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An Unusual and Forgotten Foreign Body Nose Presenting as Rhinolith

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Abstract: ***Rhinoliths are uncommon clinical entities reported in clinical practice as unusual cause of unilateral nasal obstruction and foul smelling nasal discharge. Rhinolith is calcified material found in the nasal cavity. It should be suspected when patient presents with unilateral nasal blocked and foul smelling nasal discharge with stony mass on clinical examination and proved radiologically. We report the case of a 30 year old female with left sided (LT) nasal obstruction and foul smelling discharge for 15 years suspected as being due to foreign body (rubber band) present since childhood and forgotten by the patient. The salient features of such rhinoliths and their relevance to clinical practice are discussed , so as to enable the attending clinician to be aware of this forgotten entity, which requires a high index of suspicion. On anterior rhinoscopy a stony hard mass (Rhinolith was seen filling left nasal cavity. Under General anaesthesia stone was removed in toto from left nasal cavity.***

Keywords: Rhinolith, Foreign body nose, Calcareous concretions, Serosanginous discharge, Functional endoscopic sinus surgery.

1. Background

Rhinolith (from the Greek *rhino* meaning nose, and *lithos* meaning stone) are rare . An uncommon medical phenomenon , requiring high index of suspicion .They are calcareous concretions that are formed by the deposition of salts around a nucleus which could be a desiccated blood clot, insipissated mucous plug, ectopic teeth, bone fragment or a small foreign body, thus becoming the focal point for encrustation. Nasal foreign bodies can either be endogenous or exogenous. Foreign bodies normally access the site anteriorly, but they may occasionally reach the nasal cavity through the posterior choanae owing to cough or vomiting. Foreign bodies are normally introduced during childhood, occupying the nasal floor in most situations. A wide range of objects including metal, plastic, organic materials, and live insects find their way into the nose, either accidentally or deliberately.

Presence of a nucleus (endogenous/exogenous). Induces local inflammatory reaction. Leading to deposits of salts like calcium carbonate and phosphate, magnesium, iron and aluminium, in addition to organic substances such as glutamic acid and glycine, which originate from the nasal mucous secretions, tears, and inflammatory exudates. Leading to slow and progressive increases in size. They may cause pressure necrosis of the nasal septum or lateral wall of nose.

The Symptoms are Progressive unilateral nasal discharge, which may be serosanguinous in nature but usually purulent and fetid. Nasal obstruction, Epistaxis, Cacosmia. Swelling of the nose and face, headaches, facial pain and epiphora could be some of the other less common symptoms. Usually unilateral and solitary. The surface of a rhinollith is mulberry like, may be grey or brownish pink in colour. On ***probing***, the presence of a stony hard structure could be identified. It appears ***radiologically*** as densely calcified mass in the nasal cavity, with displacement and expansion of the adjacent bony landmarks. The duration of medical history may range from months to decades (7) .women are more commonly effected than men (8). The diagnosis is established on the basis of history endoscopic findings and imaging techniques. Surgical removal is the ***treatment of choice***. During surgery, these are friable and crumble readily under pressure.

2. Case Report

A 30 year old female presented with complaints of left sided progressive nasal discharge, foul smelling and muco-purulent in nature since 15 years. Progressive left sided nasal obstruction with resultant difficulty in breathing, especially during sleep for the last 15 years. Of and on bloody nasal discharge for the last five years. History of left sided headache in region of forehead was reported. There were no other constitutional symptoms. There was no history of trauma, foreign body insertion or any systemic illness given by the patient. Otorhinolaryngeal clinical examination revealed deviated nasal septum towards the right side. There was a hard mass filling the left nasal cavity which was irregular in shape with a rough surface and was slightly mobile with hard, bony feel but tender and with bleeding tendency. A diagnosis of rhinolith was clinically made. NCCT PNS Coronal view was done which confirmed rhinolith. (Figure 1) The patient was admitted for removal of the rhinolith under general anaesthesia.

Figure 1

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3. Treatment

Under General Anaesthesia, the nasal cavities were inspected by 0 degree nasal endoscope. The nasopharynx was inspected was found to be normal. A rhinolith was found lying impacted in the inferior meatus, between the inferior turbinate and septum in the middle of the left nasal cavity, also extending to lie between septum and middle turbinate, between middle turbinate and lateral wall of nose and in the middle meatus. Functional endoscopic sinus surgery was done. (Figure 2) It was gently probed and removed in multiple pieces. (Figure 3) During removal from inferior meatus, it was found impacted and on removal, a rubber band was seen, embedded in the rhinolith. (Figure 4)

Figure 2

The estimated blood loss was approximately 100 ml. Septoplasty was performed on right side. Both nasal cavities were packed with one merocele pack on each side after obtaining haemostasis. The patient was smoothly extubated and transferred to the recovery room. The merocel packs were removed on third post-operative day with the patient experiencing marked relief of his symptoms. She was discharged with antibiotic cover and nasal decongestants.

Figure 3

Figure 4

4. Discussion

Bartholin first described rhinolith in 1654, since then more than 600 cases have been reported.(1,2,3) Rhinoliths are rare. They are calcareous concretions that are formed by the deposition of salts on an intranasal foreign body. Although the pathogenesis 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.

Rhinolith needs time to be formed which is suggested to be around 15 years.(4) Patients are mostly asymptomatic for many years following lodgment of the foreign body, which tends to be forgotten. As the size increases over the years, patients commonly present with: Nasal obstruction, Rhinorrhea, Epistaxis, Sinusitis.Other less common symptoms include facial pain and headache. As it grows further, it compromises blood supply causing pressure necrosis, erosion and perforation of surrounding structures like hard palate or nasal septum.

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. Diagnostic nasal endoscopy is a very useful procedure as it makes diagnosis and assessment of neighboring structures easier. Rhinolith is found frequently as incidental finding during rhinoscopy, as irregular, hard dark mass with greenish foul smelling crusts all around.(7,8,9)

Radiological investigations such as plain X-ray and CT scan, support the diagnosis through the presence of calcified concretions in the nasal fossa, help to rule out complications, support the planning of surgical approach. Computed tomography of the paranasal sinuses can accurately determine the site and size of the rhinolith and identify coexisting sinus disease which may also require treatment.(10) Maclntyre was the first to describe rhinolith radiographically in 1900.[5,6] Rhinolith may present with variable opacities depending upon the nature of the origin. Diagnosis is sometime also made incidentally through routine examination or revealed by imaging examinations conducted for other reasons, such as dental treatment.

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Differential diagnosis includes: ectopic tooth, benign lesions such as osteoma and odontogenic tumours, malignant lesions like osteosarcoma

Medical treatment has not shown to be effective in these cases. Treatment of choice is surgical that is endoscopic removal and in extremely rare conditions, it needs external approach like lateral rhinotomy. Usage of local and systemic antibiotics after removal of rhinolith improves the recovery.

5. Conclusion

A typical history clinical science diagnostic endoscopy and radiographs of nose and paranasal sinuses showing a calcified mass in the nasal cavity points to presence of rhinolith. So, in this case, foreign body which acted as nidus for rhinolith was found to be a rubber band which is a very unusual foreign body, never seen before in any case of foreign body nose in our hospital setting. Also, patient was unaware of any foreign body inserted during childhood. Although Rhinoliths are rare, attending clinicians should be aware of this entity. 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.

6. Future Scope

To study the incidence and prevalence and need for early diagnosis and treatment to prevent complications.

7. Source of Funding: None

8. Conflict of Interest: None

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