CASE REPORT

Rock, paper, endoscopy: a baffling case of rhinolith

Alberto Maria Saibene,¹ Valentina Bebi,¹ Roberto Borloni,² Giovanni Felisati¹

¹Department of Otolaryngology, San Paolo Hospital, University of Milan, Milan, Italy
²Maxillofacial Surgery Unit, Istituto Stomatologico Italiano, Milan, Italy

Correspondence to
 Professor Giovanni Felisati,
 giovanni.felisati@gmail.com

SUMMARY

A 60-year-old woman presented with a bulky nasal mass. The mass was accidentally discovered during examination following a head injury. The patient, suffering from severe mental retardation, did not complain of any nasal symptoms, though her relatives, upon direct questioning, reported a two year history of fetid rhinorrhoea and occasional epistaxis. The CT scan showed a large inhomogeneous calcified mass in left nasal cavity, impacted on the choanal border. The patient underwent endoscopic nasal surgery under general anaesthesia in order to remove the mass. A transnasal approach granted a successful and complete removal. The patient was discharged the following day without any complication and no sign of recurrence or symptoms relapse was reported during a two year follow-up.

BACKGROUND

Nasal foreign bodies are commonplace in ear, nose and throat (ENT) practice. Though diagnosis and management of these conditions are usually straightforward, approaching children and disabled patients requires additional care. Standard tools, procedures and protocols might prove ineffective or even dangerous: the opportunity to manage the patient in a safer environment with the help of an anaesthesiologist should be always considered when diagnosing and treating foreign bodies in a difficult patient.

CASE PRESENTATION

A 60-year-old woman presented upon incidental discovery of a bulky nasal mass, during emergency examination following a head injury. The patient, suffering from severe mental retardation, did not complain any nasal symptom, though her relatives reported a two year history of fetid rhinorrhoea and occasional epistaxis.

INVESTIGATIONS

The mass was first identified during a head CT scan following a traumatic head injury. The CT scan showed a large (maximum diameter 28 mm) inhomogeneously calcified mass in left nasal cavity, impacted on the choanal border (figure 1). The mass showed no contrast enhancement. Coronal images showed septal dislocation and signs of left sphenothmoidomaxillary sinusitis without any other sinus involvement (figures 2 and 3). There were no traces of bone erosion or tissue invasion.

An ENT physical exam showed left nasal vestibulitis with overabundant bilateral purulent nasal discharge and a right septal deviation. Due to the lack of collaboration from the patient we could not

Figure 1 Sagittal CT image showing the bulky calcified nasal mass impacted on the choanal border.

perform a nasal cavity toilette or a nasal endoscopy which would have been proven useful.

DIFFERENTIAL DIAGNOSIS

In the presented case the image was unclear and various different diagnoses were possible. First of all the aspect of the rhinolith was odd—radiologically compatible with stone or any other hard material, but definitely not with paper, which usually dissolves or decomposes; second, the massive septal deviation mimicked an expansive tumour with dysplasia and calcifications; third we could not definitely establish a clear cause and effect relationship between inflammatory process and anatomic anomalies.

Figure 2 Coronal CT image showing the mass and opacity of the ipsilateral sphenoid sinus.

To cite: Saibene AM, Bebi V, Borloni R, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2013-009147

Figure 3 Coronal CT image showing right septal deviation and opacity of the left nasal cavity extending to the ipsilateral maxillary and ethmoidal sinuses. There is no sign of bone erosion or tissue invasion.

There was no chance to establish a clear diagnosis without performing a nasal endoscopy. A MR would have proven useful, but it would have required sedation or anaesthesia as well considering the lack of collaboration from the patient. Therefore we decided to couple the last diagnostic procedure, ie, the endoscopy, with the treatment.

TREATMENT

The clinical management of choice consisted in coupling the last required diagnostic step with the intervention. Therefore we performed a nasal endoscopy under general anaesthesia in the operating theatre followed by a functional endoscopic sinus surgery (FESS) procedure. This allowed us to swiftly identify and remove the foreign body—a decomposed and semi-calcified paper ball (figure 4)—while reducing patient discomfort and risks to a minimum. A suction tip (figure 5) was the instrument of choice for the removal since the calcification process was still

Figure 4 Intraoperative endoscopic photograph showing the semi-calcified paper ball surrounded by mucopus.

Figure 5 Intraoperative endoscopic photograph showing the removal of the mass with a suction tip.

minimal, while a 0° endoscope allowed us to thoroughly check the pathological status of the sinonasal cavities during the procedure. The sinonasal toilet was completed with a right middle antrostomy coupled with an anteroposterior ethmoidectomy which granted a complete drainage of the mucopurulent secretions.

OUTCOME AND FOLLOW-UP

The patient was discharged the following day without any complication and no sign of recurrence or symptoms relapse was reported during a two year follow-up.

DISCUSSION

Nasal foreign bodies are commonplace in ENT practice.¹ Reports range from inanimate small objects like paper and erasers to animate objects such as larvae and maggots and endogenous materials (bone and cartilage fragments).^{2,3}

Most patients with foreign bodies of the nasal cavity report unilateral, seldom bloodstained, mucopurulent discharge. Children often develop unilateral vestibulitis due to the chronic discharge. Pain is rarely reported thus foreign body may persist for years in the nasal cavity before being identified and/or removed.^{4,5} Foreign bodies may decompose, thus generating perceivable foul odour, and elicit inflammatory reaction with granulation. Chronic sinonasal infections may arise over time due to decomposition and nasal blockage.

Due to the inflammatory reaction and the subsequent granulation, foreign body which occupy the nasal cavity for long times may act as concretion nuclei. The foreign body is progressively covered by calcium, magnesium phosphate and/or carbonate becoming a rhinolith. Rhinoliths usually lay on the floor of the nose due to their higher weight and are more or less radiopaque; their hardness may vary according to the extent of the calcification process.⁶

Though radiographical examinations can confirm the presence of a rhinolith, its specific composition and therefore its hardness and movability are difficult to assess. Since we do not have specific data on the appearance of different foreign materials on maxillofacial CT scans, it is not always possible to exactly judge a foreign body from radiological examinations only. Rhinoscopy and, in some cases, flexible nasal endoscopy are therefore required in order to identify foreign bodies and plan ahead their removal.

Small foreign bodies in collaborative adolescent and adults can be easily identified and removed rhinoscopically. Longer procedures under general anaesthesia or complete FESS procedures are reserved for impacted or animated foreign bodies the former, and sinonasal complications resulting from foreign bodies the latter.

Though infancy and mental retardation represent only minor aetiological factors for nasal foreign bodies, children and disabled patients pose the most peculiar challenges to the ENT specialist due to their lack of collaboration and compliance.⁷

First children and mentally disabled patients often require sedation when undergoing complex radiological procedures such as CT or MR scans to ensure valuable results. Second in these patients nasal endoscopy is not only rarely feasible, but also potentially dangerous: the endoscope may collide with the foreign body during the examination due to unexpected and swift movement of the patient, with a strong risk of inhalation. Last, rhinoscopic or endoscopic removal under local anaesthesia should be an option reserved to the smallest and most reachable foreign bodies; the aforementioned lack of cooperation and lower pain threshold complicate even the easiest manoeuvre with unaffordable risks of complications.

If the first removal attempt fails in a child or in a disabled patients, or if the foreign body is scarcely visible, the patient should always be referred to an ENT specialist.⁸⁻⁹ Profound sedation or general anaesthesia performed in a controlled environment with a prompt availability of all endoscopic devices and instruments required for a standard FESS procedure represent the best scenario when dealing with foreign bodies in difficult patient. The chance to perform an oral 'packing' around the orotracheal tube is an added value when trying to avoid inhalation.

While the management of most foreign bodies still remains a simple family practice matter that can be solved with the right instruments, the ENT specialist should never underestimate the problem and—most of all—never forget to take this differential diagnosis into account when evaluating unilateral nasal conditions.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Kalan A, Tariq M. Foreign bodies in the nasal cavities: a comprehensive review of the aetiology, diagnostic pointers, and therapeutic measures. *Postgrad Med J* 2000;76:484–7.
- 2 Pignataro L, Cesarani A, Felisati G, et al. *Trattato di otorinolaringoiatria ed audiologia*. Milan, Italy: Edises, 2012:437–8.
- 3 Brown E. Screw worm infestation in the nasal passages and paranasal sinuses. *Laryngoscope* 1945;55:371–4.
- 4 Kermanshahi MS, Jassar P. A bolt from the blew: rhinolith in the nose for more than 80 years. *BMJ Case Rep* 2012 Nov. <http://casereports.bmj.com/content/2012/bcr-2012-007322> (accessed 17 Feb 2013).
- 5 Vidasalam S, Sipaul F, Hill A, et al. Nasendoscopy for unusual nasal symptoms. *BMJ Case Rep* 2010 Sep. <http://casereports.bmj.com/content/2010/bcr.04.2010.2911> (accessed 17 Feb 2013).
- 6 Chatziavramidis A, Kondylidou-Sidira A, Stefanidis A, et al. Longstanding rhinolith leading to anatomical alterations of the ipsilateral inferior nasal meatus and turbinate. *BMJ Case Rep* 2010 Nov. <http://casereports.bmj.com/content/2010/bcr.07.2010.3155.full?sid=d6db917f-fe11-4fd2-a2c0-ab932f266ac2> (accessed 17 Feb 2013).
- 7 Das SK. Aetiological evaluation of foreign bodies in the ear and nose. *J Laryngol Otol* 1984;98:989–91.
- 8 Heim SW, Maughan KL. Foreign bodies in the ear, nose, and throat. *Am Fam Physician* 2007;76:1185–9.
- 9 Kadish H. Ear and nose foreign bodies: 'It is all about the tools'. *Clin Pediatr (Phila)* 2005;44:665–670.

Learning points

- ▶ Foreign bodies, and rhinoliths among them, are commonplace in everyday practice and should always be taken into differential diagnosis when investigating unilateral nasal conditions.
- ▶ Management of foreign bodies in children and disabled patients requires special care and attention and, sometimes, more invasive procedures: always consider procedures under general anaesthesia if necessary.
- ▶ Due to their protean characteristics, nasal foreign bodies require direct visualisation through rhinoscopy and/or endoscopy in order to avoid misdiagnoses and plan ahead the treatment.

Copyright 2013 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow