

Nasal Septal Perforation Due to Button Battery – A Case Report

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Abstract: *Nasal septal perforation is a complete interruption of mucosal and cartilaginous tissues of the nasal septum. Septal perforations are common due to local trauma and as a complication of nasal surgeries and few systemic diseases like syphilis. Foreign bodies in nose are not uncommon and are more common in children. A button battery in the nose is an unusual foreign body and causing septal perforation is a rare entity. Button batteries are used in many electronic devices and toys. Its small size makes them attractive to children. Being small, they can be easily inserted into oral cavity and nose, as foreign bodies where its battery substances can cause liquefaction necrosis by contact with the human moist tissue in a fast period of time resulting in tissue necrosis followed by perforation. Here we present a case report of a nasal septal perforation in a male child with nasal septal perforation 15 days after the insertion and removal of the foreign body.*

Keywords: button battery, nasal septum, perforation, pressure necrosis, corrosive damage

1. Case Report

A 6 year old male child presented to our Otorhinolaryngology Out Patient department with complaints of foul smelling discharge from left nasal cavity and crusting and nasal obstruction of the left nasal cavity. On examination left nasal cavity has greenish crusts and foul smelling discharge in both nasal cavities upon removing of the nasal crusts there is a perforation of the cartilaginous part of the nasal septum noted. The discharge sent for microbiological analysis and nasal toilet given. The left inferior turbinate was subtotally destroyed anteriorly and leaving the posterior half of turbinate only. The patient was kept under intravenous antibiotic coverage and retrospective history given that there was insertion of button battery in left nasal cavity which was removed by an ENT surgeon 15 days back under general anaesthesia and he was discharged same day.



Figure 2: Button battery which was removed from the left nostril 15 days back

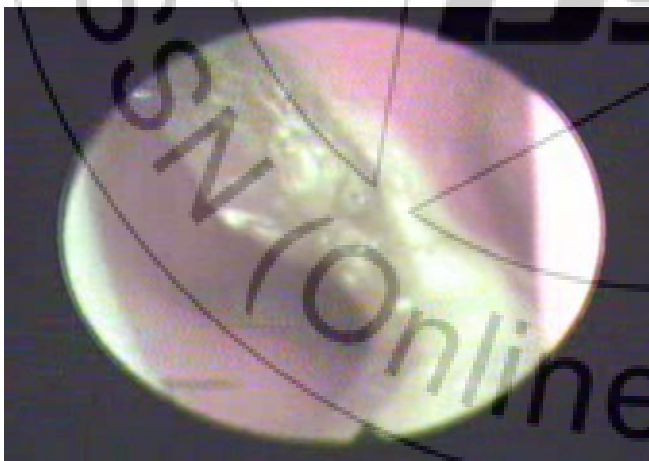


Figure 1: showing nasal septal perforation

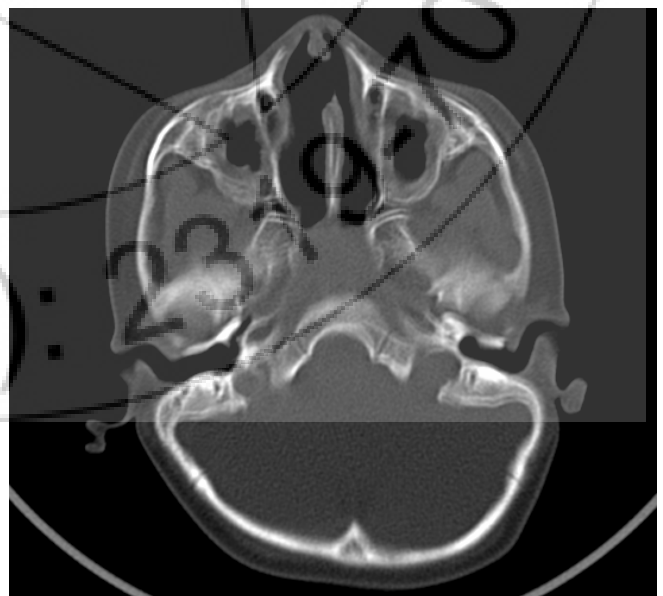


Figure 3: CT scan axial cut showing cartilaginous septal discontinuity

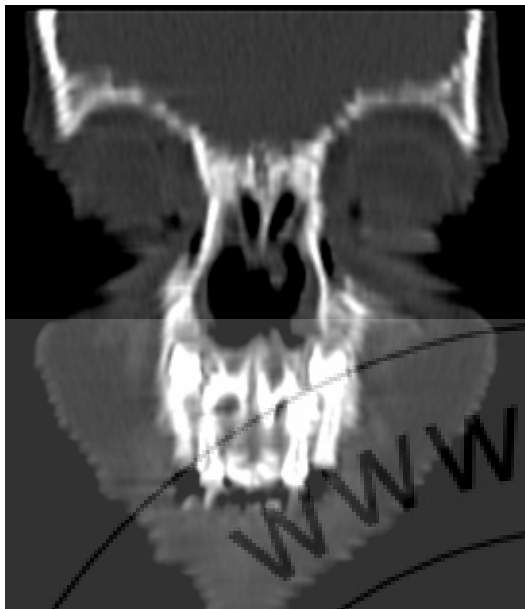


Figure 4: CT PNS coronal cut showing cartilaginous septal perforation

2. Discussion

Foreign bodies in the nasal cavity of children are not uncommon. The nose is easily accessible by reason of its location on the face. Foreign body insertion into the nasal cavity is common among children, psychiatric patients and mentally challenged individuals most common types of foreign bodies found were plastic toys, and beads, as well as peanuts, seeds, snacks, paper, batteries and so forth. Foreign bodies in nose generally do not pose largely on some occasions they may pose a challenge for removal to otorhinolaryngologist. Alkaline button batteries are having widespread usage in many small electronic devices, including hearing aids, calculators, watches, cameras and electronic games. The batteries are capable of rapid tissue destruction on contact with moisture, as a result of leakage from the battery seal. They consist of a metal anode (generally zinc) and a metal oxide cathode (mercury oxide, silver oxide or manganese dioxide) separated by a strong alkaline solution of 45 per cent potassium hydroxide or sodium hydroxide. The alkaline disk battery clearly stands out as one of the most dangerous nasal foreign bodies encountered in literature^{1,2,4}

The most important factor for complications is the time interval between insertion and removal of the foreign body³, the orientation of the battery in the nasal cavity and the surface in contact with the negative pole (anode), more likely, is what causes damage. Hence, nasal septal perforations occur when the negative terminal is in contact with the septum³.

The causes of the tissue damage is^{1,5}

1. Leakage of battery content with direct corrosive damage;
2. Direct current effect on the mucosa and;
3. Pressure necrosis.

When both the surfaces comes in contact with nasal cavity electronic circuit completes and causes tissue damage. In this case patient presented to our department after 15 days of

button battery removal from the left nostril with complaints of foul smell discharge and left nasal obstruction upon examination there is a destruction of cartilaginous septum and crustation found. Nasal toilet given and this case further illustrates the danger of button batteries when in contact with human tissues.

3. Conclusion

We have highlighted the button batteries are one of the aetiology for the nasal septal perforations and stressed the importance of early recognition and treatment of such foreign bodies because the occurrence of complications such as septal perforation increase as the battery remains for a long time in the nasal cavity, sufficient removal of it is necessary along with continuous follow-up and treatment. Education based on the dangers that follow battery foreign bodies in children will be needed.

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