Popko *et al*., 2010). Typical gross descriptions of a fungal ball is of a grumous friable cheesy material, which can either be green, yellow, brown or black in colour and that is easily peeled off the mucosa. The sensitivity and specificity of these positive findings found during surgery is approximately 100% and 99%, respectively (Dhong *et al*., 2000).

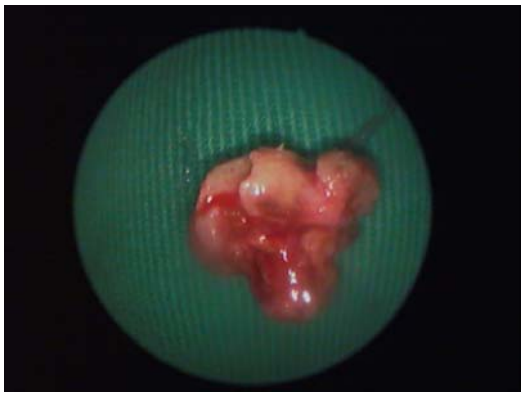

Figure 2 Fungal ball after removal from maxillary sinus which showed characteristics of cheesy, clay-like material.

The bony erosion as evidenced by fragility of the anterior wall of the bulla ethmoidalis which was found intraoperatively, served as additional point in favour of development of fungal colonisation complicated with antrochoanal polyp. Antrochoanal polyp is a benign solitary polypoid lesion, opacifying and which usually enlarges the sinus without bone destruction (Towbin *et al*., 1979). To confirm the presence of fungal colonisation, the role of histopathological examination and culture of the specimen is crucial.

Fungal balls of paranasal sinuses consist of matted hyphae. In previous studies of correlation between histological examination and culture, only about 60 – 67% of fungal sinusitis cases with fungal hyphae identified on tissue section were positive for culture (Cody *et al*., 1994, Morpeth *et al*., 1996, Granville *et al*., 2004). Entrapment of fungal hyphae within the mucus may prevent contact with culture media that make the culture negative. To prevent this, the use of mucolytic agent before inoculation might help increase yield of positive culture to 96% (Granville *et al*., 2004). Since most of the time fungal culture is negative, diagnosis is usually based on histopathological examination, which shows characteristic tangled fungal hyphae (Ferguson, 2000).

In terms of management, this does not change for both fungal ball and antrochoanal polyps. Several operative procedures have been described in the literature for fungal ball, for instance the traditional method introduced by Caldwell-Luc and the more modern techniques of functional endoscopic surgery (Dhong *et al*., 2000, Ferreiro *et al*., 1997). Nowadays, endoscopic sinus surgery is the preferred technique for fungal ball as well as antrochoanal polyps, because postoperative recurrence is lower than other surgical techniques (Selma *et al*., 2006). Besides that, the anatomy of the sinus wall can be preserved because in endoscopic sinus surgery, the route for instruments handling and manipulation is via nasal cavity. It can also avoid the complications of Caldwell-Luc procedure such as oro-antral fistula.

Conclusion

The existence of uncommon manifestations of fungal infection of paranasal sinuses as reported in the literature helps to alert the physician of the proper diagnosis by

thorough and good clinical assessment together with support from laboratory and radiological investigations. As for this case, we concluded that the fungal ball was the primary disease and the antrochoanal polyp arose as a later manifestation, based on the radiological and intra-operative findings. Even though we reached a new diagnosis of fungal ball following surgery, the management is not significantly different from the initial management of antrochoanal polyps, which is surgery and complete removal of the disease.

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