

Case Report

# Foreign Bodies of the Nasal Cavity in Adults

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## Abstract

Several cases of foreign bodies in adults' nasal cavities have been analyzed. There were represented some peculiarities of clinical course, diagnostics and medical care providing.

## Keywords

nasal cavity; foreign body

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Foreign bodies get into the nose under different circumstances. They are more common in children who can hide small toys or their particles, metal balls, seeds of legumes, cereals, cherry kernels and other things into the nasal cavity.

Sometimes mentally ill persons insert some foreign bodies into the nose. In some work injuries, molten metal, fragments of glass, metal, stones, and other things can get into the nasal cavity. Food products become foreign bodies when vomiting or eating, especially in patients with soft palate paresis. Living foreign bodies (leeches, worms) enter the nose when vomiting or drinking contaminated water.

When a foreign body is in the nasal cavity for a long time – rhinolith is formed. Rhinolith (rhinolithis: rhino-nose, lithos -stone) – is a concrement formed by the deposition of phosphate and carbon dioxide salts of calcium and mucus around the foreign body [1, 3].

A foreign body injures the mucous membrane during prolonged stay in the nasal cavity, causing granulation to grow. Rhinolith may be of various shape and size, different density with a smooth or uneven rough surface, causing bleeding granulations [1, 2, 3].

The foreign body of the nasal cavity is mainly localized in the inferior and middle nasal meatus.

Favorable conditions for the formation of rhinoliths are anatomic-physiological changes in the nasal cavity: narrowing of the nasal meatus, crests, spines on the nasal septum, deviation of nasal septum, enlargement of the nasal sinuses, diseases of paranasal sinuses, – that is, everything that contributes to the increased excretion and the retention of the discharges from the nasal cavity. In mucus stagnation, mineral particles fall out due to the crystallization of colloids [1, 3].

The reasons for the rhinoliths formation have not been sufficiently studied [1, 3]. Mostly, there is a nucleus inside it – a foreign body, on the surface of which salts of various trace elements are gradually deposited. Increasing in size, rhinolith fills the nasal meatus, mostly repeating its shape. There are cases of prolonged stay of the foreign body in the nose without the formation of rhinolith. In some cases – the nucleus of rhinolith could neither macroscopically nor microscopically be detectable.

According to V.M. Bobrov [2] it is recommended to distinguish 4 groups of rhinolith.

Group I: rhinolith takes one nasal meatus. The patient does not complain. Nasal breathing is not

difficult, there are no secretions. Rhinolith is detected by accident. The duration of rhinolith stay in the nose – is 5-7 years. Weight of rhinolith is from 0.5 to 1.0 g. Size is up to 1.0 cm in diameter. During this period, there is an intensive increase in rhinolith mass as a result of crystallization and falling out of salts from the nasal secretions.

Group II: rhinolith takes one nasal meatus. There are the complaints of unilateral nasal congestion and or bad breath. There are some pathological changes in the nasal cavity, paranasal sinuses, in the auditory tube. Objectively – there are purulent discharges in the nasal cavity, there is the diagnosis of sinusitis on the side of rhinolith. Weight of rhinolith is from 1.0 to 1.5 g. The duration of rhinolith stay in the nasal cavity is 7-10 years.

Group III: rhinolith fills several nasal meatus (inferior and common; inferior, common and middle). Rhinolith itself takes the form of a pattern of the nasal meatus as a result of crystallization and salts falling out from the contents of the nasal secretion. Subjective and objective symptoms are similar to those in group II. In addition, because of prolonged stay of rhinolith in the nasal cavity (more than 10 years), there is an adverse effect on the structures of the nose, resulting in atrophy of the conchae at the point of contact with rhinolith, deviation of the nasal septum in the opposite direction. There are significant changes in the paranasal sinuses, granulations at the location of rhinolith, bloody discharges from the nose while blowing it or probing rhinolith. Weight of rhinolith is 1.5 g or more.

Group IV: rhinolith takes several nasal meatus. Duration of rhinolith stay in the nasal cavity is 15-20 years or more, weight is 1.5 g. Subjective and objective symptoms are the same as in group III. In addition, there are significant changes in the nasal cavity with the destruction of the bony structures of the paranasal sinuses (maxillary, cells of the ethmoidal labyrinth), significant functional changes in the nasal cavity, auditory tube and radiological changes in the paranasal sinuses.

In the basis of the division of rhinoliths into groups, the author took into account the following indicators: duration of rhinolith stay in the nasal

cavity from the moment the foreign body enters the nose; weight and size of rhinolith; negative influence of rhinolith on the structures of the nose, paranasal sinuses and adjacent organs [1, 2].

In adults, rhinolith can form both in trauma and in medical manipulations in the nasal cavity.

If we find rhinolith with a nucleus in a patient at the age of 21, then apparently the foreign body was in the nose before the formation of rhinolith for about 17-18 years.

Own observations.

**Case 1.** Patient K., aged 21 years old, underwent a routine medical examination of an ENT specialist regarding job placement. At the time of examination, the patient complained of severely obstructed nasal breathing, nasal discharges. According to the patient's words, she had rhinosinusitis polyposa.

Examination of ENT-organs: outer nose is deformed, nasal septum is deviated to the right, common nasal meatus on the right is sharply narrowed, on the left – it is filled with mucous-purulent discharges, after their removal between the anterior end of the inferior, middle nasal conchae and nasal septum, there is visualized the formation of gray colour, practically immovable; when pulled by the tool the mucosa bleeds. Pharyngoscopically – there is hard palate of the Gothic form, mucous membrane of the pharynx is without any peculiarities. Nasal breathing is pronouncedly difficult.

After a local application anesthesia using a 10% solution of lidocaine there was performed the revision of nasal cavity. A stony texture formation was found in the common nasal meatus on the left. Using the hook under the control of the endoscope, the formation was somewhat mobilized, with the help of conchotome it was fragmented and removed. Removed formation – is the dark-gray rhinolith, sized  $2.5 \times 3.0$  cm (Fig. 1). The sunflower seed was found in the transsection.

On the survey radiograph of the nasal cavity and paranasal sinuses there were revealed: deviation of the nasal septum to the right, decreased pneumatization of the maxillary sinuses with signs of horizontal fluid level on the left.

A puncture of the left maxillary sinus was per-



**Figure 1.** Rhinolith, transection with sunflower seed in the center. Patient K., aged 21 years old.

formed under local anesthesia – there is a thick pus in the lavage fluid. The patient received a course of conservative therapy, followed by a septorhinoplasty.

During the control examination, the external nose is without deformities, in anterior rhinoscopy, the nasal passages are wide, free, the nasal breathing is satisfactory.

**Case 2.** Patient V., aged 34 years old, sought the advice of ENT specialist after the consultation of a dentist, who after the cone tomography of the upper jaw and paranasal sinuses revealed a shadow with clear contours of  $1.5 \times 2.0$  cm (Fig. 2).

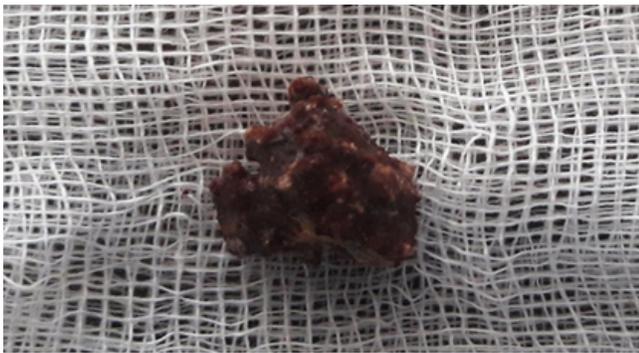
At the time of examination, the patient had no complaints for the ENT organs. During examina-



**Figure 2.** Rhinolith of the nasal cavity, cone tomography data. Patient V., aged 34 years old.

tion: the septum has the middle position. In the common nasal meatus between the lower nasal concha and the nasal septum, a movable foreign body of stony density is visualized, while being touched the mucous membrane bleeds.

After local application anesthesia with 10% lidocaine solution, a revision of the nasal cavity was performed. A stony texture formation was found in the common nasal meatus on the left. Using the hook under the control of the endoscope, the formation is somewhat mobilized and removed. Removed formation – is a dark-gray rhinolith sized 1.5 × 2.0 cm (Fig. 3). According to cone tomography – there is the cavity in the center of the foreign body (Fig. 2)



**Figure 3.** Rhinolith of the nasal cavity. Patient V., aged 34 years old.

During the control examination in the anterior rhinoscopy the nasal meatus are wide, free, the nasal breathing is satisfactory. The cases described above, indicate a prolonged stay of a foreign body in the nasal cavity, which in the first case led to the deformation of the external nose, facial skull, deformation of the septum, chronic rhinosinusitis; in the second case, it was characterized by a virtually asymptomatic course and was accidentally detected by a dentist.

### Informed Consent

Written informed consent was obtained from the patients who participated in this case.

### Conflict of Interest

The authors stated no conflict of interest.

### Financial Disclosure

The authors declared no financial support.

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