

Long-standing Bilateral Rhinolith Remained for Three Decades, A Rare Case Report

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Abstract

Background: Rhinolith is a rare condition explained as the mineralization of the intra-nasal foreign body. It can be asymptomatic and diagnosed incidentally or presents with nasal obstruction, mal-odor nasal discharge, facial pain, epistaxis, etc. it is usually unilateral. Bilateral rhinolith is extremely rare.

Case Presentation: A mentally retarded 34-year-old female with a history of unknown foreign body insertion into nasal cavities in childhood and complaints of bilateral nasal obstruction and nasal discharge for 30 years was referred to the ENT clinic. Nasal examination revealed bilateral mucopurulent discharge and a yellowish mass on the floor of the left nasal cavity below the middle turbinate. CT Scan findings showed calcified masses in the right and left nasal cavities and mucosal thickening of the right maxillary sinus. Based on clinical history, physical examination, and imaging findings the diagnosis was bilateral rhinolith. Rhinoliths were removed by endoscopic approach and all her symptoms were relieved after surgery.

Conclusion: Although they are rare, bilateral rhinoliths should be considered a differential diagnosis in patients with prolonged bilateral nasal obstruction and bilateral nasal discharge.

Conflicts of Interest: The Authors declare no conflicts of interest.

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Introduction

Rhinolith is a rare condition that has been derived from Greek roots (*rhino* meaning nose and *lithos* meaning stone) and explained as the condition of mineralization of various salts such as carbonate, calcium phosphate, magnesium, iron, and aluminum around an intranasal foreign body as a nidus which may have exogenous or endogenous sources. Exogenous sources are more common which consist of fruit seeds, plant material, wood, paper, stone, grass, and glass. On the other hand, endogenous nidus consists of desiccated blood clots, ectopic teeth, bone fragments, pus, mucosal necrotic debris, and hair follicles (1-5). Rhinoliths are typically unilateral, with bilateral cases being exceptionally rare. There are only five reported cases of bilateral rhinoliths in literature. We

present a rare case of a long-standing bilateral rhinolith that persisted in the nasal cavities for three decades in a 34-year-old female (3).

Case Presentation

A 34-year-old female with a mental disability presented to the ENT clinic due to persistent bilateral nasal obstruction and intermittent malodor nasal discharge for the past 30 years. These symptoms intensified over the previous 2 months. Notably, she did not experience any other symptoms, such as headaches, epistaxis, or facial pain. A medical history revealed an unresolved incident of unknown foreign body insertion into the nasal cavities during childhood at the age of 4 years. Despite parental neglect, the foreign body was not removed. The external appearance of the nose was otherwise

normal. Nasal examination revealed bilateral mal-odor mucopurulent nasal discharge and congested mucosa with no significant septal deviation. On the left anterior rhinoscopy there was a yellowish mass lying on the floor of nasal cavity below the middle turbinate. No obvious mass was detected during right rhinoscopy. The nasal passages were occluded bilaterally. A

computed tomography (CT) scan revealed a calcified mass in posterior part of right nasal cavity with complete obstruction of the choana and mucosal thickening of the right maxillary sinus and a smaller calcified mass in the left middle meatus extending posteriorly near the choana (Figure 1).

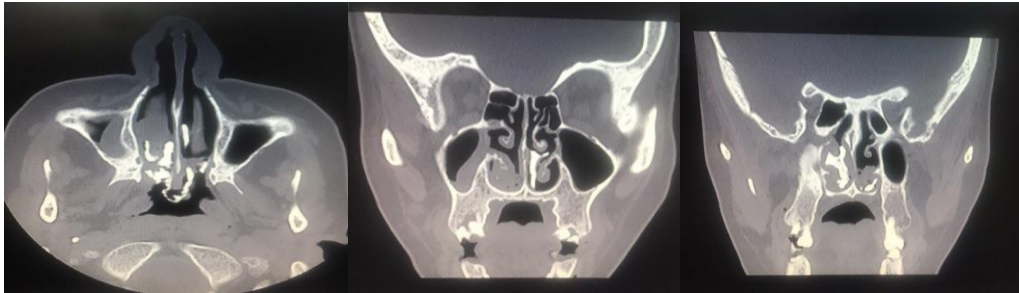


Figure 1: Paranasal computed tomography in axial and coronal sections shows an irregular calcified mass in both nasal cavities with mucosal thickening of the right maxillary sinus.

Based on clinical history, physical examination, and imaging findings the diagnosis was bilateral rhinolith. She underwent endoscopic sinus surgery under general anesthesia. With a rigid 0-degree nasal endoscope the rhinoliths were crushed into some particles. All particles of left rhinolith were removed trans-nasally. In the right one, the small particles were removed with a trans-nasal approach and the large particle was pushed toward the nasopharynx and removed via the transoral technique (Figure 2).



Figure 2: Macroscopic view of the extracted rhinolith.

The right and left nasal cavities and right maxillary sinus irrigated with saline solution. The nasal mucosa was intact. The nasal cavities are packed for 24 hours. She was discharged one day after surgery with oral antibiotics, analgesics, and saline irrigation solution. At the 4-week follow-up, the patient was relieved of all her symptoms.

Discussion

Rhinolith described for the first time by Bartholin in 1654, a stone-hard foreign body that had grown around a cherry stone and since then over 800 cases have been reported (6, 7). It is a rare condition with incidence of 1 in 10,000 in ENT outpatients (8). Rhinoliths are diagnosed in the third decade of life and rarely in children, they are mostly seen in females (7). The most common location of Rhinoliths are between inferior turbinate and septum (9). But, in our case rhinoliths were located in middle and posterior part of nasal cavity. The process of rhinolith formation takes a long time approximately 15 years (10). Rhinolith is the result of salts deposition on an intranasal foreign body. The exact pathophysiology is unknown but predisposing factors are nasal

foreign body entrance and impaction, acute and chronic inflammation, stagnation of nasal secretions, accumulation of mineral salts and bacterial enzymatic activities. (1,8) Foreign bodies normally reach the nasal cavity anteriorly and sometimes through the choanae followed by coughing and vomiting (1). The most common symptoms of rhinolithiasis are nasal obstruction and nasal discharge respectively. Other symptoms include halitosis, nasal malodor, anosmia, facial pain, epistaxis, headache and even obstructive sleep apnea, particularly in children. Rarely the symptoms are followed by involvement of surrounding structures such as septal perforation, epiphoria, and oronasal fistula. However, in some cases rhinoliths are asymptomatic and diagnosed as an incidental finding. rhinolith is usually misdiagnosed by being overlooked in the differential diagnosis (4, 8, 9) the diagnosis based on history, clinical findings, physical examination and imaging studies particularly CT scan (1,5,9). CT is helpful in the differential diagnosis and evaluation of rhinolith location, rhinolith size, assessment of nasal anatomical variation, concomitant sinonasal disorders, and determining the plan of surgery. (8, 9) The most common underlying sinonasal disorders are septal deviation usually on the opposite side of the rhinolith, and sinus mucosal thickening on the side of the rhinolith. (10) The differential diagnosis of rhinolith is broad. hemangioma, enchondroma, ossifying fibromas, calcified angiofibroma, dermoid tumors, osteomas, odontomas, calcified nasal polyps, malignant tumors (osteosarcoma, chondrosarcoma), fungal and chronic granulomatous infections such as syphilis and calcified tuberculomas should be considered (1, 8).

Surgical removal of rhinolith is the choice of treatment. The surgical technique varies depending on the size and location of the stone and concomitant sinonasal disorders. rhinolith is mostly removed by the endonasal approach however Lateral rhinotomy technique may be required to facilitate the removal of large

rhinoliths (2 ,1, 9). Additionally, in patients with underlying sinonasal disorders, appropriate treatment is recommended to improve the functional outcome (4).

Conclusion

Although it is rare, bilateral rhinoliths should be considered in differential diagnosis in patients with prolonged bilateral nasal obstruction and bilateral mucopurulent rhinorrhea. Due to its similarity with other sinonasal disorders such as rhinosinusitis and allergic rhinitis, pure clinical diagnosis is difficult, and additional workup including nasal endoscopy and imaging studies particularly CT scans mostly required for definite diagnosis.

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Conflicts of Interest

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Patient's Perspective: Written consent was obtained from the patient. The whole examination process and the article's purpose were thoroughly explained.

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