CASE REPORT

Penetrating foreign body in the nasal floor through nasolacrimal duct

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SUMMARY

Clinical otolaryngologists frequently encounter nasal foreign bodies (FBs) particularly among children. The removal of nasal FBs is a common otolaryngological practice. However, occasionally trauma results from FBs being lodged in the nasal cavity especially through the nasolacrimal duct. In this article we present an unusual case of a FB that from the left medial canthus went inside the nasolacrimal duct, then through the inferior turbinate and stuck in the floor of the nose. We describe the transnasal endoscopic approach used and we recommend that the treatment be done as soon as possible to avoid complications.

BACKGROUND

Whereas insertions of nasal cavity foreign bodies (FBs) are relatively common, particularly among children, penetrating FBs in the nose through the nasolacrimal duct occur infrequently. They should be carefully removed early on for several reasons: their possible relation to vital structures, discomfort and nidus for infections. Normally FBs can be removed in the emergency room with little or no sedation using alligator forceps, long bayonet forceps and mosquito clamps but in some cases, especially when the nasolacrimal duct is involved, the use of the endoscopic approach is necessary.¹ The purpose of this paper is to describe the clinical case of a 50-year-old man with a nasal FB that went through the nasolacrimal duct and stuck in the floor of the nose. Clinical and imaging findings as well as the endoscopic removal of the FB are described.

CASE PRESENTATION

A 50-year-old man presented to the ophthalmology clinic with a history of injury to his left eye by a tree branch which fell from a height of about 1 m. He had epiphora and reported periorbital pain. On ophthalmological examination his vision accuracy was intact. There was a non-axial proptosis of the left eye. Pupil reflex was normal. Ocular movements were preserved, with a small mass at the infraorbital margin. There was a small scar on the skin over this mass (figure 1).

INVESTIGATIONS

The ophthalmologist tried to remove the FB using a lacrimal probe but it broke during removal, so the patient was transferred to our clinic for an endoscopic evaluation. The endoscopic examination of the left nasal cavity revealed a wooden twig that appeared to be oriented diagonally

Figure 1 Foreign body penetrating left medial canthus.

extending from the medial canthus posteromedially. It perforated the inferior turbinate and got stuck in the floor of the nose between the soft and hard palate. We preferred to have a preoperative evaluation with a CT to establish the real extension of the FB. A CT scan performed and reconstructed in sagittal, coronal and axial planes confirmed the presence of a FB with intermediate density wedged into the nasolacrimal canal and determined the interruption of its posterior wall. It pierced the inferior turbinate and was stuck between the hard and soft palate. Representative cuts are shown in figures 2 and 3. A tetanus boost was given to the patient with antibiotic cover prior to intervention.

DIFFERENTIAL DIAGNOSIS

Differential diagnoses of a unilateral nasal obstruction could include a septal haematoma, a nasal polyp, a nasal abscess, a nasal tumour or a unilateral choanal atresia but diagnosis of a nasal FB is usually not difficult when the history is straightforward.

TREATMENT

The FB was grasped externally and removed uneventfully using 0° and 30° rigid nasal endoscope. We preferred to cut the FB into two pieces below the inferior turbinate. The inferior part was disimpacted from the floor of the nose and gradually extracted with a curved angular hook. As the major part was situated at the lower end of the nasolacrimal duct, retrograde method was used. The FB measured 8 cm×0.4 cm and was completely extracted in two pieces (figure 4). The surgical procedure was completed without complications and the patient was discharged from the hospital 1 day after surgery.

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Figure 2 Sagittal CT scan showing the foreign body extending from the left medial canthus and through the nasolacrimal duct piercing the inferior turbinate.

OUTCOME AND FOLLOW-UP

Postoperatively the patient was treated with saline solution nasal irrigation for 1 month and continued antibiotic therapy for a week. In the follow-up 1 month later we repeated the CT examination which showed complete resolution of the mass and no retained FB.

Ocular symptoms and reduction in visual acuity were not reported.

DISCUSSION

Penetration of FBs in the nose through the nasolacrimal duct is a very rare entity. Several cases have been reported describing the clinical nature and removal of FBs of the nasal cavity; however, few have been published on nasolacrimal duct FBs and their treatment.

Samaha *et al*² described the removal of a sino-orbital FB in a child. Sheeja *et al*³ described a case of an overlooked wooden FB which, after remaining quiescent for a long time, spontaneously extruded after 5 years. They emphasize the importance of maintaining a high index of suspicion of a retained organic FB to avoid misdiagnosis. Intranasal access to the nasolacrimal duct has been greatly enhanced with the advent of endoscopic nasal surgery, which provides a safe and effective approach to

Figure 3 Sagittal CT scan. View of the foreign body at the floor of the nose level.

Figure 4 Wooden foreign body.

extraction of FBs that can be used alone or in combination with other surgical approaches.⁴ FB removal depends on its size, location, relation to adjacent structures and the surgeon's experience. We think that, when possible, an endoscopic approach is preferable because it offers better visualisation with minimal risks. The use of endoscope also allows the immediate identification of the surrounding key structures during the removal procedure.⁵ In our case, endoscopic surgery helped in removing the FB successfully with minimal intervention and without an external scar. The CT scan was performed to note the exact relation of the FB to the nasal cavity. It is important to remember that wooden FBs often break during removal; control CT scan is always advisable to ensure complete removal is achieved.

Learning points

- ▶ The method of removal depends on the location and size of the object, relation to adjacent structures and the surgeon's preference. Owing to the many different nasal foreign bodies found, the physician should be skilled in all of these methods of removal.
- ▶ The treatment should be done as soon as possible to avoid complications such as sinusitis, facial cellulitis, meningitis and erosion of adjacent structures. Although most foreign bodies can be managed by experienced physicians with simple equipment and can be treated in an ambulatory setting without the use of anaesthesia or the use of sedation, we think that the removal should be done in the emergency room because there is the risk of nasal bleeding, which often obscures the foreign body, as well as the possibility of pushing the foreign body more posteriorly and causing aspiration of the foreign object.
- ▶ Also, an endoscopic approach is preferable because it offers better visualisation with minimal risks.

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