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**Case Report**

# A tale of two stones in nose

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## ABSTRACT

Rhinolith is stone formation in nose. It is very rare. Here we discuss 2 cases of rhinoliths along with its management and review the literature. First is a case of giant rhinolith detected in a 41-year-old male patient and second is rhinolith in a 52-year-old lady with no known history of foreign body insertion. This article can enable the attending clinician to diagnose this still prevailing condition with high index of suspicion leading to its appropriate management

**Keywords:** Rhinolith, Nasal obstruction, Foreign body

## INTRODUCTION

Rhinolith means stone formation in the nose.[1] They are mineralised masses in the nasal cavity. They are only rarely seen now a days.[2] It is usually found secondary to a foreign body in the nasal cavity.[3] They are usually unilateral, but can also occur bilaterally. Nasal endoscopy and CT scan help in diagnosis. Complete removal of the rhinolith, debridement and antibiotic administration is the treatment of choice.[4,5]

Here we present 2 cases of rhinolith probably arising from an undetected foreign body in nasal cavity and remained undetected for a long time.

## CASE REPORTS

### *Case 1*

A 41-year-old male presented with a long-standing history of right sided nasal obstruction which he had ignored. It got aggravated with the onset of upper respiratory infection one week prior to presentation. He had a single episode of blood-stained discharge from the nose which brought him to the hospital. On anterior rhinoscopy, a dark mass was seen in right nasal cavity. On enquiring, the patient revealed a history of putting a small piece of stone in the nose in his childhood when he was less than 10 years old. This was told by his mother and he doesn't remember it. CT scan of paranasal sinus was done which indicated the presence of a huge rhinolith in right nasal cavity extending to inferior meatus and nasopharynx. Under general anaesthesia, the rhinolith was broken into fragments and removed completely. On histopathological examination, stony hard irregular pieces with no soft tissue were identified. After routine postoperative care, patient was found to be healthy and asymptomatic.

### *Case 2*

A 52-year-old lady presented with history of nasal obstruction, purulent nasal discharge and epistaxis from right nasal cavity. Nasal obstruction was gradually progressive since more than 5 years. She developed purulent nasal discharge from right side which became foul smelling since few months. She also complained of blood-tinged nasal discharge and few episodes of epistaxis in the past 2 months which brought her to the doctor. Her CT scan paranasal sinus showed a calcified

mass in right nasal cavity. On nasal endoscopy, an irregular mass covered with purulent nasal discharge seen in the posterior part of inferior meatus. Rhinolith was removed under monitored anesthetic care. It was broken down into pieces and removed completely. A small piece of stone was also present in it. But patient did not remember any history of foreign body insertion into nose. Patient asymptomatic following procedure.

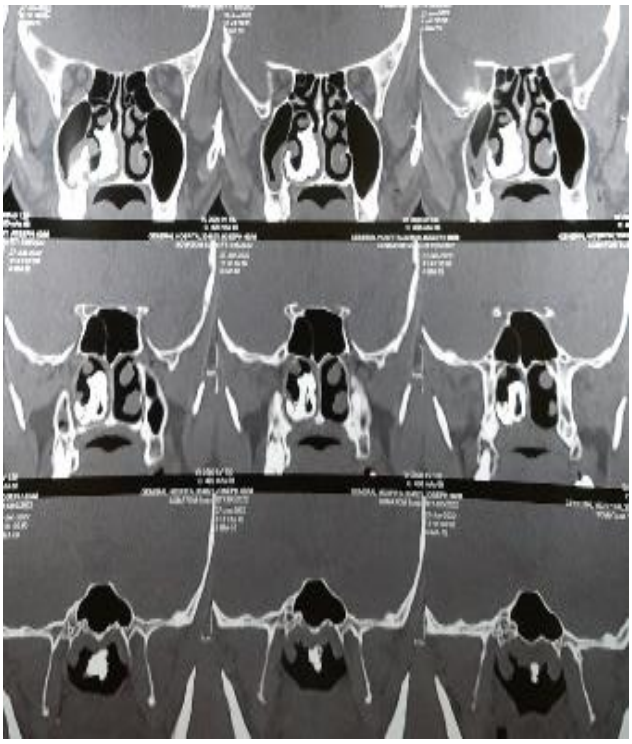

**Figure 1: CT scan of patient 1.**

**Figure 2: Rhinolith removed from the nasal cavity of patient 1.**

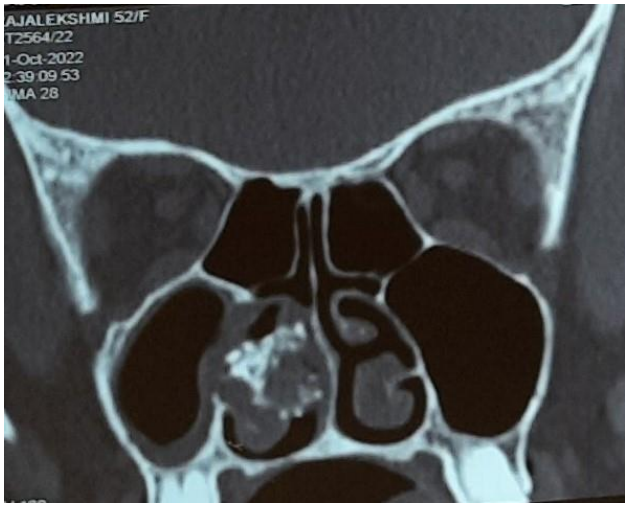


**Figure 3: CT scan of patient 2.**

## DISCUSSION

Rhinolith is a mass resulting from calcification of an endogenous or exogenous nidus within the nasal cavity.[6] Its reported incidence 1 in 10000.[7] They are mostly unilateral with female preponderance. The most common location is along the floor of nasal cavity and inferior meatus.[1] Rhinoliths have been found in patients from three to 76 years of age. The highest incidence is between the 4$^{th}$ and 5$^{th}$ decades of life.[8] The first report of a calcified foreign body in the nose was by Bartholini in 1654, a stone-hard foreign body that had grown around a cherry stone was described. The term rhinolith was coined in 1845 to describe a partially or completely encrusted foreign body in the nose.[9] Calcified incrustations in the nasal cavity were subjected to a chemical analysis, first by Axmann in 1829, and thereafter by many other authors.[2]

Rhinoliths originate from the deposition of minerals like magnesium, iron, calcium and phosphorus around a nidus, which can be endogenous or exogenous. The exogenous nuclei that are more prevalent include foreign bodies, placed in the nasal cavity generally during childhood Such cases are also reported in adults with mental retardation or psychiatric illness.[10] The endogenous nuclei include intranasal thick secretions, epithelial debris, blood clots, bone fractures of visceral skull, and ectopic teeth.[10] The pathogenesis is initial inflammatory reaction to the nidus in conjunction with obstruction and stagnation of the secretions leading to deposition of calcium carbonate, calcium phosphate, magnesium, iron, and aluminium, in addition to organic substances such as glutamic acid and glycine, resulting in a slow and progressive increase in size.[11]

Though rhinoliths almost always occur unilaterally, Kharoubi reported an unusual case of bilateral rhinolithiasis subsequent to destruction of the posterior nasal septum.[12] Time is a major factor in the development

of a rhinolith[2]. In general, they comprise 90% inorganic material, with the remaining 10% being made up of organic substances incorporated into the lesion from nasal secretions.[4]

Rhinoliths are seen as grey to brown coloured, foul-smelling, rough surfaced, and friable structures that are often situated in the anterior half of the nasal cavity on its floor. The most common symptoms are unilateral nasal obstruction and purulent nasal discharge. Other symptoms include fetor, epistaxis, sinusitis, headache, and, rarely epiphora. In some patients, rhinoliths are discovered incidentally.[1]

Examination of a suspected case should include anterior rhinoscopy, nasal endoscopy and radiological evaluation.[8] The radiological manifestations of rhinolith were first described by Maclntyre in 1900.[13] The typical radiological features of rhinolith are radio-opacity with central translucency. On CT scan, it presents as a homogenous, high-density lesion with smooth mineralization. The central portion of the lesion may contain organic materials with probably a lower density or a foreign body. CT scan of paranasal sinuses can precisely determine the site and size of rhinolith and recognize any coexisting sinus disease which will probably require treatment. Rigid nasal endoscopy plays an important role in making a diagnosis and evaluating the posterior extent of a rhinolith.[10]

The most important differential diagnoses of rhinolith include tori, impacted teeth, mycolith, odontoma, granulomatous diseases (syphilis and tuberculosis), osteoma, enchondroma, calcified polyps, haemangioma, dermoid, nasal polyp with osseous metaplasia, osteosarcoma, and chondrosarcoma. The complications reported are rhinosinusitis, septal and palatal perforations, recurrent otitis media, and dacryocystitis.[10] Rarely a large calculus may produce an oro-antral fistula or an oronasal fistula.[3]

Treatment consists of removal of rhinolith. The surgical approach chosen depends on location and size of the rhinolith and presence of complications, but most of them can be removed endoscopically.[3] External approaches may be necessary in cases of giant rhinoliths.[3] They are usually removed under general anaesthesia. Only very small sized easily accessible rhinoliths can be removed as outpatient procedure. Rare cases require external approaches like lateral rhinotomy for complete removal of the stone. Surgeons can also utilize lithotripsy to disintegrate the rhinoliths that cannot be removed surgically.[10]

## CONCLUSION

The earlier the diagnosis the better the outcome. The main challenging aspect of this disease is misdiagnosis with more common diseases such as rhinosinusitis. In our first case, patient presented mainly with the complaint of unilateral nasal obstruction. History of blood-stained nasal discharge was present only on the day of presentation. There was no history of foul smell or headache or recurrent epistaxis. He did not reveal any history of nasal foreign body insertion initially. On continuous enquiry, he got childhood history of foreign body remembered by his mother. Our second patient had history of nasal obstruction since more than 5 years with recent history of purulent foul smelling nasal discharge and epistaxis. A high index of suspicion led to the diagnosis with the help of nasal endoscopy and radiology.

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