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

ENT

Giant Ethmoidal Rhinolith: A Case Report

M. A Hanine[1*], M. El-Akhiri[1], A. Aljalil[1], I. Benchafai[1], H. Ammar[1], Y. Darouassi[1], M. Touati[1]

[1]ENT and CCF Department, Avicenna Military Hospital, 40000 Marrakesh, Morocco

DOI: 10.36347/sjmcr.2021.v09i12.014 | **Received:** 18.10.2021 | **Accepted:** 25.11.2021 | **Published:** 12.12.2021

***Corresponding author:** M. A Hanine

Abstract **Case Report**

Rhinolithiasis is a rare condition with an unrecognized etiopathogenesis. We discuss the case of an adult cocaine user complaining of chronic headache with chronic left unilateral nasosinus symptoms. The blonde scan revealed ethmoidal calcium opacity. The extraction was performed by endonasal endoscopy under scannographic identification by digipointer. The postoperative follow-up is simple. The course is favorable with disappearance of nasosinus symptoms and pain, without signs of recurrence three years later.

Keywords: Rhinolithiasis, Ethmoid sinus, Cocaine, CT scan,Endonasal Surgery, Digipointer.

INTRODUCTION

Rhinolithiasis is defined as a solid mineralized calcium concretion, which is formed from progressive deposits of calcareous salts around a central absorbable or non-absorbable foundation, of varying shape and dimensions [1]. It is a condition that is becoming increasingly rare, especially in Western countries and of which the etiopatho-genesis is unknown, several factors seem to be implicated in its genesis [1].

The aim of this work is to report a new case of a large ethmoidal lithiasis occurring in a particular area and to discuss, through a review of the literature, the different aspects of this pathology.

CLINICAL CASE

32-year-old patient, with a toxic habits of prolonged and multiple-daily consumption of cocaine for 13 years, having consulted for frontal headaches evolving for 18 months, resistant to any analgesic treatment and gradually worsening. With chronic left unilateral nasosinus symptomatology dates back 5 months with a resistance to antibiotic and corticosteroid treatment, consisting of purulent rhinorrhea, nasal obstruction, cacosmia and epistaxis episodes.

Endoscopic examination of the harsh nasal cavity after retraction of the nasal mucosa has naphazolinated xylocaine with aspiration of the secretions, revealed a pale nasal mucosa with slight hypertrophy of the inferior turbinates more marked on the left and bulging of the mucosa above the middle left turbinate.

The CT of the sinuses of the face showed a calcium density of about 3 cm along the long axis, located on the posterior face of ethmoid and adherent to the ethmoidal roof (Figure 1).

The patient was operated under general anesthesia by endonasal endoscopy with CT detection by digi-pointer, the opening of the ethmoidal bubble allows to visualize a whitish mass of 3 cm in diameter, of hard calcareous consistency with polylobed outlines (Figure 2). This mass was adherent to the ethmoidal roof and was difficult to mobilize which motivated a gentle milling of its outlines allowing at the end of the extraction, the exploration of the base of the skull did not highlight an osteo-meningeal breccia or CSF leakage. Silastic blades were put in place to guide healing, promote regeneration of the mucosa and prevent the formation of synechiae.

The immediate post-operative effects were simple, with a headaches quickly disappearing. A 15-day check made it possible to remove the silastic blades; there was no sign of CSF leakage.

Biochemical examination of lithiasis found concretions made of calcium and mineral salts, with absence of foreign body. Subsequent controls showed a favorable outcome with disappearance of symptoms, without any sign of recurrence or complications with a 3-year follow-up.

Figure 1: Nasosinus CT in sagittal section showing a calcic image at the ethmoidal level in contact with the roof of the ethmoid

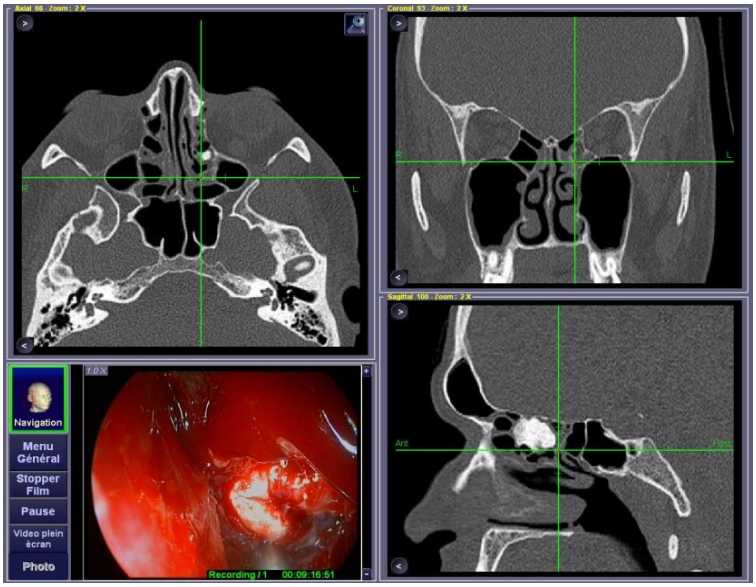

Figure 2: Intraoperative image showing the identification by digipointor of rhinolithiasis

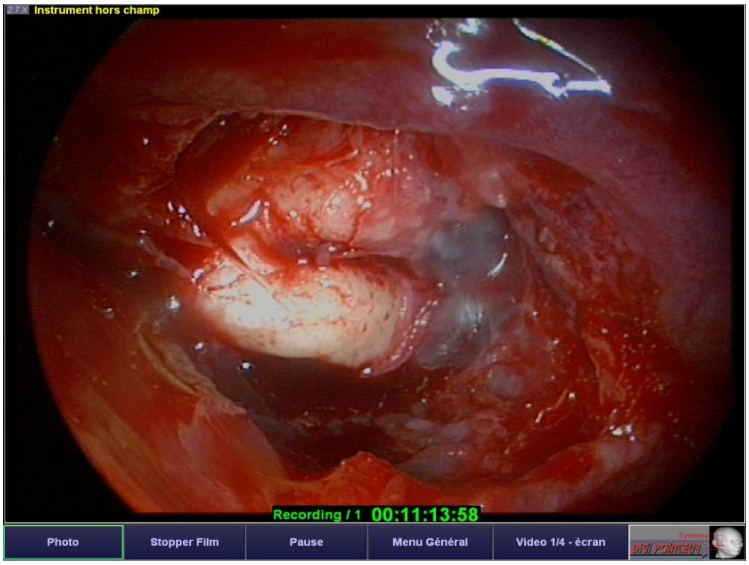

Figure 3: Intraoperative image showing rhinolithiasis after opening of the ethmoidal bubble

DISCUSSION

Rhinolithiasis is a rare pathology. Its incidence is greater in developing countries where it is estimated at 3 new cases per year and per 100,000 inhabitants [1]. it mainly affects the young female population, but can be seen at any age [1].

The first description of a rhinolithiasis dates back to 1654 by Bartholin [2]. The pathogenesis of rhinolithiasis is not fully understood. These are calcium concretions often formed around a foreign endonasal body that it contains [1]. Several factors seem to be incriminated in the genesis of a rhinolithiasis: some are due to the local anatomy in particular the narrowness of the nasal cavities, or septal deviations, others are environmental, such as pollution or prolonged exposure to airborne particles inhaled as well as the low socio-economic level [2, 3].

These factors promote stagnant secretions, chronic inflammation, nasal obstruction and the deposition of calcium and magnesium salts. Moreover, these same deposits of calcium and magnesium salts associated with the enzymatic activity of certain pathogenic bacteria seem to have a role in the formation of calcium concretions [3].

Thus, rhinolite can develop in two ways: exogenous and endogenous. In the exogenous mode, rhinolith is thought to form from a mostly unrecognized or neglected nasal foreign body. This body is variable in nature. The endogenous mode assumes that the rhinolith develops by solidification of mucus and nasal debris (purulent secretions, blood clots, scabs, etc.) [4].

For our patient, the prolonged consumption of cocaine seems to be a factor strongly implicated in the formation of rhinoilithiasis, probably according to an endogenous mode given the presence of a chronic purulent rhinitis due to the consumption of cocaine, the ethmoidal seat of the rhinolith and the absence of foreign body individualized at its level.

Physico-chemical analysis reveals that rhinolite is a mixture of water (2.9 to 5.9%), magnesium phosphate (19.4%), calcium carbonate (20.69%), calcium phosphate (44.7%) and organic compounds (13.2%). Sometimes, we can find a nucleus made up of iron deposits, on which various salts of calcium or magnesium are deposited (4).

The clinical symptomatology of rhinolithiasis is nonspecific and boils down to a chronic rhino-sinus symptomatology and most often resistant to any medical treatment, consisting of a purulent and fetid rhinorrhea often associated with nasal obstruction, episodes of epistaxis and facial pain [5]. Asymptomatic forms of incidental discovery have also been described in the literature [5].

The positive diagnosis is often clinical, based on nasal endoscopy. For the nasal forms, which are the most frequent, the calculus most often appears black or greyish-yellow with spiculated surfaces, hard and embedded in thick secretions or in granulation tissue [5]. Endoscopy also specifies its location in the nasal cavity, most often at the level of the floor of the nasal cavity, inferior meatus or interturbino-septal space and its possible posterior extension. Sinus forms are less frequent (in our patient's case), and endoscopic examination can be misleading, justifying the use of imaging [5, 6].

Imagery is of capital importance in the diagnosis, and relies mainly on the scanner of the nasosinus cavities, given its good sensitivity and its specificity in the detection of calcium images and foreign bodies [2]. It makes it possible to visualize the rhinolite, determine its exact location, its dimensions, its extension, its relationship with neighboring structures, and helps in the choice of the most suitable therapeutic protocol and to predict the difficulties of extraction [2] appears as a calcified mass in the nasal cavity, most often in its floor [2, 3]. Signs of bone lysis can be found and testify to the importance of the local extension of rhinolith [2, 6]. This lysis can involve the bony palate below, the intersinus-nasal septum outside, the nasal septum inside, or even the base of the skull with intracranial extension above for certain ethmoidal forms [4].

The differential diagnosis is made especially with calcium-dense nasosinus tumors, including osteomas, osteosarcomas, chondromas and chondrosarcomas, calcified polyps [5].

Treatment of rhinolithiasis is based on surgery, which may be preceded by medical treatment with antibiotic therapy combined with corticosteroid therapy to disinfect the nasal cavity. The endonasal endoscopic route is currently the first route of choice [6, 7].

For small rhinolithiasis located at the level of the floor of the nasal cavity, the extraction can be done under local contact anesthesia reinforced by a spray of 5% xylocaine naphtazolin, a suitable hook is generally used by bringing the rhinolite gradually back to front or a foreign body forceps.

In certain particular forms, in particular sinus localizations, giant or enclosed forms in the posterior part of the nasal cavities, or the presence of associated lesions (sinusitis, polyp, hypertrophic rhinitis or major septal deviation) may require the use of general anesthesia.

For our patient, the use of the digipoint was of great help to show us the location of the rhinolite at the ethmoidal level, its voluminous size and its close contact with the base of the skull.

Lithotripsy, although described by certain authors, does not constitute a therapeutic standard for this pathology. It requires instrumentation adapted to the endonasal anatomy as well as the cost and the application protocol (several sessions) make this procedure impractical [6, 7].

After extraction, the physicochemical analysis of the rhinolith (measurement, weighing, search for a foreign body) as well as a histo-biochemical study are strongly indicated [7].

Recurrences are exceptional [6, 7]. The interest of future studies is to study the geological composition of these rhinolithiases in order to identify their different components and to deduce the contributing factors.

CONCLUSION

Rhinolithiasis is a condition that is becoming increasingly rare, especially in Western countries, whose etiopatogeny is poorly understood and the clinical symptoms are not specific.

Rhinolithiasis should be considered in the presence of any rhinological symptomatology of chronic course. Its diagnosis is based on nasal endoscopy and imagery. Its treatment is based on endonasal surgery.

REFERENCES

1. Orhan, K., Kocyigit, D., Kisnisci, R., & Paksoy, C. S. (2006). Rhinolithiasis: an uncommon entity of the nasal cavity. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology*, *101*(2), e28-e32.
2. Mahtar, M., Raji, A., Tary, M., MAAMRI, M., & Essaadi, M. (2001). Rhinolithiase: A propos de 5 cas. *Journal français d'oto-rhino-laryngologie (1977)*, *50*(4), 187-190.
3. Kaushik, V., Bhalla, R. K., & Pahade, A. (2004). Rhinolithiasis. *Ear, Nose & Throat Journal*, *83*(8), 512-514.
4. Hsiao, J. C., Tai, C. F., Lee, K. W., Ho, K. Y., Kou, W. R., & Wang, L. F. (2005). Giant rhinolith: a case report. *The Kaohsiung journal of medical sciences*, *21*(12), 582-585.
5. Bertrand, B., Aouadi, A., Carrat, X., & Traissac, L. (1995). Rhinolithiase géante: à propos d'un cas. *Journal français d'oto-rhino-laryngologie (1977)*, *44*(5), 347-349.
6. Hadi, U., Ghossaini, S., & Zaytoun, G. (2002). Rhinolithiasis: a forgotten entity. *Otolaryngology-Head and Neck Surgery*, *126*(1), 48-51.
7. Yuca, K., Çaksen, H., Etlik, Ö., Bayram, İ., Sakin, Y. F., Dülger, H., & Kırış, M. (2006). The importance of rigid nasal endoscopy in the diagnosis and treatment of rhinolithiasis. *Auris Nasus Larynx*, *33*(1), 19-22.