

A Large Rhinolith and Importance of Nasal Endoscopy: A Case Report

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Abstract: Rhinolith is stone formation within the nasal cavity. We describe a case of large rhinolith of right nasal cavity in a 51 yrs old female with history of foul smelling right nasal discharge and right epiphora. The rhinolith was removed using rigid nasal endoscope.

Keywords: Epiphora, Intranasal, Nasal cavity, Rhinolith, Rigid nasal endoscope

I. Introduction

Rhinolith (in Greek *rhino* means nose and *lith* means stone) is an uncommon condition. Rhinoliths are calcareous concretions around calcinated intranasal foreign bodies within the nasal cavity [1]. It can be a source of bad smell from nose and therefore a social concern for the patient. The attending clinician needs to be aware of this forgotten entity.

II. Case Report

A 51 yrs old female presented with recurrent severe foul smelling right sided nasal discharge and right epiphora since 8 months. The patient was non-compliant to medical treatment. On anterior rhinoscopy, right nasal cavity was filled with odorous mucopus. Nasal mucosa was grossly edematous and congested which restricted satisfactory visualisation of rest of the nasal cavity in first visit. Ophthalmic cause for epiphora was ruled out. The patient was started on broad spectrum antibiotics and systemic decongestant. An X ray paranasal sinus was done which showed air fluid level in right maxillary sinus suggestive of Right Acute maxillary sinusitis. Also a heterogenous radiodensity in right nasal floor was noted without any bony erosion (Fig 1).

Rigid nasal endoscopy after a week's medication revealed cheesy mucopurulence encircling a grayish black object on floor of right nasal cavity (Fig 2). On probing it was gritty and located between nasal septum and middle turbinate. Laterally, part of it was extending into the right middle meatus throughout. The left nasal cavity was found to be normal. Based on these findings, a clinical diagnosis of Rhinolith of right nasal cavity with Acute exacerbation of Recurrent right maxillary sinusitis was made. The patient underwent rigid endoscopic removal of the rhinolith under local anaesthesia. Under vision, a blunt dissector was passed all around the object so as to free it from surrounding nasal mucosa. The rhinolith measuring 3.2 cm x 1.5cm x 1 cm was extracted successfully through the nostril without any complications (Fig 3).

Macroscopic examination of rhinolith demonstrated no foreign body within it which was consistent with Endogenous rhinolith. Maximal medical therapy for sinusitis along with anti-inflammatory was given and the patient showed complete recovery (Fig 4).

III. Figures



Figure 1: X ray PNS showing air fluid level in right maxillary sinus (arrowhead) and heterogenous radiodensity in right nasal floor (arrow)

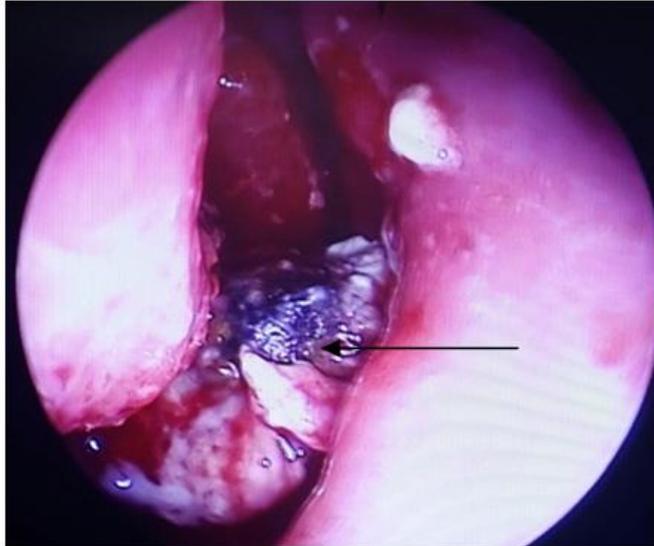


Figure 2: Rigid nasal endoscopic view of Rhinolith in right nasal cavity (arrow)



Figure 3: Extracted Rhinolith (size 3.2cm x 1.5 cm x 1 cm)

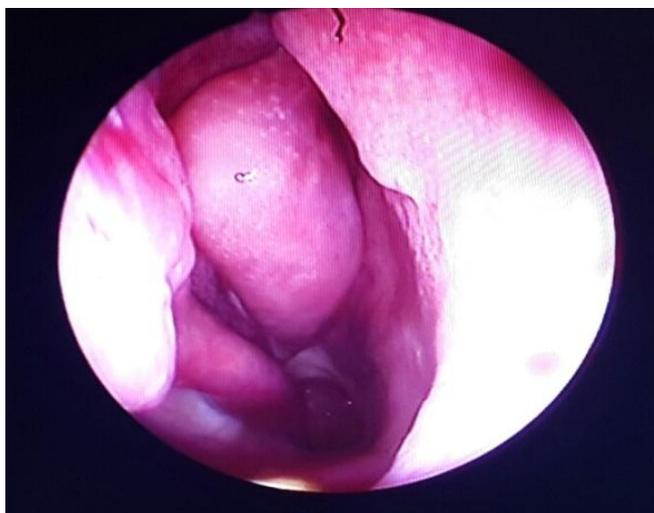


Figure 4: Rigid nasal endoscopic view of right nasal cavity on follow-up showing complete recovery

IV. Discussion

Rhinolith also called as nasal calculi are calcareous concretions that arise secondarily to the complete or partial encrustation of intranasal foreign bodies. [2] Bartholin gave the first documented description in 1654.

The pathogenesis of rhinolith is not clear. It has been speculated that a foreign body in nose acts as a nidus and incites a chronic inflammatory reaction with deposition of mineral salts and forms a rhinolith. [2,3] Based on the nature of foreign body involved, rhinoliths are classified as true and false rhinoliths.[4] Most foreign bodies are exogenous (false) such as beads, pebbles, buttons, paper, food, cherrypits, stones, sand, fruit seeds, peas, parasites, dirt, cloth, wood, glass, jewellery, plastic, cotton wool or retained nasal packings.[2,3] The endogenous (true) agents causing rhinolith includes bacteria, leukocytes, misplaced teeth, sequestra, blood clots, dried pus, mucus, desquamated epithelia, nasal crusts and bone fragments. [2, 3, 4, 5]

This case illustrates presence of co-existent rhinolith and acute episode of recurrent maxillary sinusitis. It is difficult to determine the exact etiopathogenesis in this case as both of these can give rise to each other. Either recurrent maxillary sinusitis would have resulted in constant accumulation of mucopus in nasal cavity which served as a nidus for formation of rhinolith or the previously formed rhinolith would have gradually increased in size to cause obstruction of osteo-meatal unit resulting in acute maxillary sinusitis.

Rhinoliths are usually present in the third decade of life with females more commonly affected than males.[3] Rhinoliths are usually single or unilateral.[5,6] They are more or less spherical and appear gray, brown, or greenish-black in color.[3,5] It may range from few millimeters to centimeters in size and usually conforms to the shape of the nasal cavity.[6] They are most commonly seen on the inferior meatus or between the inferior turbinate and the nasal septum.[5,6] Most patients complain of purulent rhinorrhea and/or ipsilateral nasal obstruction. Other symptoms include fetor, epistaxis, sinusitis, headache and, in rare cases, epiphora. [6] Our patient presented with principle complaints of purulent right nasal discharge and right epiphora.

Complications consist of ipsilateral otitis media, bacterial and fungal sinusitis, septal perforation, palatal perforation, fistulous tract formation and recurrent dacryocystitis. [6, 7]

Diagnosis of rhinolith is usually made by anterior rhinoscopy and nasal endoscopy. At anterior rhinoscopy, a mass or nodule with well- or ill- defined borders with a hard gritty sensation on probing is often found.[8] Rigid endoscopy has an immense role in establishing a diagnosis, and in evaluating the posterior extent of a rhinolith without providing any risk of radiation exposure. It is a cost-effective diagnostic as well as therapeutic method. The endoscopic nasal surgery provide an opportunity to manipulate and removal of the entire mass under direct visual control, and at the same time is helpful in managing any complications of rhinolith.[1,6,8] Our case was also managed with help of nasal endoscopy.

Radiological examinations include Orthopantograph (OPG), maxillary occlusal view, water's view, lateral skull views and Computed tomography (CT).[4] CT also plays an important role in exact localisation of the mass and in demonstration of any associated complications. [6] The most important differential diagnosis include hemangioma, osteoma, calcified polyps, enchondroma, dermoid, chondrosarcoma, osteosarcoma, syphilis and tuberculosis. [3] The treatment is removal of the rhinolith.. In most cases, rhinoliths are removed through the nostrils using local anaesthesia either by crushing or as a complete fragment. [5] Endoscopically controlled surgery can be helpful in complete and uneventful removal of the rhinolith. A rhinolith that cannot be removed surgically could be disintegrated using a lithotripsy.[7] In case of septal or antral perforation the surgical option includes alar release, Caldwell-Luc or lateral rhinotomy.[7,9] Rarely, in extensively destructive cases, reconstruction of sinonasal anatomy may be required.[10] In our patient, nasal endoscopy played a vital role in management of the case.

V. Conclusion

Although rhinoliths are rare, early diagnosis and management is important to avoid their progression into a symptomatic destructive entity. Our case correlates well with respect to sex of patient, location of rhinolith, diagnostic and therapeutic approach. However, our case was rare in the way that epiphora was one of the principle complaints of the patient. Endoscopy played a vital role in management of this case.

References

- [1]. Keck T, Liener K, Strater J, Rozsasi A. Rhinolith of the nasal septum. *Int J Pediatr Otorhinolaryngol* 2000; 53: 225-228.
- [2]. Carder HM, Hill JJ. Asymptomatic rhinolith: A brief review of then literature and case report. *Laryngoscope* 1996; 76:524-30
- [3]. Singh RK, Varshney S, Bisht SS, Gupta N, Bhatia R, Kishor S. A case of rhinolithiasis. *OJHAS* 2008;7(2): 7-9. (online journal)
- [4]. Langlais RP, Langland OE, Nortje CJ. Diagnostic imaging of the jaws. Chapter 19 "Soft tissues radiopacities". Williams and Wilkins, Baltimore 1995;630-31.
- [5]. Marfatia PT. Rhinolith: A brief review of the literature and a case report. *Postgrad Med J* 1968;44(512): 478-79.
- [6]. Hsiao JC, Tai CF, Lee KW, Ho KY, Kou WR, Wang LF. Giant rhinolith: A case report. *Kaohsiung J Med Sci* 2005;21:582-85.
- [7]. Royal SA, Gardner RE. Rhinolithiasis: An unusual pediatric nasal mass. *Pediatr Radiol* 1998;28:54-55.
- [8]. Ogretmenoglu O. The value of nasal endoscopy in diagnosis of rhinolith:a case report. *Kulak Burun Bogaz Ihtis Derg* 2003; 11:89-92.
- [9]. Husain SI Rhinolith: A rare cause of Chronic Cough *Canad Med Ass J* 1967;97(2):540-41.
- [10]. Lo SH, Wu YY, Wang PC. Maxillary anthrolith *Mid Taiwan J Med* 2003;8:238-41.