



## AN INTERESTING CASE OF LONG STANDING IMPACTED BUTTON BATTERY CAUSING SEPTAL PERFORATION AND DEFORMITY

### Medical Science

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### KEYWORDS

Button battery , Foreign body ,Septal perforation , Saddle nose

#### INTRODUCTION –

Button batteries usage in electrical devices like toys, watches, calculators etc has significantly increased in recent times and due to their easy availability and small size, these batteries can be very easily inserted by small children in the nose. A nasal button battery is an otorhinolaryngological emergency as it can lead to severe damage, necrosis, and perforation of the nasal septum, intranasal synechia , and nasal deformity<sup>[1]</sup>. Button batteries should ideally be removed in a controlled setting under general anesthesia if they cannot be removed in the outpatient department. We hereby report this case to advocate that button battery in the nasal cavity is a serious condition and can lead to grave complications like nasal synechia, granulations , septal perforation further causing saddle nose deformity.

**CASE REPORT –** A 5 year old child presented with complaint of right sided nasal obstruction since past 2 months which was continuous and progressive in nature , later the child developed right sided nasal discharge which was foul smelling and blood tinged . Patient also had history of fever 7 days prior to admission which was intermittent low grade not associated with chills and rigors. No history of foreign body was given by parents.

**Local examination -** On anterior rhinoscopy there was foul smelling blood tinged mucopurulent discharge filling right nasal cavity, after suction cleaning greenish black hard mass was found blocking lower part of nasal cavity right side covered with granulation tissue.

As the child was un cooperative and very irritable , child was taken up for endoscopic exploration of right nasal cavity under GA , endoscopy was done, right nasal cavity was found to be filled with blood tinged mucopurulent foul smelling discharge ,suction cleaning was done greenish hard object was visualized between inferior turbinate and septum surrounded by intense granulation tissue fresh bleed was present on probing, after maintaining the hemostasis and removing the granulation tissue the hard object was found to be impacted button battery . Button battery was removed under vision, hemostasis secured by putting diluted adrenaline soaked merocel , septum was found to be eroded the approximate dimensions of defect were 1\*1 cm ,maxillary crest was found to be partially eroded. Multiple synaechie were present superiorly which were broken. Nasal cavity was irrigated with saline wash. Bilateral anterior nasal packing was done with merocelle to prevent bleed and adhesion formation. Post operatively IV antibiotics were started , packs were removed 3<sup>rd</sup> post operative day, after pack removal septal perforation was visualized multiple raw areas were present between inferior turbinate and septum and around the margins of perforation, local antibiotic ointment was applied and patient was discharged and followed up for one month every week. On follow up nasal endoscopy showed well healed nasal mucosa, perforation persisted. The child developed saddle nose deformity later on.



**Figure-1** Endoscopic view of left sided nasal cavity showing septal perforation.



**Figure 2- Button battery being removed**

**Figure 3- Discharged eroded button battery**

#### DISCUSSION –

Impacted button battery is an emergency and should be handled at the earliest. Button batteries can be easily visualized in the plain X-ray lateral view of nose as radio opaque round objects. Button cells have bilaminar structure; so they appear as a double ring or halo (double density) on antero-posterior view and a step-off at the separation between the anode and cathode on lateral view.<sup>[2]</sup> Destruction of nasal mucosa and septal cartilage caused by button battery depends on the duration it remains in situ, the site at which the battery is lodged, size of the battery, its power, and whether the battery is old or new . Button batteries can cause mucosal and septal ulceration in 3-6 hours with inferior turbinate necrosis in 24 hours.<sup>[3]</sup> Long standing button batteries can lead to devastating complications like septal perforation, necrosis of nasal mucosa, nasal synechia due to erosion of the battery, alkaline fluids are released from the battery which cause liquefactive necrosis and further sequelae.<sup>[4]</sup> In our case the button battery had eroded and the chemicals released in turn eroded the nasal septum leading to septal perforation granulations in right nasal cavity and exposed maxillary crest and palatine bone. After identifying the foreign body it should be removed immediately in outpatient/ emergency department. After removal of the impacted button battery copious irrigation with saline solution should be done in order to remove any alkaline precipitates leaked out of the battery.<sup>[5]</sup> Intranasal stents can be placed to prevent adhesion and synechia formation due to severe necrosis. Regular follow up is essential to assess any long term complications like septal perforation, nasal synechia, mucosal ulceration and necrosis etc.

#### CONCLUSION -

Long standing button battery in the nasal cavity is a otorhinolaryngological emergency as it can cause extensive tissue damage and complications. Any child presenting with unilateral foul smelling nasal discharge should be suspected for foreign body and should be given prompt medical attention ,because if it is a button battery it would cause child long term sequelae. Therefore detailed history and examination should be done, followed by radiological investigations in case of posterior located objects and after removal importance of long term follow up should be stressed upon. Prevention is the best management hence , parents should be educated about its potential hazards. Devices using such batteries should be kept out of reach from small children.

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