Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Medical Science

Pediatric Rhinolithiasis: Value of Computed Tomography in Diagnosis and Management – A Case Report

Z. Ait Said[1*], FZ Hanine[1], S. Ouassil[1], HC. Ahmanna[1], B. Zouita[1], D. Basraoui[1], H. Jalal[1]

[1]Mother and Child Hospital, Mohamed VI University Hospital Center, Marrakech

DOI: https://doi.org/10.36347/sjmcr.2025.v13i09.053 | **Received:** 20.06.2025 | **Accepted:** 17.08.2025 | **Published:** 30.09.2025

***Corresponding author:** Z. Ait Said
Mother and Child Hospital, Mohamed VI University Hospital Center, Marrakech

Abstract **Case Report**

Rhinolithiasis is defined as a solid calcific concretion formed by the progressive deposition of calcium salts around a central core, which may or may not be resorbable, with variable shape and size. Computed tomography (CT) of the naso-sinus cavities is a crucial diagnostic tool. It enables accurate characterization of the shape, number, precise location, size, and origin of the lesion, providing imaging that is highly valuable for pre-therapeutic planning. We report the case of a 10-year-old child with a history of a syndromic right cleft lip and palate, surgically repaired at the age of one. The clinical examination was unremarkable, and the infectious workup was negative. Given the persistence of symptoms, a computed tomography scan of the naso-sinusal cavities was performed and revealed the presence of a rhinolithiasis.

Keywords: Rhinolithiasis, paranasal sinus computed tomography.

INTRODUCTION

Rhinolithiasis is defined as a solid calcific concretion formed by the progressive deposition of calcium salts around a central core, which may or may not be resorbable, exhibiting variable shapes and sizes [1]. It is a rare condition, often underdiagnosed due to its prolonged asymptomatic nature [2].

The diagnosis is based on endonasal examination supplemented by computed tomography (CT) of the nasal cavities [3]. Computed tomography of the naso-sinusal cavities refines the diagnosis and provides imaging of significant pre-therapeutic value [3]. It allows precise determination of the shape, number, exact location, and measurements of the lesion, and sometimes helps to identify its origin [4].

We present the case of a 10-year-old child diagnosed with rhinolithiasis by computed tomography during the etiological workup of persistent chronic fetid rhinorrhea.

PATIENT AND OBSERVATION

We report the case of a 10-year-old child with a history of syndromic right cleft lip and palate, surgically repaired at the age of one, who presented with chronic fetid rhinorrhea. The clinical examination was unremarkable. The infectious workup was negative. Given the persistence of symptoms despite appropriate medical treatment and the absence of significant clinical improvement, a radiological assessment by computed tomography (CT) of the sinuses was performed to investigate an underlying lesion, a complication, or an etiology that could explain the therapeutic failure and help adjust the treatment plan.

The computed tomography scan revealed a calcified mass in the left nasal cavity, located between the nasal septum and the left middle and inferior turbinates. The lesion was round, discontinuous, with well-defined margins, causing stenosis of the inferior meatus accompanied by regular thickening of the turbinates. It displaced the nasal septum toward the contralateral side while preserving the adjacent bony structures, findings compatible with rhinolithiasis.

Figure 1: Facial CT scan in parenchymal window (axial (1) and coronal (2) slices) after contrast injection, showing a calcified mass in the left nasal cavity, located between the nasal septum and the left middle and inferior turbinates. The lesion is roughly round, discontinuous, with well-defined margins, displacing the nasal septum toward the contralateral side, compatible with rhinolithiasis (red arrow)

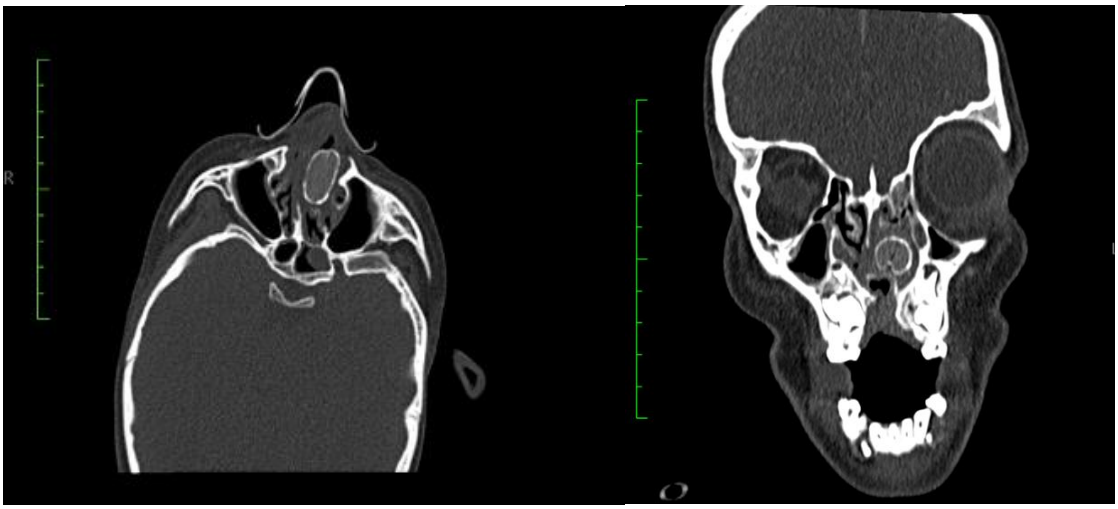

Figure 2: Facial CT scan in bone window (axial and coronal slices): The calcified mass is visible without signs of bone erosion or involvement of adjacent bony structures, which supports the diagnosis of rhinolithiasis

DISCUSSION

Rhinolithiasis is a rare condition. Its incidence is higher in developing countries [5,6]. It predominantly affects young female patients [7], but can occur at any age [8]. The condition may be unilateral or bilateral, and the calculi can be single or multiple.

The first case of rhinolithiasis was described in 1654 by Bartholin. Its pathogenesis remains unclear, though two physiopathological hypotheses exist: the exogenous or secondary type, which involves the precipitation of calcium salts around an intranasal foreign body; and the endogenous or primary type, which involves the accumulation of these salts around endogenous nasal biological materials, such as thick secretions or cellular debris. Certain factors appear to promote the development of rhinolithiasis: local factors (narrow nasal cavities, septal deviation) and environmental factors (pollution, prolonged exposure, low socioeconomic status) favor the stagnation of secretions, inflammation, and nasal obstruction, leading to the deposition of mineral salts. Bacterial enzymatic activity then contributes to the formation of the characteristic calcific concretions of rhinolithiasis [1].

The diagnosis is based on clinical examination; anterior rhinoscopy and nasal endoscopy [9]. The clinical presentation of rhinolithiasis is nonspecific and typically includes persistent or recurrent purulent and fetid rhinorrhea often associated with nasal obstruction. Epistaxis and facial pain due to neuralgia or sinus superinfections are possible. Persistent and recurrent posterior nasal discharge associated with rhinolithiasis has also been reported [10].

Imaging primarily relies on computed tomography (CT) due to its high sensitivity and specificity in detecting calcifications and foreign bodies [11].

CT scan of the naso-sinusal cavities, particularly in coronal slices, shows the rhinolith as an opacity of calcium density (either complete or partial). It specifies the shape, number, exact location, measurements, origin of the rhinolith, and may also predict potential extraction difficulties [12]. Signs of bone erosion indicate the extent of local rhinolith expansion. This bone erosion may involve the bony palate inferiorly, the intersinusonasal septum laterally, the nasal septum medially, and even extend superiorly to the skull base with intracranial involvement [20]. CT also helps exclude other differential diagnoses such as ossifying fibromas, odontomas, calcified polyps, osteomas, osteosarcomas, chondromas, and chondrosarcomas [11].

Magnetic Resonance Imaging (MRI) is not a routine examination for rhinolithiasis; however, it can help identify foreign bodies embedded within rhinoliths (exogenous or secondary forms) [13].

Treatment is based on the endoscopic removal of the rhinolith under local or general anesthesia. External surgery is rarely indicated and is mainly reserved for large rhinoliths or for the repair of a septal perforation [2].

CONCLUSION

Rhinolithiasis is a rare condition often underdiagnosed due to nonspecific symptoms. Computed tomography (CT) of the naso-sinusal cavities, particularly in coronal sections, is a key diagnostic tool. It allows precise determination of the shape, exact location, number, measurements, and probable origin of the rhinolith, and may also anticipate potential extraction difficulties. Therefore, its contribution is crucial in guiding and planning treatment.

BIBLIOGRAPHY

1. KHAROUBI . S Rhinolithiase : à propos de 3 cas Rev Laryngol Otol rhinol (BORDEAUX) 1995; 116 (3) : 223-224.
2. Rhinolithiasis, an unusual cause of nasal discharge: A case report. International Journal of Surgery Volumr 128, March 2025, 111033
3. S. KHAROUBI REVUE GENERALE SUR LES RHINOLITHIASES : A PROPOS DE 20 CAS J. TUN ORL - N° 18 JUIN 2007
4. V. Kaushik, K. Bhalla, A. Pahade, Rhinolithiasis Ear, Nose Throat J. 83; 2004 : 512, 514
5. Kharoubi S. Rhinolithiase: étude générale à propos de 10 cas et revue de la littérature. Cahiers Otorhinolaryngol 2000;35:228-34.
6. Kharoubi S. Revue générale sur les rhinolithiases :Apropos de 20 cas. J Tun Otorhinolaryngol 2007;18:34-9.
7. Merol JC, et al. Corps étrangers des fosses nasales : Rhinolithiase. encycl Méd Chir, ORL 20-390-A-10,2003,4p.
8. Larrier D, Dhingra J. Radiology quiz case 1. Rhinolith.Arch Otolaryngol head Neck Surg 2004;130:1340, 1342-3.
9. N. Seyhun , E. Toprak , KS Kaya , SK Dizdar , S. Turgut La rhinolithiase, une entité rare : analyse de 31 cas et revue de la littérature Clinique du Nord, Istanbul , 8 (2) (2021) , pp. 172 - 177
10. Wickham MH, Barton RP. Nasal regurgitation as the presenting symptom of rhinolithiasis. J Laryngol Otol. 1988 Jan;102(1):59-61. doi: 10.1017/s0022215100103986. PMID: 3343566.
11. La rhinolithiase N. KAFFEL et al. J. tun ORL - n° 25 DécembRe 2010
12. Aksakal C.Rhinolith: Examining the clinical, radiological and surgical features of 23 cases. Auris Nasus Larynx. 2019 Aug;46(4):542-547. doi: 10.1016/j.anl.2018.12.008. Epub 2018 Dec 28. PMID: 30598232
13. RHINOLITHIASES: A PROPOSDE 33 CAS ET REVUE DE LA LITTERATURE. S. KHAROUBI, ET AL J. TUN ORL - No 53 Mai 2025