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Diagnosis and Management of Rhinolithiasis: A Case Report

Isselmou Ebaby[1]*, Najib Benmansour[1], Oudidi Abdellatif[1], Ridal Mohammed[1], Zouhair Zaki[1], Nouar Ouattassi[1], Mohamed AFELLAH[1], Mohamed Nourdine Elamine Elalami[1]

[1]Department of Otolaryngology and Head and Neck Surgery, Hassan II University Hospital, Sidi Mohammed Ben Abdellah University, Fez, Morocco

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***Corresponding author:** Isselmou Ebaby
Department of Otolaryngology and Head and Neck Surgery, Hassan II University Hospital, Sidi Mohammed Ben Abdellah University, Fez, Morocco

Abstract | **Case Report**

Introduction: Rhinolithiasis is defined as a hard mass in the nasal cavity, formed by deposits of mineral salts around an endogenous or exogenous focus. It's important to remember that rhinolithiasis occurs when unilateral, nonspecific rhinological symptoms persist. The etiopathogenesis of this common condition in Africa is unknown. The aim of this paper is to study the clinical and radiological features of rhinolithiasis, and to define the treatment modalities. ***Observation*:** This is a clinical case of rhinolithiasis diagnosed and treated in our department. A complete ENT examination including nasal endoscopy was performed, revealing a hard foreign body of metallic consistency filling the space between the inferior and middle turbinates and the nasal septum. It manifests as a unilateral nasal symptomatology of chronic evolution. Treatment of rhinolithiasis is essentially surgical, combined with drug therapy and regular follow-up to prevent complications. ***Conclusion***: Rhinolithiasis is a frequent condition with non-specific functional symptoms. Diagnosis is based on nasal endoscopy and medical imaging (N.F. CT). Treatment is essentially surgical via an endo-nasal approach. Progress is generally favourable.

Keywords: Rhinolithiasis, Nasal cavity, Nasal endoscopy, Surgical treatment, Unilateral nasal symptoms.

INTRODUCTION

Rhinolithiasis corresponds to a solid concretion of mineralized calcium, resulting from the progressive accumulation of calcareous salts around a central nucleus, whether of endogenous or exogenous origin, with variations in shape and size [1, 2]. Common in Africa and Mediterranean countries [3].

Rhinolite is a mixture of magnesium phosphate water, calcium carbonate, calcium phosphate and organic compounds [4].

This condition generally manifests itself as unilateral nasal symptoms with a chronic course [5]. Diagnosis is based on endonasal examination, and treatment is surgical [6].

CLINICAL CASE

We report the case of a 66-year-old female patient with a history of head trauma involving a point of impact on the facial mass, resulting in a fracture of the proper bones of the nose. This fracture, initially neglected by the patient, did not receive any specialized treatment. A few years later, the patient presented with chronic nasal obstruction on the right side, associated with purulent, fetid, homolateral anterior rhinorrhea. Medical treatment with antibiotics, corticosteroids and nasal cavity cleansing was initiated, leading to a transient improvement in symptomatology.

Two years later, the same symptoms recurred, but improved with symptomatic treatment., followed by a relapse as soon as it was stopped. Given the persistence and recurrence of symptoms, a Nasofibroscopy was performed, revealing a hard, pearly-white foreign body of metallic consistency filling the space between the lower and middle turbinates and the nasal septum.

A naso-sinusal CT scan was performed, revealing a calcium-dense formation occupying the right nasal fossa, measuring approximately 36 × 20 mm. This lesion was responsible for obstruction of the right middle meatus and complete mucosal filling of the homolateral maxillary sinus (Figures 1 and 2).

These radiological findings, combined with the clinical context, led to the diagnosis of rhinolithiasis, a common pathology that may explain the chronic and recurrent manifestations observed in this patient.

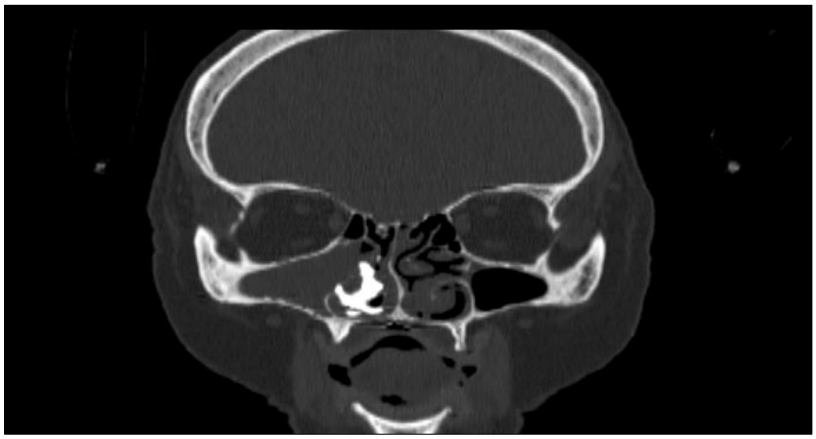

Figure 1: Coronal naso-sinusal CT scan showing a calcium-dense formation opposite the right middle meatus (black arrow), associated with mucosal filling of the right maxillary sinus

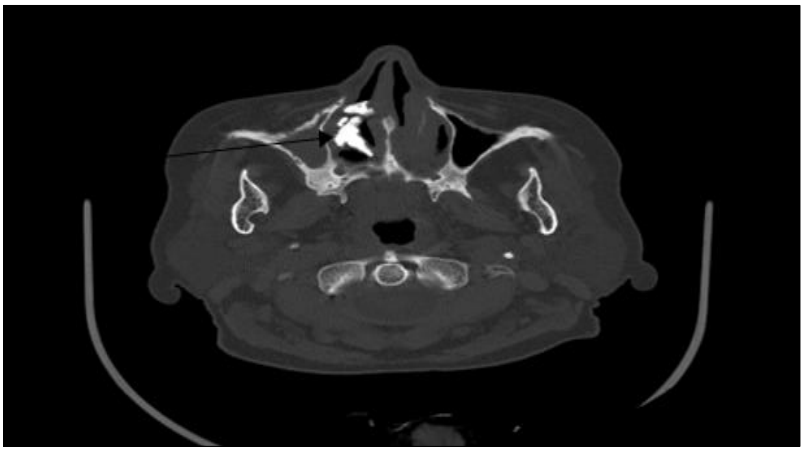

Figure 2: Axial naso-sinusal CT scan showing rhinolithiasis opposite the middle meatus (black arrow) responsible for mucosal filling of the right maxillary sinus

Extraction of the rhinolith was performed under general anaesthesia and rigid endoscopic guidance, enabling total and atraumatic removal of the lithiasis. The endoscopic approach offered optimal visualization of the nasal fossa and facilitated meticulous dissection, minimizing trauma to adjacent structures and reducing the risk of intra- and post-operative complications (Figure 3).

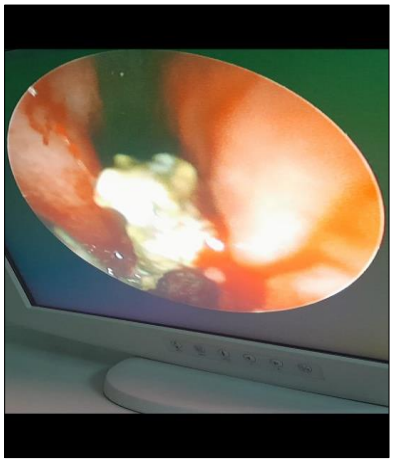

Figure 3: 30° endoscopic view: lithiasis in the middle meatus

Figure 4: Macroscopic appearance of the rhinolith after extraction.

Intraoperatively, nasal packing was performed for haemostatic purposes. The wick was removed after 48 hours, with a favorable and uneventful evolution. Careful washing of the nasal cavities was performed in order to remove any debris and prevent superinfection.

In terms of treatment, the patient was put on prophylactic antibiotics, analgesics, regular nasal washes and local corticosteroids, in order to promote regeneration of the septal mucosa and prevent synechia formation. The postoperative evolution was satisfactory, and the patient was discharged with recommendations for follow-up consultations.

The patient was seen in consultation every 15 days for clinical check-ups and debridement, and the postoperative evolution was favorable, with good healing of the nasal mucosa and no recurrence of symptoms. At three-month follow-up, the patient no longer presented with nasal obstruction or rhinorrhea, and endoscopic examination of the nasal cavities revealed no complications, including no synechiae or signs of rhinolith recurrence.

DISCUSSION

Rhinolithiasis is a rare pathology, most often seen in developing countries, and may be discovered by chance during routine endoscopy.

The pathogenesis of rhino lithiasis remains poorly understood; 2 hypotheses have been described:

- The exogenous mode, in which calcareous salts precipitate around a neglected foreign body
- The endogenous model, in which these salts are deposited around substances and aggregates in the mucosa of the nasal cavity [7].

In our patient's case, this is probably endogenous rhinolithiasis, given her clinical history and age.

Rhinolithiasis often manifests as chronic unilateral purulent rhinorrhea associated with homolateral nasal obstruction [8, 9].

Anterior rhinoscopy makes it easy to see the location of the rhinolith in the anterior part of the nasal cavities. Nasal endoscopy offers the clinician an easy and optimal diagnosis.

The rhinolith appears as a pearly-white mass occupying the space between the lower and middle turbinates and the septum.

Touching with a stylus reveals its very hard (stony) character [10].

Nasosinus computed tomography (CT) of the naso-sinus cavities shows the rhinolith as a calcium-dense opacity (in its entirety or with a clear center). It specifies its shape, exact location and measurements. It sometimes helps to identify its origin (metallic foreign body, ectopic nasal tooth). CT is also very useful in choosing the most appropriate therapeutic procedure (approach, prediction of extraction difficulties), which is very important in diagnosis and in devising the therapeutic strategy [11, 12]. CT can also be used to rule out other differential diagnoses (ossifying fibroids, odontomas, calcified polyps, osteomas, osteosarcomas, chondromas and chondrosarcomas) [13]. Treatment is based on surgery, preceded by antibiotic therapy to prepare and disinfect the nasal cavities. lithotripsy can be used in preparation for surgery, to destroy a voluminous rhinolith and reduce its size [14]. The approach depends on the volume and location of the rhinolith. The endonasal route is currently the preferred approach [15]. Post-operative outcome is often favourable, and complications are rare.

CONCLUSION

- Rhinolithiasis is a common condition, occurring most often in patients from lower socioeconomic backgrounds, and manifesting as recurrent unilateral purulent rhinorrhea associated with chronic homolateral nasal obstruction.
- The diagnostic approach is based on endoscopic examination by Nasofibroscopy, with CT scan confirming the diagnosis and guiding management.
- Treatment is essentially surgical. The advent of endoscopy has enabled the development of minimally invasive therapeutic approaches.
- Post-operative follow-up is generally favourable, and hospital stays are considerably reduced. ainsi le cout global de cette intervention.

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