



ORIGINAL RESEARCH PAPER

ENT

AN INCIDENTAL FINDING OF BUTTON BATTERY IN THE NOSE WITHOUT ANY COMPLICATION- A CASE REPORT OF A RARE PRESENTATION

KEY WORDS: Nose; foreign body; endoscopy; CT-computed tomography.

Dr. Deepika Pratap

Assistant Professor, Department of ENT Head and Neck Surgery Sapthagiri Institute of Medical Science and Research Centre Hesarghatta Main Road, Chikkasandra Bangalore – 560090 Karnataka, India

Dr. Manasa K N

Final year Junior Resident, Department of ENT Head and Neck Surgery, Sapthagiri Institute of Medical Science and Research Centre, Hesarghatta Main Road, Chikkasandra, Bangalore – 560090 Karnataka, India

Dr. Suprita Shivakumar Savadatti

Final year Junior Resident, Department of ENT Head and Neck Surgery, Sapthagiri Institute of Medical Science and Research Centre, Hesarghatta Main Road, Chikkasandra, Bangalore – 560090 Karnataka, India

Dr. Abhishek Narayan Parbat

Second year Junior Resident, Department of ENT Head and Neck Surgery, Sapthagiri Institute of Medical Science and Research Centre, Hesarghatta Main Road, Chikkasandra, Bangalore – 560090 Karnataka, India

Dr. Mohammed Furqan Patel

Second year Junior Resident, Department of ENT Head and Neck Surgery, Sapthagiri Institute of Medical Science and Research Centre, Hesarghatta Main Road, Chikkasandra, Bangalore – 560090 Karnataka, India

Dr. Md Idrees Rehman

First year Junior Resident, Department of ENT Head and Neck Surgery, Sapthagiri Institute of Medical Science and Research Centre, Hesarghatta Main Road, Chikkasandra, Bangalore – 560090 Karnataka, India

ABSTRACT

Aim And Background-A foreign body in nose presents with unilateral purulent nasal discharge, nasal obstruction and nasal bleed. We present a case in which a button battery remained uncomplicated in the nasal cavity for a year. However, if it is found, it should be removed as early as possible. **Case Description** –A 6-year-old female child presented with a one-year history of foul-smelling, left-sided nasal discharge. During anterior rhinoscopy, a black, rigid mass was observed. A circular foreign object was found in the floor of the left nasal cavity during a CT (computed tomography) scan of the Nose and PNS (paranasal sinuses). General anesthesia was used during the diagnostic nasal endoscopy on the child. A foreign body was visualized and removed using a curved curette. The nasal mucosa was normal on follow-up, and there was no septal perforation. **Conclusion-** A detailed history, assessment and radiological examination plays a key role in management of foreign bodies. We report that a button battery was left in the nose for a long time without causing any problems. **Clinical Significance:** There were no complications from an unnoticed button battery in the nose for a year. However, if it is found, it should be removed.

INTRODUCTION

The presence of a foreign object in the nose is fairly common. The majority of foreign bodies, including plastics, papers, cotton, cereals, and beads, cause little harm. They typically present with a nasal bleed, one sided nasal obstruction, and purulent discharge. However, a button battery in the nose could lead to early complications. It requires quick careful removal.

Common electrical devices like video games, toys, and watches frequently make use of button batteries. Because of their shiny, smooth surface, they frequently come within reach of children. In the outpatient department^{1,2}, any batteries in the nose should be removed as soon as possible.

These batteries produce local current, which can cause thermal and chemical burns that can cause necrosis, scarring, septal perforation, synechiae, and cosmetic deformity³. However, there are times when it does not cause any complications, and this depends on a number of factors, such as the battery's remaining voltage and its chemical composition^{4,5}.

Case Description

A 6-year-old girl presented to our outpatient department with a one-year history of left-sided nasal discharge. For one year, the discharge began slowly, was foul-smelling, yellow, and mucoid in consistency. It was associated with left-sided

watering of eyes and left-sided nasal obstruction. No past history of fever. No other insertion of foreign bodies in the past.

The septum in a central position during the anterior rhinoscopy examination. On the left side of the nasal cavity, mucoid discharge and blood clots covered a black, rigid mass. It could not be removed because it was thought to be a rhinolith. Nasal mucosa was clogged and edematous. The nasal cavity on the right side was found to be normal. A circular foreign body was visible on CT nose and PNS in the floor of the left nasal cavity, extending to the inferior meatus.

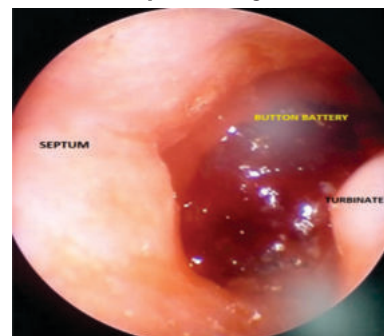


Figure 1- Endoscopic Image Showing Foreign Body In Left Nasal Cavity

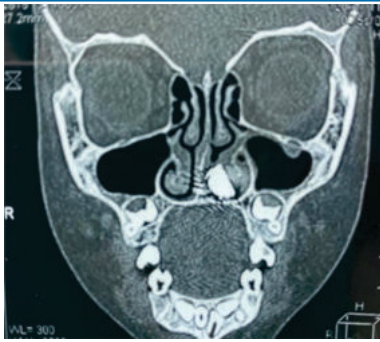


Figure 2- CT PNS Showing Radio-opaque Substance In Left Nasal Cavity.

The following day, the child was scheduled for a diagnostic nasal endoscopy and the foreign body removed under general anesthesia. A curved curette was used to remove a black-colored, irregular foreign body found in the left nasal cavity. There was no septal perforation, and the surrounding mucosa was stuffed up. Normal saline was used to thoroughly irrigate the nasal cavity. After the foreign body was cleaned, it turned out to be a circular button battery of 10mm diameter and 1.5mm thickness, with a lot of corrosion. To prevent further chemical damage, we used normal saline to irrigate the nasal cavity. Nasal cavity was loaded with antibiotic smeared absorbable gelatin sponge. The child was given antibiotic oral suspension, saline nasal drops, and discharged the following day. Anterior rhinoscopy at one week of follow-up revealed healthy nasal mucosa with no septal perforation.

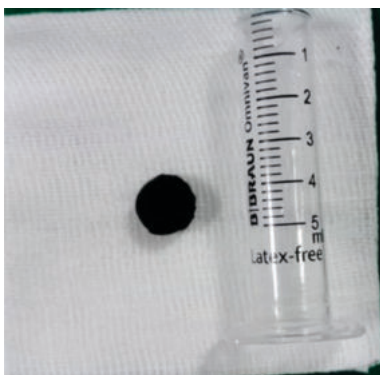


Figure 3- Foreign Body-button Battery

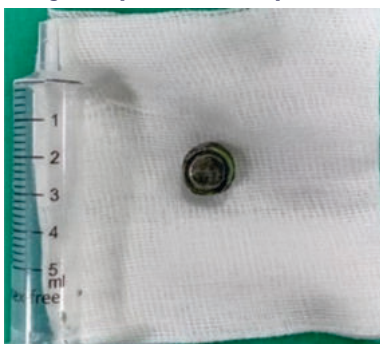


Figure 4- Foreign Body-button Battery After Cleaning



Figure 5- Endoscopic View Of Left Nasal Cavity After Foreign Body Removal.

DISCUSSION

Children between the ages of two and five frequently experience having a foreign body lodged in their nose. They are inert, destructive, hygrophilic. The button battery is one of a number of unusual foreign bodies that have been reported in the literature. Complications can result in death if button battery is ingested through the aerodigestive tract. Silver, zinc, manganese, lithium, sulphur oxide, copper, brass, mercury, and steel are all different kind of button batteries.

In 1977, a child accidentally swallowed a camera battery, which led to the first case of a foreign-body button battery⁶. Since then, numerous case reports have been written about button batteries in the ear, nose, and esophagus. However, there are few reports of long-term effects from using a button battery in the nose.

We depict a case of a 6-year-old child with an incidental finding of button battery in the nasal cavity. Corrosion of battery caused by moisture in the nasal cavity results in the release of its contents. It may result in liquefactive necrosis and a severe local tissue reaction. In our patient, button battery made no harm the nose curiously. There was only local congestion of the nasal mucosa after it had been in the nose for one year. Almost certainly, the leftover voltage of the battery was lessened.

Mucosal damage, fibrosis followed by contraction, perforations of septum, and external nasal deformity are all potential outcomes of button battery use. The likelihood of complications like septal perforation increases with battery insertion and removal time. The orientation of the battery's anode post or cathode post is also cited as a key factor (cathode shaft harms less than the anode shaft). The volume of nasal secretion might also have a role².

The following four potential mechanisms of button battery injury have been thoroughly investigated in animals⁷:

1. Toxic materials discharged (e.g. silver, zinc, mercury, or lithium)
2. Local current burn: when an electrical circuit is lodged in the aerodigestive tract, the damage typically occurs on battery's anode shaft.
3. Chemical leak that resulted in burns and injury.
4. Necrosis under tension from a foreign body that has been impacted.

Damage to the nasal mucosa has been reported as early as 3 hours after exposure, while damage leading to perforation has been reported as early as 7 hours after exposure. Necrosis of the inferior turbinate has also been reported as early as 24 hours after exposure^{8,9}. Intravenous antibiotics and oral anti-inflammatory medications should be administered to patients who exhibit signs of secondary infection, damage to the mucosa, congestion, and granulation. After nasal pack expulsion, nasal irrigation to be done with normal saline. Standard follow-up of patients required to check delayed sequelae and examine the nasal cavity.

CONCLUSION

The rapid tissue damage and electrochemical nature of a battery on nasal mucosa make it dangerous. Management of foreign bodies includes, a complete history, assessment, and radiological examination are essential. The button battery must be removed as soon as possible due to its rapid tissue damage. Nevertheless, we observed that a button battery remained in the nasal cavity for an extended period of time without complication. However, if it is found, it should be removed.

Clinical Significance

There were no complications from an unnoticed button battery in the nose for a year. However, if it is found, it should be removed.

REFERENCES

1. Khode, Shailesh & Gosrani, Nikesh & Rathi, Amitkumar & S.K.T., Jain. (2013). BUTTON BATTERY - AN UNWITNESSED CAUSE OF BATTERED NOSE. *Journal of Evolution of Medical and Dental sciences*. 2. 9335-9338.
2. Loh WS, Leong JL, Tan HK. Hazardous foreign bodies: complications and management of button batteries in nose. *Ann Otol Rhinol Laryngol*. 2003; 112: 379-83.
3. Palmer O, Natarajan B, Johnstone A, Sheikh S. Button battery in the nose-an unusual foreign body. *J Laryngol Otol*. 1994; 108:871-2.
4. T. L. Litovitz, "Battery ingestions: product accessibility and clinical course," *Pediatrics*, vol. 75, no. 3, pp. 469-476, 1985.
5. V.Y.W. Lin, S. J. Daniel, and B. C. Papsin, "Button batteries in the ear, nose and upper aerodigestive tract," *International Journal of Pediatric Otorhinolaryngology*, vol. 68, no. 4, pp. 473-479, 2004.
6. Satvinder Singh Bakshi, V. Nirmal Coumare, Madhu Priya, Sithananda Kumar, Long-Term Complications of Button Batteries in the Nose, *The Journal of Emergency Medicine*, Volume 50, Issue 3, 2016, 485-487.
7. Rajeev Jarugula, Tavey Dorofaeff. Oesophageal button battery injuries: thing again. *Emergencies medicine Australasia*. 2011; 23:220-3.
8. Merih Onal, Gultekin Ovet, Necat Alatas, "An Asymptomatic Foreign Body in the Nose in an Eighteen-Year-Old Patient: Button Battery", *Case Reports in Surgery*, vol. 2015, Article ID 129851, 3 pages, 2015.
9. M. C. F. Tong, C. A. Van Hasselt, and J. K. S. Woo, "The hazards of button batteries in the nose," *Journal of Otolaryngology*, vol. 21, no. 6, pp. 458-460, 1992.