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## The importance of endoscopy in the diagnosis and treatment of rhinolithiasis: A case report

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### ABSTRACT

Rhinolithiasis is a rare condition involving a mineralized mass located in the nasal cavity. It may be endogenous or exogenous in origin. The fact that it appears with different symptoms can make diagnosis difficult. Rhinolithiasis was diagnosed as a result of endoscopic examination in two patients previously diagnosed with sinusitis and with no lessening of symptoms despite numerous applications of medical treatment. Rhinolithiasis should be considered in long-term fetid nasal discharges and unilateral nasal obstructions, and the patient should be referred to an ear, nose and throat specialist for endoscopic examination.

## 1. Introduction

Rhinolithiasis is a rarely seen condition involving a mass located in the nasal cavity, forming as a result of the deposition of calcium and magnesium salts around an organic or inorganic nucleus. In addition to fetid nasal or postnasal discharge, patients with rhinoliths may also present with nasal obstruction (often unilateral), headache, halitosis, epistaxis, erosion in the maxillary sinus medial wall, septum deviation/perforation and, in advanced cases, perforation in the palate[1]. They are more frequently seen in societies with low socioeconomic conditions and in all age groups[2].

The purpose of this report was to emphasize the importance of the subject by describing two cases previously diagnosed with sinusitis and in which treatment had been attempted on that basis, but in which definitive diagnosis was finally made with endoscopy.

## 2. Case report

### 2.1. Case 1

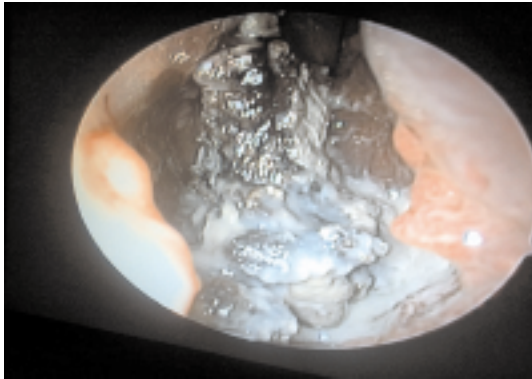
A 16-year-old female patient presented to our clinic with intermittent nosebleeds for the previous six years, a fetid nasal discharge and nasal obstruction. Symptoms were largely unilateral. Despite being treated medically several times with a diagnosis of sinusitis, there had been no improvement in her symptoms. Her general condition was good, and she was conscious. Dense fetid discharge was seen in the left nasal cavity at anterior rhinoscopic examination.

Endoscopic examination after decongestion revealed a gray-black mass with an uneven surface, mobile at palpation with the tip of an aspirator, located on the floor of the left nasal cavity between the left inferior concha and the septum. The mass was subsequently grasped with forceps and the help of a 0-degree rigid endoscope under local anesthesia and completely extracted. Edematous granulation tissue was present in the region of the mass (Figure 1).

The long diameter of the mass was approximately 3 cm. The patient was administered 10-day antibiotherapy. No

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problem was seen at 6-month check-up.

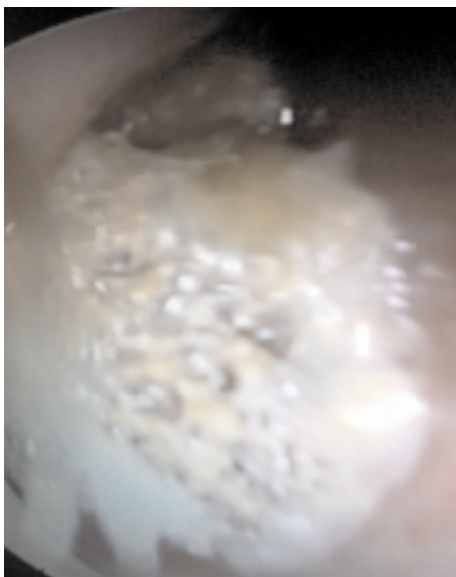


**Figure 1.** Edematous granulation tissue was present in the region of the mass.

### 2.2. Case 2

A 6-year-old boy presented to our clinic with fetid nasal discharge and inability to breathe through the nose for the previous 1 year. Symptoms were mainly unilateral. Despite medical treatment being administered several times with a diagnosis of sinusitis, his symptoms had not improved. His general condition was good, and he was lucid. Anterior rhinoscopic examination revealed a dense, fetid discharge in the right nasal cavity.

The discharge was aspirated. Endoscopic examination revealed a gray-white mass with an irregular, rough surface, mobile on palpation with the tip of an aspirator, located on the floor of the right nasal cavity between the right inferior concha and the septum (Figure 2).



**Figure 2.** Endoscopic examination revealed a gray-white mass with an irregular, rough surface, mobile on palpation with the tip of an aspirator, located on the floor of the right nasal cavity between the right inferior concha and the septum.

The mass was subsequently grasped with forceps, with the

help of a 0-degree rigid endoscope, and totally extracted under local anesthesia. It was identified as a rhinolith, with a long diameter of 1.5 cm. Antibiotherapy was administered for 10 days. No problem was seen at 6-month check-up.

### 3. Discussion

Rhinoliths are rare, mineralized masses located inside the nasal cavity. They may be endogenous or exogenous in origin. Foreign bodies such as pieces of wood, cotton, fruit seeds, beads, toy components, sand and stone and buttons are potential exogenous causes. Endogenous causes have been reported to include include blood clots, dried nasal secretion, epithelial debris and teeth[3,4]. Rhinolithiasis is generally asymptomatic, although symptoms such as long-term fetid discharge, unilateral nasal obstruction and nosebleeds, as well as halitosis, epiphora, nasal regurgitation and headache may be seen[5-8]. Intermittent nosebleed, fetid nasal discharge and unilateral nasal obstruction had been present in one of our cases for 6 years and for 1 year in the other. Sinusitis had been suspected and medical treatment had been given several times.

Rhinoliths are generally located in the septum and inferior concha and the floor of the nasal cavity[9]. Lesion was typically located in the lower nasal cavity in both our cases.

Rhinoliths gradually increase in size with deposition of magnesium and calcium salts. Associated destruction occurs in surrounding bone structures. Destruction usually occurs in the septum and the maxillary sinus medial wall. Perforation in the hard palate and naso-oral fistula may rarely develop[9-12]. There was no perforation or destruction in either of our cases.

The mass was easily detected with endoscopic examination in our patients. Palpation with the tip of an aspirator during endoscopy was another factor that facilitated diagnosis. In both of our cases, the mass had not been detected at direct imaging performed in other centers. These cases had been evaluated as sinusitis, and medical treatment was provided. Direct imaging may not reveal rhinoliths. Hadi *et al*[13] reported that they had performed direct imaging in two out of eight patients, but that rhinoliths had not shown up. In doubtful cases, they recommended computerized tomography (CT), which reveals such masses very clearly.

They also reported that calcified mass in the nasal cavities of patients administered CT was easily detected, and that it needed to be borne in mind that calcified masses such as odontoma, ossifying fibroma, osteoma, osteosarcoma, encondroma, and glioma may be seen at differential diagnosis with radiology.

In our cases, however, diagnosis was made with endoscopic examination, not with direct imaging or CT.

The importance of endoscopic examination becomes clearer given that our patients were in the pediatric age group. Additionally, while it is certainly very true that CT provides clearer and more detailed images, the facts that our two cases were children, would be more affected by radiation and that this technique is costly and time-consuming represent significant disadvantages.

Endoscopic examination, on the other hand, is simple, fast, used as a means of treatment and, most important of all, harmless. This once again reveals its importance in the detection and diagnosis of rhinoliths.

In conclusion, rhinolithiasis should be borne in mind in cases of long-term fetid nasal discharge and unilateral nasal obstruction. Patients should be referred to an ear, nose and throat specialist for endoscopic examination.

### Conflict of interest statement

The authors declare that they have no conflicts of interest.

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