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Nosey Toddlers and Tiny Battery: A Sticky Situation Unveiled

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ABSTRACT

The incidence of insertion of foreign body in the nose in pediatric age group is very common. Button batteries are unusual and dangerous foreign bodies seen in the nasal cavity. If left untreated for longer time, it can cause severe nasal mucosal damage because of the harmful chemicals present in them. We are a presenting one such case of 3-year-old boy with insertion of button battery. Radiograph showed evidence of a button battery in the left nostril. The child was immediately shifted for the OT procedure and foreign body removed endoscopically with no complications.

Keywords: Button battery, chemical, foreign body.

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INTRODUCTION

Foreign bodies in the nose are a common entity as an emergency in ENT practice. Paediatric age group have a tendency to get attracted by small objects like button batteries, coins, seeds, paper, cotton etc. Foreign bodies in the nose usually goes unnoticed unless the patient develops complications.[1] Button batteries are easily accessible to kids as they are used in toys, video games, watches etc. Button battery as a foreign body in nose pose a hazard to the patient which may lead to extensive tissue damage by spontaneous electrolyte leakage and chemical burns which leads to synechiae formation, pressure necrosis, scarring, atrophy, septal perforation and saddle nose deformity. Herein, we report a case of button battery in the nose which was successfully removed endoscopically.

CASE REPORT:

A mother with a 3-year-old male baby came to casualty with the complains of left side nasal foreign body insertion by baby 6 hours ago. The patient had achieved all developmental milestones. They had already visited 3 local hospitals and attempt to remove the button battery was made but was unsuccessful.

On anterior rhinoscopy, the mucosa of the left nasal cavity was congested with mucoid discharge present. X-ray skull AP/Lateral view was taken and round shape circular radio opaque foreign body in left nasal cavity was seen. (Figure 1).

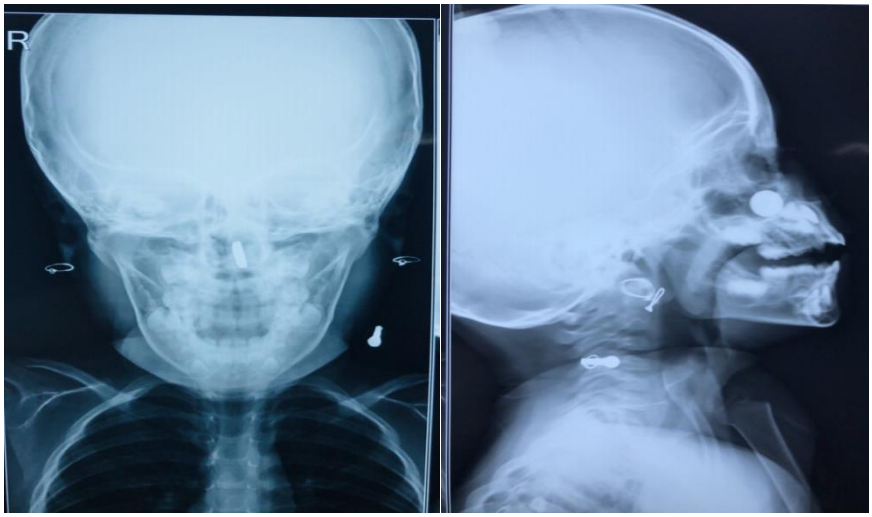

Figure 1: X-ray skull AP/Lateral view showing radio opaque foreign body in left nasal cavity.

Patient was admitted and taken to the emergency OT under IV sedation. With the aid of 0 degree endoscope, the mucoid discharge was suctioned out from left nasal cavity and a button battery surrounded by crusts was visible which was stuck between the middle turbinate and the septum (Figure 2). It was removed using Wire Vectis and Blakesley forceps (Figure 3). The cartilaginous part of the septum was necrosed and had corrosive changes. However, there was no perforation or bleeding. Left nasal cavity was packed with antibiotic soaked ribbon

gauze and the child tolerated the procedure well. The child was started with intravenous antibiotics and analgesics. The nasal pack was removed after 24hours and was discharged on the next day with oral medications and saline nasal spray. The patient was told to follow up after a week. On follow up of 2 weeks extensive crusting within left nasal cavity was noticed. It was cleared endoscopically, after which mucosal healing was noticed.

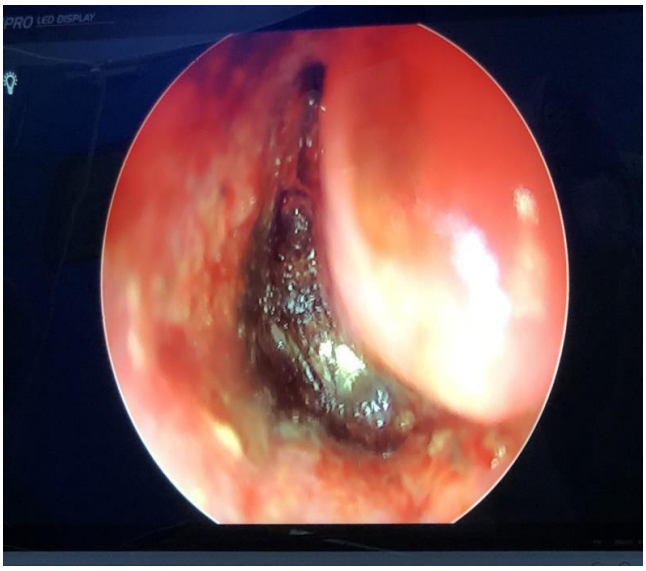

Figure 2: On Endoscopic visualisation, the button battery surrounded by crusting present which was stuck between the septum and middle turbinate.

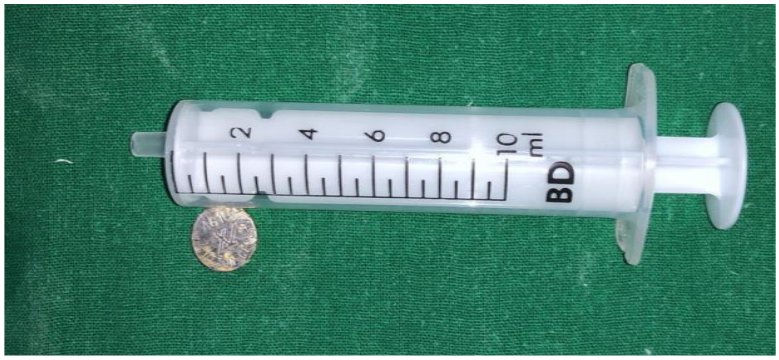

Figure 3: The button battery removed from left nasal cavity.

DISCUSSION:

The first reported case series of button batteries in the nasal cavity could be traced back in 1986.[3,5] Children ranged from 0 to 5 years old with peak incidence between age 1 and 2 years old have a tendency of insertion of foreign body in ear and nose and ingestion in the oral cavity.[3,4] The shiny properties of the button batteries attract the children.

Button batteries contain mercury, silver, zinc, manganese, cadmium, lithium, sulphur oxide, copper, brass or steel. These are the components of the anode, cathode and case containing the battery. Button batteries also contain sodium hydroxide or potassium hydroxide to facilitate the electrochemical reaction through the separator.[7] The button battery in the nose may be misdiagnosed as a coin which leads to the delay in the intervention.[4,6,8]

The accidental insertion of button battery in the nose is often unwitnessed which leads to delayed presentation to the hospital and complications like local infection, nasal septal perforation, nasal meatal stenosis and structural deformities. [6,10]

Four proposed mechanisms accounted to mucosa injury include: (1) pressure necrosis (2) sodium hydroxide leakage from the battery content (3) electrical discharge and (4) toxic heavy metal absorption [3,5,7]

Nasal button battery impaction may produce nasal mucosa, turbinates and septal ulceration in as little as in 3 to 6 hours, hence it is an emergency intervention. Necrosis of the inferior turbinate occurs at 24 hours.[7]

Most of the foreign bodies can be seen on anterior rhinoscopy but occasionally because of nasal secretion, crusting, mucosal oedema or granulation, it is not visualized. Visualized foreign body is usually removed in outpatient department provided patient is cooperative. In our case, foreign body was not visualized on anterior rhinoscopy examination and needed X-ray investigation to localize the battery which is confirmatory and indicates the exact site of foreign body in the nasal cavity. Button cells have a characteristic appearance on radiography: they have a bilaminar structure; so, they appear as a double ring or halo (double density) on anteroposterior view and a step-off at the separation between the anode and cathode on lateral view.[6]

Management usually depends on detailed history taking, physical examination, radiological and blood investigation and diagnostic nasal endoscopy. It is very important for parents to observe their children properly for early detection to reduce the chances of complication such as septal perforation. In the literature, most authors agree with the need for urgent removal of batteries lodged in the nasal cavity. Some authors emphasized that unskilled attempts to remove the foreign body in the emergency department or by personnel without appropriate training, may result in disaster. The foreign body may be displaced backward and may even reach the nasopharynx with risk of inhalation.

There is some evidence that the use of saline or vasoconstrictors may provide electrolytes that increase the necrosis from button batteries. Thus, when a button battery is suspected to be present in the nose, saline or vasoconstrictors should not be instilled.[7]

Regular follow up is essential to assess any long-term complications like septal perforation, nasal synechiae, mucosal ulceration and necrosis etc. Since this condition is more common in children, parents should be educated about its potential hazards. Devices using such batteries should be kept out of reach from the small children.[6]

Patients with evidence of secondary infection, mucosal damage, congestion and granulation should receive antibiotics and oral anti-inflammatory drugs. After removal of nasal pack, nasal cavity should be irrigated at regular interval. All patients require regular follow up visit

for examination of nasal cavity and watch for any delayed sequelae. The clinical presentation of unilateral nasal discharge in children should never be neglected. Foreign body in the nasal cavity should always be kept in mind as differential diagnosis

CONCLUSION:

Foreign body in nose is a common presentation in ENT practice. Button battery in nose is an ENT emergency and should be treated as a deleterious foreign body due to the large potential for local damage and severe mucosal injuries. The most effective management strategy is prevention of insertion of button battery. We would like to accentuate the need for tutoring parents and health care providers about the perils of the button batteries and the time span of insertion or ingestion so an effective strategy can be made to prevent venturesome complications.

DECLARATION OF PATIENT CONSENT:

The authors certify that they have obtained all appropriate patient consent forms. In the form, the legal guardian has given his consent for images and other clinical information to be reported in the journal. The guardian understands that names and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

CONFLICTS OF INTEREST:

There are no conflicts of interest.

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