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Case Series

Nasal challenges: managing metallic foreign bodies: a case series

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ABSTRACT

Foreign bodies within the external nose, though uncommon, pose potential risks including chronic inflammation and localized infection, despite the inert nature of most metallic materials. Prompt identification and appropriate removal are essential to mitigate complications. This report presents three clinical cases involving embedded nasal foreign bodies, each successfully diagnosed via endoscopic examination and managed through an open rhinoplasty approach. The open rhinoplasty technique offers a distinct advantage by ensuring optimal surgical exposure while preserving aesthetic outcomes, surpassing the cosmetic limitations associated with conventional incisions. Although literature on nasal foreign bodies remains limited-often focusing on durations ranging from three months to five years—these cases underscore the importance of early and precise diagnosis. Radiographic evaluation, particularly with computed tomography (CT), remains the gold standard for accurate localization of intranasal foreign bodies. Upon confirmation, surgical extraction is typically warranted, with endoscopic-assisted methods increasingly favored for their minimally invasive nature and lower procedural risk. In asymptomatic individuals, conservative management with regular radiographic monitoring may be considered as an alternative to immediate intervention.

Keywords: Metallic foreign body, Safety pin, Epistaxis, Metal nut, Metal screw, Endoscope

INTRODUCTION

The presence of foreign bodies such as a metal nut, screw, or safety pin within the nasal cavity necessitates prompt medical intervention to prevent potentially serious complications, including infection, mucosal injury, and aspiration into the lower respiratory tract. Although frequently encountered in pediatric populations, such occurrences in any age group warrant immediate attention due to their potentially hazardous nature.

Complications associated with nasal foreign bodies

Infection

Retained foreign bodies can serve as a nidus for bacterial colonization, leading to localized infection, purulent discharge, and, in severe cases, sinusitis or cellulitis.

Tissue damage

Prolonged retention or manipulation can result in mucosal erosion, ulceration, or even septal perforation.

Aspiration

Dislodgement of the object poses a risk of inhalation into the tracheobronchial tree, potentially resulting in airway obstruction-a medical emergency.

Psychological distress

Especially in children or anxious individuals, the presence of a foreign object can provoke significant emotional and behavioral distress.

Risks unique to metallic foreign bodies

Sharp edges

Objects such as screws or safety pins may have jagged or pointed components, which can inflict lacerations, punctures, or even perforate the delicate nasal mucosa.

Inert properties

While metals are generally biologically inert, chronic exposure can elicit a sustained inflammatory response or harbor latent infections, particularly if oxidation or corrosion occurs.

High-risk objects

Pins, bolts, and magnets

These items can inflict substantial tissue injury within a short period. Magnets, in particular, pose a unique threat due to their potential to attract across mucosal surfaces, leading to pressure necrosis and septal perforation. Timely extraction is imperative.

Clinical presentation

It includes foul-smelling nasal discharge, unilateral nasal obstruction or congestion, localized nasal pain or irritation, epistaxis (nasal bleeding), audible whistling during respiration, labored or obstructed breathing.

Early diagnosis, facilitated by nasal endoscopy and radiologic imaging (preferably CT for radiopaque objects), followed by careful surgical removal-often via an endoscopic or open rhinoplasty approach-remains the cornerstone of effective management.[1,2]

CASE SERIES

Case 1

a very unique case came to light at our institute. It involved a toddler, who was one and a half years old. While playing, she inserted a safety pin into her nose. When her mother tried to remove the pin at home, the child inhaled deeply, causing the safety pin to go very deep into her nose. Because of this, the girl started crying and became agitated.

After that, the girl was immediately taken to our institute. An X-ray of the girl revealed that the safety pin was stuck deep in the back of her nose and palate.

Doctor immediately removed the three-centimeter-long safety pin with an endoscope and saved the girl's life. The critical aspect of this case was the child's age. Being only one and a half years old, her nasal passage was very narrow. Removing a deeply lodged safety pin with an endoscope was a very challenging task. If the pin had gone further down into the windpipe, the child's life would have been in danger. However, Doctor skilled in successfully performing numerous such operations, saved the child's life with his expertise and skills.

Case 2

Usually, while playing, children do such things which become a risk for their own life. A similar incident happened with a three-year-old child.

A three-year-old son stuck a metal screw in the right side of his nose while playing at home. The child's father tried to remove the screw but the child took a deep breath and reached deep into the nose. The father rushed the child to our institute.

Doctor immediately examined him and found that the screw was stuck in the nose. If a metal screw stuck deep in a very narrow place slips out of the nose and gets stuck in the windpipe, it can be life threatening. If there is a problem of nose bleeding while removing the screw, then it can be difficult.

Surgeon immediately took the child to the operation theatre and in a few minutes, he removed metal nut from right part of the child's nose using an endoscope. The stuck metal screw was removed. The children had a weight of about one and a half kg.

The critical situation in this case was that the child was only 3 years old. Very narrow nose a metal screw flying in space can get stuck in the trachea if it slips and poses a risk to life. Also, the problem of bleeding from the nose arises while removing the screw.

Case 3

A case of 4-year-old boy, who had inserted a metal nut in his right nose while playing at home. When the child's parents came to me, His parents told the doctors he had accidentally put the nut up his nose; however, it remains unclear where the child found the metal nut. The child started to face breathing difficulty as there was a very narrow space for air to pass. an immediate examination revealed that the metal nut was lodged deep in the nose.

Also, doctors said that the metal nut was too close to the nasal cavity. "If the nut had slipped into the nasal cavity, it would have endangered the child's life,"

Metal nut was 1 cm-wide and the chances of complication was very high. However, without any surgery we could remove it endoscopically.

The aggravating situation was that the child was only 4 years old and the size of the bolt was bigger than the nostril. So, while removing the bolt, there was a risk of bleeding from the nose or the metal bolt slipping back

into the nose and getting stuck in the esophagus or trachea.

However, this case has become an eye-opener for the parents of all the children. It is very important for every parent to learn from this case and take some precautions when handling young children.

Figure 1: X-ray skull lateral view showing safety pin in nasopharynx.

Figure 2: Post op pic of safety pin removed from nasopharynx.

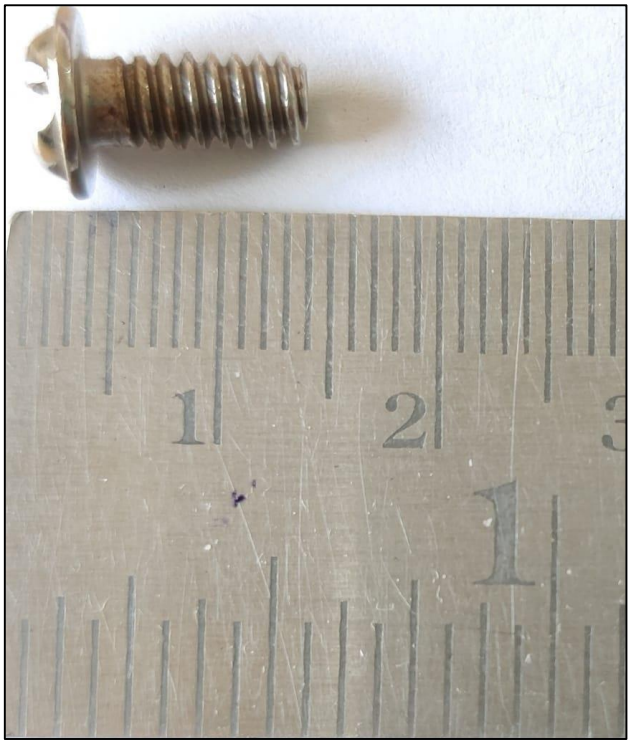

Figure 3: Metal screw removed from nose.

Figure 4: Metal nut removed from nose.

DISCUSSION

In pediatric cases, nasal foreign bodies are typically self-inserted by the child and often consist of small objects such as toy components (e.g., beads, marbles, nuts, pins), food items (including corn, beans, peas, seeds, nuts, hamburger pieces, chewing gum), and miscellaneous materials like paper fragments, cotton, erasers, pebbles, screws, sponges, or button batteries. In contrast, nasal foreign bodies in adults are more commonly associated

with traumatic incidents-either accidental or assault-related-resulting in the intrusion of metallic or glass fragments, or the embedding of nasal jewelry within the nasal cavity.[2]

Nasal foreign bodies necessitating extraction are frequently encountered in the pediatric population. The approach to removal varies significantly based on the nature and composition of the foreign object. In the majority of cases, extraction can be successfully achieved using basic instruments and does not mandate referral to an otolaryngologist. Given the wide array of potential nasal foreign bodies, clinicians must possess proficiency in a diverse repertoire of removal techniques. This discussion provides a comprehensive review of the most effective and commonly employed methods.[2]

Nasal foreign bodies (NFBs) constitute a frequent presentation in emergency departments (EDs), predominantly among pediatric patients and, to a lesser extent, adults with intellectual or developmental disabilities. These cases account for an estimated 0.1% of all pediatric emergency visits, underscoring their clinical relevance despite their relatively low incidence.[3] Although nasal foreign bodies (NFBs) infrequently constitute true medical emergencies, they carry the potential for significant complications. These may include trauma to the nasal mucosa resulting in lacerations, inadvertent aspiration due to posterior displacement into the nasopharynx, nasal septal perforation, localized or systemic infection, and notable psychological distress, particularly in pediatric patients.[4]

Certain nasal foreign bodies particularly button batteries, screws, and magnets pose a heightened risk of severe and irreversible tissue damage, necessitating prompt and emergent extraction. The selection of an optimal retrieval technique is critical, as unsuccessful attempts may exacerbate patient or parental anxiety, thereby increasing procedural difficulty and potentially compromising subsequent removal efforts.[4] Moreover, dislodged nasal foreign bodies carry the risk of migration into the lower airway, potentially leading to aspiration or life-threatening airway obstruction.

In instances where multiple retrieval attempts prove unsuccessful, escalation to removal under general anesthesia may become necessary. However, this intervention is not without its own inherent risks and potential complications, necessitating careful clinical judgment.[5-8] Physical examination remains the cornerstone of diagnosis, with patient cooperation being paramount to its effectiveness. In pediatric cases, assistance from caregivers and clinical staff is often required to provide comfort and facilitate gentle immobilization, enabling a comprehensive otorhinolaryngologic assessment. In certain situations, sedation or dissociative techniques may prove beneficial in ensuring procedural success and minimizing distress.

Particular attention must be given to high-risk nasal foreign bodies-such as screws, button batteries, magnets, and living organisms-which possess the potential for rapid and severe tissue damage. For instance, a small pin or screw can induce chemical burns, mucosal ulceration, and liquefactive necrosis within a matter of hours, potentially culminating in nasal septal perforation.[9,10] Careful consideration of the foreign body's characteristics-namely its type, shape, and material composition-is imperative in guiding the selection of the most appropriate and effective retrieval technique. As previously noted, improper handling may result in displacement of the object into the airway, posing a potentially fatal risk.

Delayed recognition of complications associated with nasal foreign bodies can lead to extended morbidity. Such adverse outcomes can often be mitigated through meticulous initial examination and reassessment of the nasal cavity following foreign body removal, ensuring no residual pathology remains.[11]

CONCLUSION

Nasal foreign bodies represent a common, and often seemingly minor, occurrence in routine clinical practice, particularly within the fields of otolaryngology and pediatrics. Despite their generally benign nature, such cases can evolve into serious clinical scenarios depending on the composition of the foreign body, the development of secondary infections, or hazardous extraction attempts. While many nasal foreign bodies pose minimal immediate risk, complications-especially those involving metallic objects can arise if diagnosis or removal is delayed. Accordingly, timely and appropriate intervention is critical. Nonetheless, the most effective approach remains preventive education to mitigate the occurrence of such incidents altogether.

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