

Huge Rhinolith in a Moderate to Severe Persistent Allergic Rhinitis Patient: A Rare Presentation

Orta ila Şiddetli İnatçı Alerjik Rinit Hastasında Büyük Rinolit: Nadir Bir Sunum

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ABSTRACT

Rhinolith is a rare nasal foreign body formed by the progressive deposition of calcium and magnesium salts on the exogenous or endogenous nidus. Sinonasal inflammatory disorders like sinusitis and chronic vestibulitis are frequently identified endogenous cause. In contrast, rhinolith formation is rarely reported to be associated with allergic rhinitis, despite it is a common disease globally. Unilateral nasal obstruction and purulent nasal discharge are among the most common presentation. We present a case of huge rhinolith in a teenage girl with underlying moderate to severe persistent allergic rhinitis, presented with epistaxis and worsening nasal obstruction. It was successful removed in the clinic after application of topical anesthesia and decongestant.

Keywords: Rhinolith, allergic rhinitis, nasal obstruction, epistaxis

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ÖZET

Rinolith, kalsiyum ve magnezyum tuzlarının ekzojen veya endojen nidusta progresif olarak birikmesiyle oluşan nadir bir nazal yabancı cisimdir. Sinüzit ve kronik vestibülit gibi sinonazal inflamatuvar bozukluklar sıklıkla endojen neden olarak tanımlanır. Bunun aksine, küresel olarak yaygın bir hastalık olmasına rağmen, rinolit oluşumunun nadiren alerjik rinit ile ilişkili olduğu bildirilmektedir. Tek taraflı burun tıkanıklığı ve cerahatli burun akıntısı en sık görülen belirtiler arasındadır. Altta orta ila şiddetli persistan alerjik rinit bulunan, epistaksis ve kötüleşen burun tıkanıklığı ile başvuran bir genç kızdaki dev rinolit olgusunu sunuyoruz. Topikal anestezi ve dekonjestan uygulandıktan sonra klinikte başarıyla çıkarıldı.

Anahtar Sözcükler: Rinolit, alerjik rinit, burun tıkanıklığı, epistaksis

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INTRODUCTION

Rhinolith is a rare nasal foreign body, with estimation of 700-800 cases reported worldwide since the first description by Bartholin in 1654.¹ Although the disease was recognized since 368 years ago, the exact pathogenesis was not fully understood. Several literatures described its formation from the progressive deposition of calcium and magnesium salts over the nidus in the nasal cavity either from exogenous or endogenous sources (1-4). Exogenous nidus are foreign bodies from outside the body, either organic or inorganic forms that have been lodged in the nasal cavity for a period of time. Bean, grain, wood, small fragment of stone, plastic material and cotton are among the examples of the exogenous nidus, which could be neglected during childhood.

In contrast, the endogenous nidus are biological substances or products found in nasal cavity such as bone fragments, ectopic tooth, desquamated epithelium, blood clot and secretions from the nasal cavity, paranasal sinus, or lacrimal gland. The rhinolith has strong association with sinonasal inflammatory disorders like sinusitis and chronic vestibulitis, while allergic rhinitis (AR) alone is rarely reported (2-5). The most common symptoms are unilateral nasal obstruction and purulent nasal discharge (2-4). However, these symptoms may be masked by the presence AR symptoms and hinder the early diagnosis. Presence of additional symptom like epistaxis or worsening of the current symptom should alert of the possibility of more sinister condition instead of AR alone. Prompt referral to otorhinolaryngology clinic is warranted for further investigation and management.

CASE REPORT

A 16-year-old teenage girl presented with frequent runny nose, nasal blockage, nasal itchiness and sneezing for 6 years duration. The nasal symptoms were persistent, more than four episodes per week and aggravated by dust and cold weather, while relieved by antihistamine and intranasal corticosteroid. Her sleep, study, sport, and other daily activities were disturbed due the persistent nasal symptoms. Based on the Allergic Rhinitis and Its Impact on Asthma guideline, patient was diagnosed and classified as moderate to severe persistent AR (6). The nasal obstruction was more on the right side and worsening for the past two months. There was no fever, facial pain, headache, hyposmia, foul-smelling nasal discharge, toothache or loosening of tooth. Patient also denied foreign body insertion into the nose.

She bought medication from the over-the-counter pharmacy at initial presentation and started to seek medical attention one year ago at general practitioner as her nasal symptoms were not improving. Skin prick test was performed, and she was confirmed to have allergic to house dust mite and cockroach. She was started on regular antihistamine and intranasal corticosteroid with advice on allergen avoidance, however her symptoms were just temporary relieved. There was no history of nasoendoscopy performed previously as the instrument was not available at the primary care center. She was referred to our tertiary center in view of worsening nasal symptoms despite on regular medications, which effecting her daily functions and quality of life.

On examination, there was presence of transverse nasal crease, allergic shiner and reduce air misting over right side on cold spatula test. There was no paranasal sinuses tenderness on palpation. Nasoendoscopy revealed bilateral inferior turbinates hypertrophy, presence of clear mucus discharge and right septal spur anteriorly. Unexpectedly, there was presence of huge yellowish rhinolith at the right nasal cavity, located just posterior to the septal spur and anterior to the anterior surface of middle turbinate (Figure 1). The rhinolith was mobile and not infiltrate surrounding mucosa and the shape was followed the shape of nasal cavity. It was successfully removed in the clinic after nasal packing with neurosurgical patties soaked with Moffett's solution (served as local analgesia and decongestant). Due to the big size, part of the rhinolith need to be crushed into smaller piece to ease the removal (Figure 2). There was minimal bleeding post removal, especially at the septal spur site, however, stop spontaneously and all surrounding mucosae were intact (Figure 3). Patient was discharged with saline nasal irrigation, different type of intranasal corticosteroid and antihistamine, and given appointment in 6 weeks to assess symptoms and response to medical therapy.

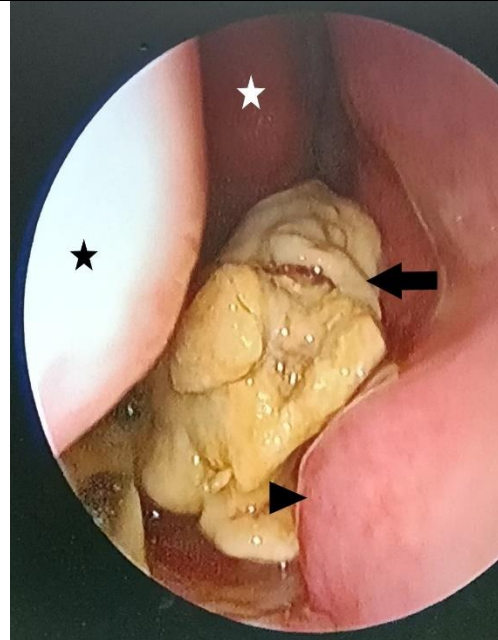


Figure 1. Nasoendoscopy shows huge yellowish rhinolith (arrow) at the right nasal cavity, located just posterior to the septal spur (arrowhead) and anterior to the anterior surface of middle turbinate (white star). Inferior turbinate (black star).

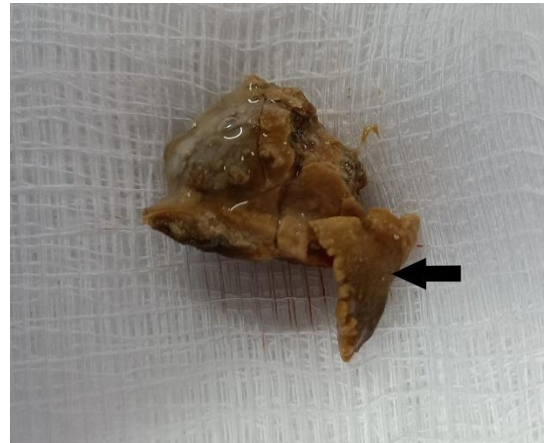


Figure 2. Removed huge rhinolith. Part of the rhinolith need to be crushed into smaller piece (arrow) to ease the removal.

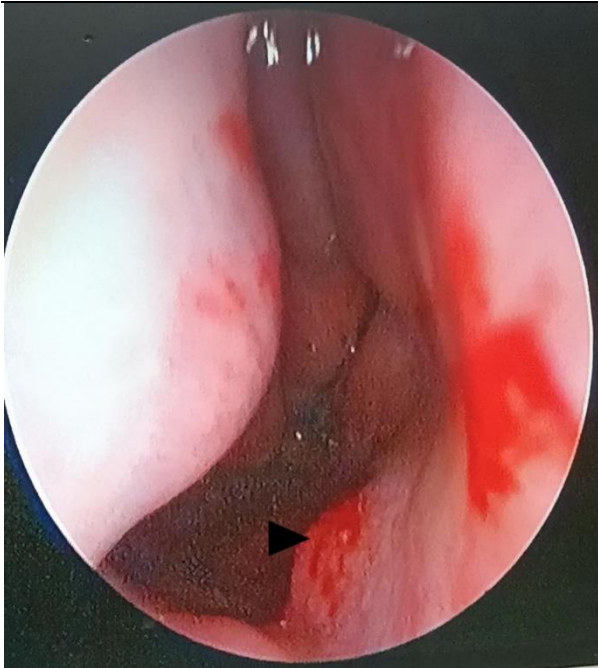


Figure 3. Nasoendoscopy shows right nasal cavity after removal of rhinolith. There is minimal bleeding at the right septal spur site (arrowhead), while all surrounding mucosae are intact.

DISCUSSION

Rhinolith can occur at any age and most commonly presented with unilateral nasal obstruction and purulent nasal discharge (2-4). Other less frequent symptoms are facial pain, headache, nasal pain, epistaxis, anosmia, and epiphora. It also may incidentally detected on imaging that performed for other reasons. In the present case, patient was mainly presented with AR symptoms that worsening for the past two months despite on regular medications. In addition, the nasal obstruction became more unilateral and associated with epistaxis. This chronology of symptoms may explained the progressive formation and enlargement of rhinolith.

Rhinolith is predominantly occurred in female and on the right side of nasal cavity, which is also seen in the present case (1). These could be due to the women blow their nose weaker than men and high number of right-handed people who put the foreign bodies in their right nasal cavity.

Rhinolith formation in purely allergic rhinitis patients, without concomitant other sinonasal inflammatory disorder or other endogenous or exogenous nidus are rarely reported. In contrast, rhinolith and sinusitis are relatively common association, ranging from 39% to 57% (2-5). Chronically inflamed mucosa in sinusitis patients serve as an endogenous nidus for rhinolith formation (4) and this pathogenesis may also occur in AR patients. However, the mucociliary clearance mechanism of AR is more straightforward as compared to sinusitis, thus contribute to the lesser incidence. Therefore, there must be some other contributing factors that lead to formation of rhinolith in AR patients. Higher amount of the retained secretion especially in more severe and persistent AR as seen in the present case may subject to dryness and act as nidus for rhinolith formation. In addition, clearance of the secretion is further impeded by mucosal swelling and disruption of ciliary function as the result of inflammatory process.

Anatomical abnormalities in the nasal cavity like septal deviation or spur are another important factor. Studies by Aksakal and Seyhun et al. showed septal deviation is the most common concomitant sinonasal pathology, identified in 43.4% and 64.5% of all cases respectively (2,4). Rhinolith can be formed on the side of deviation or on contralateral side with different mechanisms postulated. In cases of ipsilateral side, stagnation posterior to the deviation lead to the precipitation of nasal debris and foreign bodies on a trapped nidus, and this process further enhanced by presence of "eddy current" around the deviation or spur (7).

This phenomenon explained the formation of rhinolith in our patient as rhinolith was formed just posterior to the septal spur. This septal abnormality has major impact, not only contribute to the formation of rhinolith, but also result in difficulty of rhinolith removal. In contrast, formation of rhinolith on the contralateral side is believed to be aggravated by turbulence airflow that result in dryness and stagnant of secretions (8).

Currently nasoendoscopy is a routine examination in otorhinolaryngology clinic for any patient presented with nasal symptoms and it is a very important tool in investigating and diagnosing of sinonasal pathology. Although most of AR can be managed at primary care center but some selected cases warrant early referral to otorhinolaryngology clinic for nasoendoscopy especially when the symptoms are worsening.

Removal of rhinolith can be performed under local or general anesthesia depending on size and location of the rhinolith, age of the patient and cooperativeness, and associated sinonasal pathology like sinusitis and abnormality like septal deviation or spur. Functional endoscopic sinus surgery can be performed in the same operative setting to treat the sinus pathology. On the other hand, septoplasty may be required, not only to ease removal of rhinolith and relieve nasal obstruction, but also may help in prevention of recurrence of rhinolith especially in moderate/ severe persistent AR.

CONCLUSION

Despite AR is a common disease worldwide, it is very rarely reported as the endogenous cause of rhinolith. AR may mask the symptoms of rhinolith and result in delay detection. However, worsening of nasal symptoms, especially when unilateral predominant and presence of epistaxis should alert on the possibility of more alarming conditions and prompt referral to otorhinolaryngology is warranted.

Conflict of interest

No conflict of interest was declared by the author.

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