

## **Chronic Nasal Obstruction Revealing Rhinolithiasis: The Diagnostic Advantage of CT Imaging**

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### **Introduction**

Rhinolithiasis is a rare and often underdiagnosed condition, characterized by the formation of calcified concretions within the nasal cavity. Its etiology and pathogenesis remain poorly understood [1]. Common presenting symptoms include chronic nasal obstruction, rhinorrhea, and less frequently, facial pain or epistaxis. However, asymptomatic cases are not uncommon and are often diagnosed incidentally during radiological or ENT evaluations.

Advances in imaging, particularly Computed Tomography (CT), have significantly improved the diagnostic accuracy for rhinolithiasis. CT scans not only confirm the presence of calcified masses but also allow differentiation from other calcified lesions. Additionally, CT imaging aids in assessing the size, location, and potential complications of the lesion, thereby guiding therapeutic decisions [2].

In this report, we present a rare case of rhinolithiasis in a 60-year-old male who presented with chronic unilateral nasal obstruction and headaches. The diagnosis was established through CT imaging, highlighting the importance of radiological evaluation in the management of this condition.

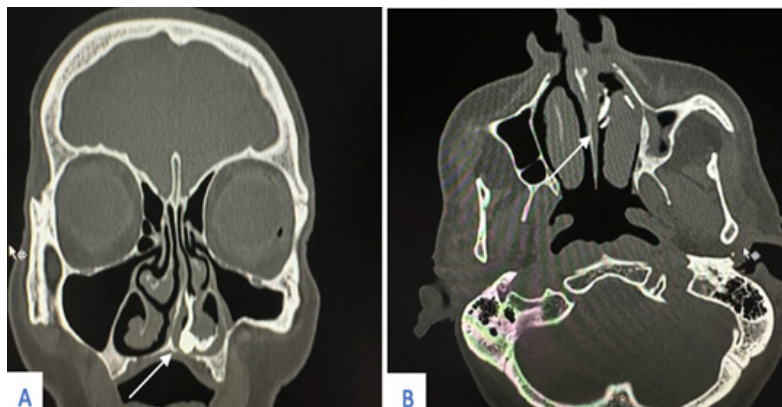
### **Case Report**

A 60-year-old male patient with no medical or surgical history, and no history of nasal trauma or endonasal surgery, Mathematics Teacher. For the past 5 years, the patient has experienced left-sided nasal obstruction with headaches, without any other associated symptoms. This led to a consultation with an ENT specialist. A cerebral and nasal-sinus CT scan was requested.

### **Discussion**

Rhinolithiasis is a rare condition with an unknown etiology. It is defined by the formation of a calcareous concretion that develops through the progressive deposition of calcium salts around a central core, which may or may not be resorbable [3]. The presenting signs are similar: chronic rhinorrhea, sometimes foul-smelling, chronic nasal obstruction, and less frequently, episodes of epistaxis. Facial pain due to neuralgias or sinus infections may also occur. Asymptomatic forms are frequently described in the literature and are often discovered during an ENT or radiological examination [4].

The etiology and pathogenesis of rhinolithiasis development are not fully understood. Some factors promote the development of rhinolithiasis, such as septal deviation, while others are



*Figure A: Coronal CT reconstruction showing a completely calcified, (arrow white) well-defined, and lobulated mass within the left nasal cavity, with slight expansion between the nasal septum and inferior turbinate, and displacing the inferior turbinate slightly laterally.*

*Figure B: Axial slice shows the calcified mass intimately related to the right inferior nasal turbinate. (arrow white)*

environmental, such as prolonged exposure to inhaled airborne particles. These factors promote the stagnation of secretions and chronic inflammation, nasal obstruction, as well as the deposition of calcium and magnesium [5].

They are likely the result of a chronic inflammatory response with complete or partial calcification of an intranasal nidus. Rhinolithiasis can develop in two ways: The nidus can be a foreign body introduced into the nasal cavities or an endogenous element such as a bone fragment, mucus, or nasal debris [6].

CT scans allow for the diagnosis of rhinolithiasis, as well as determining its location and size, which appears as a non-aggressive calcified intrasinus mass (without bone destruction). It is also a tool for diagnosing sinusitis and detecting complications [7]. It has better sensitivity and specificity than standard radiography and magnetic resonance imaging for identifying calcifications, as well as ruling out other partially calcified malignant diagnoses such as chondrosarcoma, osteosarcoma, and benign formations such as an osteoma, which typically presents as an oval, hyperdense osteosclerotic mass, more frequently found in the frontal sinus and rarely in the nasal cavity [7]. The typical appearance of a rhinolith is a heterogeneous, hyperdense formation containing a hypodense center (the organic core), which sometimes represents a foreign body and is surrounded by calcified material [8]. Rhinoliths can present with various clinical features. If a rhinolith is not treated, it can lead to infectious complications such as sinusitis, frontal osteomyelitis, palpebral abscess, orbital cellulitis, meningitis, and epidural abscess.

The recommended treatment is surgical removal under local anesthesia [9]. The risk of recurrence is very low [10]. Our patient was advised to undergo surgical removal of the rhinolith, and a referral to an ENT surgeon was provided for this purpose.

## Conclusion

In conclusion, rhinoliths are a rare pathology with a very wide range of clinical presentations, often asymptomatic, and sometimes discovered during an infectious complication. CT scans allow for an accurate diagnosis of rhinoliths, help identify complications, and rule out other differential diagnoses. A maxillofacial consultation would be beneficial for treatment.

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