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Nasal Foreign Body in an Infant

Rashi Kochhar, MD; Alexandra Vinograd, MD; and Manoj K. Mittal MD
St. Mary Medical Center, Langhorne, PA

An 18-month-old girl presented to the emergency department with a right-sided nasal bleed and bruising, which her mother attributed to a possible injury while the girl played outdoors earlier that day. The child had no significant past history, had no known medication allergies, and was up to date with her immunizations.

Physical Examination

The girl looked well and had normal vital signs. Inspection of the nose was positive for bruising over the nasal bridge and associated tenderness on palpation. Otoscopic examination revealed thick, muddy-brown, serosanguinous discharge in the right nasal cavity. The rest of the examination findings were normal.

During attempted removal of the thick discharge, the curette hit against a hard surface that had not been clearly visualized through the otoscope. Nasal bone radiographs were obtained to rule out fractures and foreign objects. The films showed a 1.2-cm round metallic foreign body (FB) in the right nasal cavity, with intact bones and soft tissues (**Figures 1 and 2**).

The FB—a lithium button battery—was removed using a Katz extractor. The nasal cavity was packed using hemostatic matrix with thrombin after the bleeding had been controlled. At an outpatient follow-up visit to an otorhinolaryngologist the next day, the girl underwent nasal endoscopy to rule out nasal septal or other tissue damage. She was discharged home with nasal saline drops. At follow-up, the patient was doing well, with no further concerns.


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Discussion

Nasal FBs are common in young children and can have organic or inorganic causes. It is important to remove FBs in a timely fashion, since certain objects can cause significant damage to intranasal structures.

Epidemiology

Nasal FBs are most commonly seen on the right side, due to easy accessibility with the child's right hand, and are usually located either on the floor of the nasal passage just under the inferior turbinate or superiorly in the nasal cavity just in front of the middle turbinate.[1]

Common FBs include beads, rubber pieces, small toys, and food objects such as carrots, seeds, and chewing gum. Button batteries and magnets are concerning intranasal FBs with the potential to damage nasal structures. Inserted button batteries, which are found in many toys and electronic devices, can lead to nasal septal perforation due to alkaline tissue necrosis and warrant emergency removal. Paired disc magnets can also lead to septal perforation as a result of sustained compression of the nasal septum.

Clinical Features

Nasal discharge that is purulent or foul smelling and more so unilateral is highly suspicious for FB, especially an FB of organic material. This can cause local inflammation or even produce secondary infection leading to a foul smell, epistaxis, or facial pain.[2] Button batteries may also cause these symptoms, as was seen in our patient, who presented with nasal bruising and epistaxis secondary to a lithium battery lodged in the right nasal cavity.

Other clinical features of FB include nasal obstruction or mouth breathing, a history of FB insertion, and obvious visualization of the foreign object in the nasal passage.

Diagnosis

Diagnosis is made after direct visualization of an object or after visualization using an otoscope or headlight. Sometimes visualization occurs after suctioning of the discharge. A diagnosis can also be made if the patient has a definite history of FB insertion, in which case fiberoptic endoscopy may need to be performed by an otorhinolaryngologist. Radiographs are not routinely required unless the FB cannot be clearly visualized or if there is high suspicion for a button battery or magnet insertion.

Differential Diagnosis

Bilateral nasal discharge also can be associated with sinusitis, upper respiratory tract infections, and seasonal allergic rhinitis. Bilateral nasal FBs are unusual but can occur in younger children or patients with intellectual disabilities.

FB Removal

FB removal is usually an elective procedure, but button batteries and magnets warrant emergency removal due to their potential to cause septal destruction. Otorhinolaryngologist referral is rarely needed but is usually indicated for posteriorly located or inaccessible FBs, for chronic or impacted FBs, for button batteries, or when there is more than 1 magnet in the nose.

Removal Techniques

Positive-pressure techniques are useful for soft or smooth nasal FBs. They are usually performed by asking the patient to blow his or her nose while occluding the opposite nostril. A modification for younger children involves the guardian giving a mouth-to-mouth breath to the child while the uninvolved nostril is pinched shut.

Instrumentation is useful for removal of nonocclusive FBs. Topical anesthesia may be needed, since the procedure can be painful. For uncooperative patients, procedural sedation may be required. Commonly used instruments include alligator forceps or Gruenwald nasal dressing forceps for compressible objects such as foam rubber. Foley or Fogarty balloon catheters or Katz extractors can be used to remove smooth, solid round objects such as beads. Alternatively, a superficially placed FB such as a bead can be removed using a curette and sliding the object gently out of the cavity.

For older children, cyanoacrylate glue can be applied to the end of a plastic swab to remove an FB gently. Paired disc magnets can be removed using mosquito hemostats or by using 2 instruments to simultaneously remove the 2 separate magnets.[3,4]

Complications

Button batteries can lead to septal perforation if they remain inserted for more than a few hours. This can lead to saddle-nose deformity, nasal meatal stenosis, inferior turbinate necrosis, and collapse of the alar cartilage.[5-7] Direct trauma can also result from instrumentation. Resultant epistaxis can be managed with direct pressure. Moreover, FBs lodged in the nose for a long time can lead to inflammation and infection, resulting in sinusitis.

Conclusion

Nasal discharge, especially if it is unilateral, foul smelling, or purulent, should raise concern for an FB lodged in the nasal cavity; careful examination and urgent removal of any FB is warranted to prevent long-term nasal septal deformities. A button battery FB also may cause bruising to the nose, further confounding the diagnosis.

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