

Case Report

Rhinolith a rare presentation in adolescent age group

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ABSTRACT

Rhinolith is rare calcareous concretions that are formed by the deposition of salts on an intranasal foreign body. The foreign body acts as a nidus that causes obstruction of nasal secretions, acute and chronic inflammation, deposition of minerals and enzymatic activities of bacterial pathogens, leading to slow and progressive increases in size. Symptoms are normally progressive unilateral nasal obstruction, rhinorrhea (usually purulent and fetid), cacosmia, and epistaxis. Other less common symptoms include headaches, facial pain, and epiphora. They are usually found in the anterior part of the nasal cavity and are usually diagnosed on history and anterior rhinoscopy. A 16-year-old female presented with complains of headache, difficulty in breathing from left nostril, prolonged runny nose with foul smell, and at times bloody nasal discharge for the 1 year. Otolaryngeal clinical examination revealed deviated nasal septum toward the right side. The left nasal cavity appeared wide with a hard mass lying on the floor of the left nasal cavity which was irregular in shape with a rough surface and was slightly mobile but tender and with bleeding tendency. A diagnosis of rhinolith was clinically made, and the patient was admitted for removal of the rhinolith. Computed tomography paranasal sinuses were done, the impression was irregular shaped calcified rhinolith seen in left nasal cavity. Although rhinoliths are rare, attending clinicians should keep in mind during the examination of patients. It requires a high index of suspicion when dealing with nasal symptoms such as progressive unilateral nasal obstruction, rhinorrhea (usually purulent and fetid), cacosmia, and unilateral nasal bleeding.

Keywords: Foreign body, nasal obstruction, rhinolithiasis

INTRODUCTION

Rhinolith (from the Greek *rhino* meaning nose, and *lithos* meaning stone) are rare. They are calcareous concretions that are formed by the deposition of salts on an intranasal foreign body. This intranasal foreign body which may incidentally or accidentally access the nasal cavity then act as the nucleus (thus becoming a focal point) for encrustation. Desiccated blood clots, ectopic teeth, and bone fragments are examples of endogenous causes whereas exogenous causes can include fruit seeds, plant material, beads, cotton wool, and at times the material used for taking dental impression rhinoliths can have various clinical presentations. Surgical removal is the treatment of choice. Rhinolithiasis was first described by Bartholin in 1654.¹ Rhinoliths are usually presented in the third decades of life and rarely occur in children with females more commonly affected than male.²

The etiology is not always detected, and it may be exogenous (such as grains, small stone fragments, plastic

parts, seeds, insects, glass, wood, and others), or Rare endogenous agents causing true rhinolith include clotted blood, bacteria, leukocytes, bone fragments, and teeth which operate as foreign bodies.³ The foreign body acts as a nidus that causes obstruction of nasal secretions, acute and chronic inflammation, deposition of minerals and enzymatic activities of bacterial pathogens, leading to slow and progressive increases in size.^{1,4} Symptoms are normally progressive unilateral nasal obstruction, rhinorrhea (usually purulent and fetid), cacosmia, and epistaxis. Other less common symptoms include headaches, facial pain, and epiphora. They are usually found in the anterior part of the nasal cavity and are usually diagnosed on history and anterior rhinoscopy.¹

CASE REPORT

The 16-year-old female presented with complains of headache, difficulty in breathing from left nostril, prolonged

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runny nose with foul smell, and at times bloody nasal discharge for the 1 year. There were no constitutional symptoms. There was no history of trauma, foreign body insertion or any systemic illness. Otolaryngeal clinical examination revealed deviated nasal septum toward the right side. The left nasal cavity appeared wide with a hard mass lying on the floor of the left nasal cavity which was irregular in shape with a rough surface and was slightly mobile but tender and with bleeding tendency (Figure 1). A diagnosis of rhinolith was clinically made, and the patient was admitted for removal of the rhinolith. Computed tomography (CT) paranasal sinuses (PNS) was done, the impression was irregular shaped calcified rhinolith seen in left nasal cavity. It measures about 2.7 cm × 1.1 cm partial pneumatization of a left middle turbinate (Figure 2).

Under general anesthesia, the nasal cavities were inspected by 0° nasal rigid endoscope. A rhinolith was found lying impacted between the inferior turbinate and septum in the middle of the left nasal cavity (Figure 3). It was gently mobilized and removed by luc's forcep. Specimen was the size of 2.5 cm × 1.1 cm × 1.1 cm (Figure 4).

The estimated blood loss was approximately 90 ml. The left nasal cavity was packed with medicated ribbon

gauze anteriorly, and bolster dressing was applied. The nasopharynx was inspected transorally and was found to be normal. The patient was extubated and transferred to the recovery room.

DISCUSSION

Rhinoliths are rare. They are calcareous concretions that are formed by the deposition of salts on an intranasal foreign body.^{5,1} Although the pathogenesis of rhinoliths remains unclear, a number of factors are thought to be involved in their formation. These include entry and impaction of a foreign body into the nasal cavity, acute and chronic inflammation, obstruction and stagnation of nasal secretions, and precipitation of mineral salts.^{1,4,6} Usually, it takes a while for a rhinolith to form, therefore the course of development and progression of this disease is believed to take a number of years. Most patients complain of purulent rhinorrhea and/or ipsilateral nasal obstruction. Other symptoms include fetor, epistaxis, sinusitis, headache, and in rare cases, epiphora. In some patients, rhinoliths are discovered incidentally. Examination should include anterior rhinoscopy and rigid endoscopy. CT of the PNS can accurately

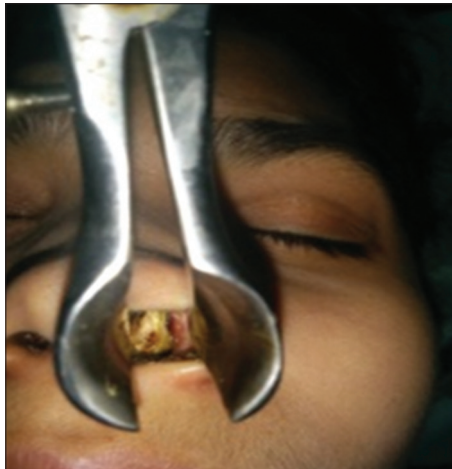


Figure 1: Rhinolith on anterior rhinoscopy in left nasal cavity

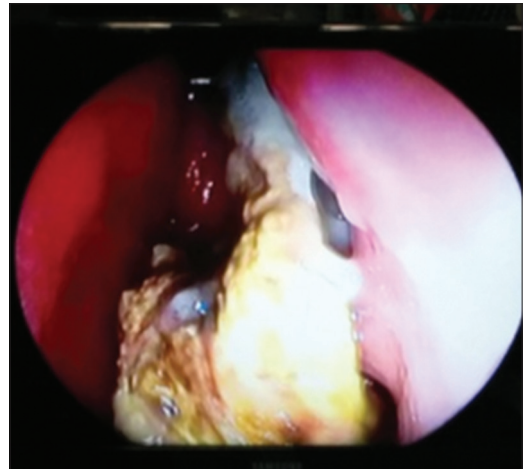


Figure 3: Endoscopic view of left nasal cavity

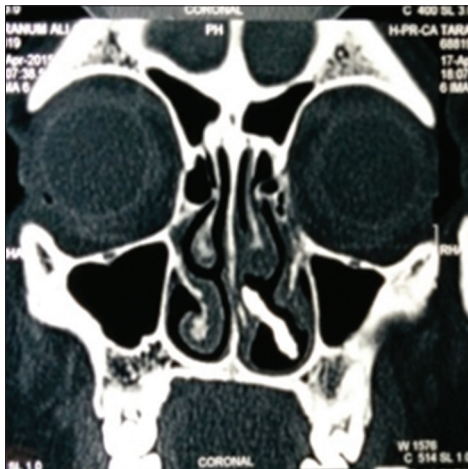


Figure 2: Computed tomography paranasal sinuses coronal section

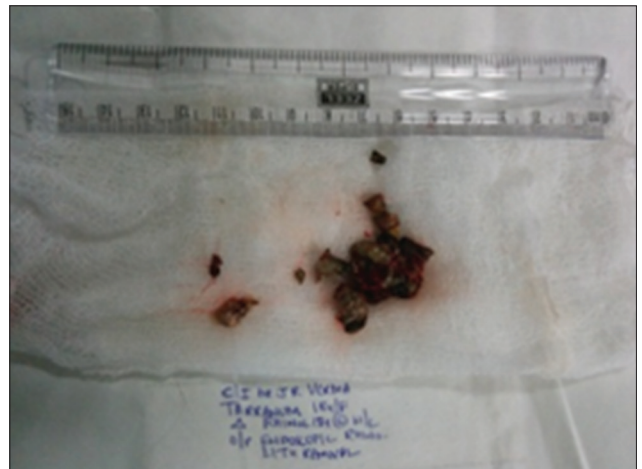


Figure 4: Rhinolith

determine the site and size of the rhinolith and identify any coexisting sinus disease which may also require treatment.⁴ Diagnosis can be established by keeping a high index of suspicion based on symptomatology, history of foreign body introduction into the nose, physical examination, and complementary tests. Simple X-ray and PNS CT scan supports the diagnosis through the presence of calcified concretions in the nasal fossa, in addition to supporting the planning of surgical approach. Diagnosis is sometime also made incidentally through routine examination or revealed by imaging examinations conducted for other reasons, such as dental treatment. Treatment consists of removal of the rhinolith and the surgical approach chosen depends on the location and size of the rhinolith and the presence (if any) of complications, but most of which may be removed endonasally. The complications reported are sinusitis, septal perforation, palatal perforation, recurrent otitis media, and recurrent dacryocystitis.^{2,3,7} Endoscopically controlled surgery can also provide immense help in complete and uneventful removal of the rhinolith and in dealing with complications such as sinusitis. It is cost-effective and more accurate method for diagnosis and treatment.^{1,8}

CONCLUSION

Although rhinoliths are rare, attending clinicians should keep in mind during examination of patients. It requires a high index of suspicion when dealing with nasal symptoms such as progressive unilateral nasal obstruction, rhinorrhea (usually purulent and fetid), cacosmia, and unilateral nasal bleeding.

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PEER REVIEW

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CONFLICTS OF INTEREST

No conflicts of interest.

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