

*Case report-Olgu sunumu*

## **Rhinolith: incidental finding during routine physical examination**

*Rutin fizik muayenede tespit edilen rinolit olgusu*

**Kadriye Şerife Uğur, Özlem Vuran, Nebil Ark, Hanifi Kurtaran**

Department of Otorhinolaryngology, Head and Neck Surgery (Assist Prof. K. Ş. Uğur, MD, Ö. Vuran, MD, Assist Prof. N. Ark, MD, Assist Prof. H. Kurtaran, MD), Fatih University School of Medicine, TR-06510, Ankara

**Abstract**

Rhinolith is the presence of nasal mass which is composed of calcium carbonate, magnesium carbonate, calcium phosphate and magnesium phosphate. Rhinoliths develop around organic or inorganic nidus having irregular or spongy surface that has stayed in the nasal cavity for a long time. Nidus arises in most of the cases from an exogenous origin such as fruit seeds, grains of vegetables and legumes, pieces of paper, button, bead, pieces of toy and finally pieces of stone and sand. They rarely arise from an endogenous nidus. Endogenous nidus generally consists of mislocated tooth, pieces of bone, blood cloth, dried purulent secretion or desquamated epithelium. The dimensions of rhinoliths can be small or can fill the nasal cavity. Rinolith cases are rare and patients frequently complain of longstanding nasal obstruction, nasal and oral malodor, purulent rhinorrhea and chronic headache. But sometimes patients with rhinolith are coincidentally diagnosed during routine physical examination. Early diagnosis is essential to reduce the morbidity. In this case report we present a 45 year old female rhinolith case. Her computerized tomography and nasal endoscopy findings, differential diagnosis and management are also presented. Our aim in this case report was to remind rhinolith in the differential diagnosis of nasal cavity masses and emphasize the importance of routine otorhinolaryngological examination even if the patient has no complaints.

**Keywords:** Rhinolith

**Özet**

Rinolitler nazal kavite içinde yerleşen kalsiyum karbonat, magnezyum karbonat, kalsiyum fosfat ve magnezyum fosfattan oluşan kitlelerdir. Rinolitler, burun boşluğunda uzun süre kalan, düzensiz yüzeyli veya delikli, organik veya inorganik bir nidus etrafında gelişir. Bu nidus, çoğu olguda meyve çekirdekleri, sebze-baklagillerin taneleri, kağıt parçaları, düğme, boncuk, oyuncak parçaları ve taş-kum parçaları gibi eksojen kaynaklıdır. Çok seyrek olarak da endojen kaynaklı niduslar izlenebilmektedir. Endojen niduslar genellikle; yanlış yerleşimli diş, kemik parçaları, kan pıhtısı, kurumuş pü veya deskuame epitelden meydana gelir. Rinolitlerin boyutları küçük olabileceği gibi tüm nazal kaviteyi doldurabilir. Rinolit vakaları nadir görülen lezyonlardır ve sıklıkla burun tıkanıklığı, pürülan burun akıntısı, burun kanaması şikayetleri ile başvurabileceği gibi bazen de rutin fizik muayene sırasında tesadüfen tespit edilir. Morbiditeyi azaltmak için erken tanı ve tedavi önemlidir. Bu vaka takdiminde rutin fizik muayenede tesadüfen tespit edilen 45 yaşında bayan rinolit vakası; bilgisayarlı tomografi ve nazal endoskopi bulguları, ayırıcı tanısı ve tedavisi ile sunulmuştur. Çalışmanın amacı nazal kavitede izlenen kitlelerin ayırıcı tanısında rinoliti hatırlatmak ve hastanın şikayetinden bağımsız rutin kulak burun boğaz fizik muayenenin önemini vurgulamaktır.

**Anahtar sözcükler:** Rinolit

**Geliş tarihi/Received:** October 20, 2009; **Kabul tarihi/Accepted:** December 15, 2010

**Corresponding address:**

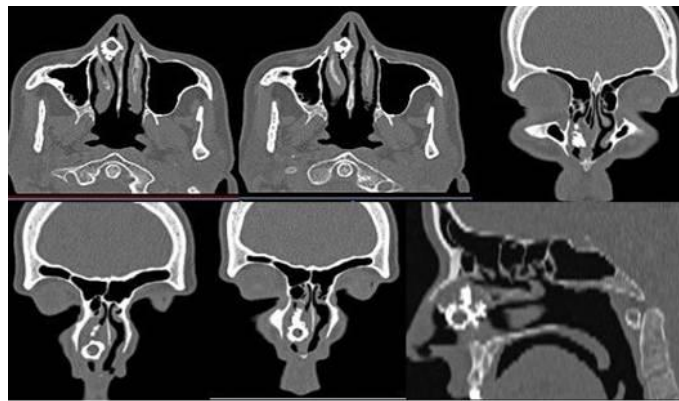
Dr. Kadriye Şerife Uğur, Kulak Burun Boğaz Anabilim Dalı, Fatih Üniversitesi Tıp Fakültesi TR-06510 Ankara. E-posta: kserifeboynukalin@yahoo.com

## Introduction

Rhinoliths are masses which are composed of calcium carbonate, magnesium carbonate, calcium phosphate and magnesium phosphate in the nasal cavity [1]. Cases of rhinolithiasis are seen rarely. They usually present with unilateral nasal obstruction, unilateral nasal discharge, epistaxis, but sometimes they are diagnosed incidentally during routine physical examination [1-3]. As the rhinoliths increase in size, they will give rise to the dacryocystitis, otorrhea, foetor, anosmia, palatal perforation, and septal perforation [3]. Early diagnosis and treatment is essential to reduce morbidity. The aim of this study is to remind rhinolith in the differential diagnosis of nasal cavity masses and to emphasize the importance of physical examination in routine practice. We presented a 45 year old woman rhinolith case which was incidentally diagnosed during routine physical examination. Her computerized tomography and nasal endoscope findings, differential diagnosis and treatment are also presented.

## Case Report

A forty-five year old woman was admitted to our out-patient clinic with a history of hearing loss and tinnitus. She had gray colored, edematous, rigid, immobile mass between the septum and right turbinate on the routine anterior rhinoscopy examination. Upon further questioning she told that a doctor had diagnosed a foreign body in her nose 30 years ago. The doctor had recommended the removal of foreign body, but she had refused its removal. She had not reported any complaints associated with her nose since then. Paranasal sinus computerized tomography (PNS CT) was performed to search the relations of mass with the paranasal sinuses, cranial base and the nasopharynx. PNS CT revealed a mass located between right inferior turbinate and septum with a hypointense nidus on the center without an extension to the paranasal sinuses, cranial base and nasopharynx (Figure 1).



**Figure 1. CT images demonstrate a mass located between right inferior turbinate and septum with a hypointense nidus on the center.**

Rigid endoscopic examination (0°, 2.7 mm) revealed a gray colored, rigid, immobile mass between the septum and right turbinate without an extension to the nasopharynx. The surrounding mucosa was edematous (Figure 2).

The mass was removed by rigid endoscope with forceps under local anesthesia after the injection of 1% lidocain. During the excision there was not any bleeding. After the inspection of the mass, a bead was determined as the nidus of the rhinolith (Figure 3). The patient had no symptoms or clinical findings on the sixth month of follow-up.



**Figure 2. Physical examination findings; endoscopic view in the right nasal cavity.**



**Figure 3. Rhinolith, and the bead as the nidus of the rhinolith.**

### Discussion

Rhinolith was first described by Bartholin in 1654 [3, 4]. The duration of the medical history may range from months to decades, and women appear to be more commonly affected than men [4, 5]. Although most rhinoliths are detected in young adults, they may be found at any age (6 months to 86 years). They are located in the nasal cavity but also maxillary and frontal sinuses are the other reported places in the literature. Rhinolith that is located in the maxillary antrum is called as antrolith and rhinolith that is located in both nasal cavity and maxillary antrum is called as antrorhinolith [4-7].

The pathogenesis of rhinolith is not well known but rhinoliths are composed of organic or non-organic nidus surrounded by the deposition of salts. A nidus may be endogenous or exogenous. In the exogenous or foreign body category, materials such as bead, pieces of toy, rock, cherry pits, pebbles, food, peas, cotton, seeds, beans, paper, wood, and glass are examples of the inciting agent [1, 2]. Tooth, pieces of bone, thrombus, dried purulent secretion and desquamated epithelium are the endogenous nidus [8-10]. It has been estimated that a foreign body incites a chronic inflammatory reaction, with the deposition of mineral salts. These minerals have been described as calcium phosphate, calcium carbonate, and magnesium phosphate. In the endogenous group, organic material is felt to be the nidus, with blood clots, epithelial debris, purulent secretions, bone fragments, and teeth all being described as the etiologic agent [1, 2]. In our case, the cause of the rhinolith is a bead; however, the patient did not remember herself putting a foreign object inside her nose. Anterior rhinoscopy or nasal endoscopes are the major methods of the diagnosis of rhinoliths. They are more likely to be localized unilaterally. In this case rhinolith was localized unilaterally between the septum and inferior turbinate. There are

reports in the literature that rhinoliths were only identified because of the severe complications [1, 8, 11]. Severe complications were perforation of the hard palate bony destruction, and, facial tetanus, or septal perforation, and meningitis [1, 8, 11]. It should always be considered in patients complaining from long-term unilateral nasal obstruction, nasal bleeding, headache and unilateral purulent rhinorrhea. Rhinoliths are uncommon and is often an asymptomatic condition diagnosed accidentally during a routine examination as it was in our case. The routine otorhinolaryngological examination is essential during routine examination. When a rhinolith is suspected or even detected, lateral cephalography, computerized tomography are methods to determine the definite location and size of the rhinolith and to make a differential diagnosis [5, 10-16]. The radiologic findings of rhinolith is the opacity with the central translucency, but the opacity cannot be observed when the rhinolith is not calcified [5, 8, 10, 15, 16]. The differential diagnosis includes hemangioma, osteoma, calcified polyps, enchondroma, angiofibroma, ameloblastic fibroodontoma, ameloblastic sarcoma, dermoid tumor, chondrosarcoma and osteosarcoma in the malignant tumor category; and syphilis and tuberculosis with calcifications in the inflammatory category [8, 15, 16]. Tuberculosis and syphilis are diseases which must be recognized in the differential diagnosis of the cases with palate perforations [11]. The treatment involves the removal of the rhinolith and the use of appropriate antibiotic therapy to control local infection. The surgical approach chosen depends on the location and size of the rhinolith and the presence or absence of complications. Rigid nasal endoscopy is the most important method to be used in diagnosis and treatment. Large rhinoliths often can be broken up by strong forceps or by other devices provided that the lesion does not have a relation with vital structures. Rigid nasal endoscopy was used to remove rhinolith completely in the present case [13, 14].

In conclusion, rhinolithiasis is rare. Rhinoliths have different clinical presentations and they are sometimes diagnosed incidentally as it was in our case. Radiologic examination with the computerized tomography is essential for the differential diagnosis and localization of rhinoliths. Treatment of rhinoliths depends on their removal. Rigid nasal endoscopy or other open surgical approaches can be used selectively for this purpose. The size and localization of the lesions determine the removal method.

## References

1. Hadi U, Ghossaini S, Zaytoun G. Rhinolithiasis: a forgotten entity. *Otolaryngol Head Neck Surg* 2002; 126: 48-51.
2. Yuca K, Caksen H, Etlik Ö, Bayram I, Sakin YF, Dulger H, Kiriş M. The importance of rigid nasal endoscopy in the diagnosis and treatment of rhinolithiasis. *Auris Nasus Larynx* 2006; 33: 19-22.
3. Appleton SS, Kimbrough RE, Engstrom HI. Rhinolithiasis: a review. *Oral Surg Oral Med Oral Pathol* 1988; 65: 693-8.
4. Singh RK, Varshney S, Bist SS, Gupta N, Bhatia R, Kishor S. A case of rhinolithiasis. *Online J Health Allied Scs* 2008; 7:7.
5. Atalar MH, Taş F, Petik B, Dumlu N, Işık AO. Rhinolithiasis. *C.Ü. Tıp Fakültesi Dergisi* 2002; 24: 91-3.
6. Levy J, Monos T, Puterman M. Rhinolithiasis: a very late complication after dacryocystorhinostomy with rubber-gum and polyethylene stenting. *Am J Ophthalmol* 2004; 138: 1065-7.
7. Davis O, Wolff A. Rhinolithiasis an maxillary antrolithiasis. *Ear Nose Throat J* 1985; 64: 46-53.
8. Tarhan AE, Oğuz H, Şafak MA, Özdek A, Samim E. Rhinolithiazis. *K.B.B. ve BBC Dergisi* 2002; 10: 93-96.
9. White SC, Pharoah MJ. *Oral radiology principles and interpretation*. 5th ed. St. Louis: Mosby, 2000, 607-8.
10. Coonar A, Crean SJ, Bennett J. Rhinolith in a patient with cleft palate: a case

- report. Dent Update 1996; 23: 330-2.
11. Bicknell PG. Rhinolith perforating the hard plate. J Laryngol Otol 1970; 84: 1162.
  12. Royal SA, Gardner RE. Rhinolithiasis: an unusual pediatric nasal mass. Pediatr Radiol 1998; 28: 54-5.
  13. Dib GC, Tangerina PR, Abreu EC, Santos PR, Gregório LC. Rhinolithiasis as cause of oronasal fistula. Braz J Otorhinolaryngol 2005; 71: 101-3.
  14. Orhan K, Kocyigit D, Kismisci R, Paksoy CS. Rhinolithiasis: an uncommon entity of the nasal cavity. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2006; 101: 28-32.
  15. Sumbullu MA, Tozoglu U, Yoruk O, Yilmaz AB, Ucuncu H. Rhinolithiasis: the importance of flat panel detector-based cone beam computed tomography in diagnosis and treatment. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2009; 107: 65-7.
  16. Ozdemir S, Akbas Y, Görgülü O, Selçuk T, Sayar C. Rhinolithiasis: review of 21 cases. Am J Rhinol Allergy 2010; 24: 136-9.