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Foreign body impaction of the hard palate:

Tabletop party confetti mimicking button batteries in two infants

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RP and TH conceived the project; RP, AD, TH and SD designed the work; TH and RP acquired and analysed data; RP drafted and revised the manuscript; RP, AD, TH and SD provided further revisions to the manuscript; all authors approved the final manuscript; TH agrees to be accountable for all aspects of the work

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ABSTRACT

We present the first two cases in the literature of tabletop party confetti mimicking button batteries in two infants. Both patients presented to the Emergency Department with an incidentally noticed shiny, metallic appearing, disc shaped foreign body impacted in the hard palate. Both objects were understandably misdiagnosed as button batteries. The first patient required foreign body retrieval by ENT under general anaesthesia whilst the second underwent retrieval safely in the Emergency Department. Tabletop party confetti should be considered in patients presenting with a suspected button battery impaction of the hard palate, which will drastically change the approach to clinical management and potentially minimise harms.

Keywords: Palate, Hard; Foreign Bodies; Electrical Equipment and Supplies; Diagnostic Errors; Emergency Service, Hospital

BACKGROUND

Button battery (BB) foreign bodies (FB) are frequently encountered by emergency physicians and otolaryngologists due to impaction in the ears, nose and proximal oesophagus.^[1] They are treated urgently due to their ability to corrode and destroy surrounding tissues.^[2] This may be fatal in the case of an oesophageal perforation.^[3]

Hard palate FBs are rarely encountered and often misdiagnosed as inflammatory or neoplastic lesions.^[4] We present the first two cases in the literature of tabletop party confetti impaction of the hard palate mimicking BBs. These cases highlight the importance of differentiating FBs of the hard palate, which will drastically change initial clinical management approach strategies.

CASE PRESENTATION

Case 1

A 10-month-old female presented to the emergency department (ED) after her mother incidentally noticed a shiny, circular, silver coloured FB impacted in the roof of her mouth. She had been eating and drinking in the days preceding presentation. Vital signs were within normal limits. There were no airway, breathing or circulation concerns. Oral cavity examination revealed an approximately 1cm circular, shiny silver coloured, seemingly metallic FB impacted in the hard palate with surrounding mucosal oedema around the edges of the FB. The FB was firm to palpation. The clinical diagnosis was an impacted BB. No attempts were made to remove it by Emergency Physicians (EP) due to appropriate concerns over immediate post-procedural bleeding into the airway or dislodging the FB into the larynx. A tertiary paediatric otolaryngology consultation was requested and the patient was transferred via ambulance urgently to the tertiary paediatric centre. X-ray evaluation was omitted at both the referring and receiving units to save time and because the FB was clearly visible in the mouth (although lack of infant cooperation restricted access). The patient was assessed by the duty otolaryngologist and taken immediately to the operating theatre for retrieval. The patient was anaesthetised and ventilated via a nasopharyngeal airway. The FB was retrieved (figures 1 and 2) using curved Negus forceps and a naso-pharyngo-laryngoscopy revealed no other abnormality. There was no evidence of bleeding or naso-palatal fistula. The FB transpired to be a flat, tabletop party confetti disc with a silver metallic

appearance (figure 3). A post-operative chest x-ray did not reveal any concurrent FBs. The patient was discharged the following morning.

Case 2

A 1-year-old female presented to the ED in an identical manner to case 1. The clinical diagnosis was again a hard palate impacted BB (figure 4). This time, several attempts were undertaken by the EPs to remove the FB using mosquito forceps but these were unsuccessful. This was most likely due to the suction effect created by the pressure of the FB against the hard palate as well as the surrounding mucosal oedema. Therefore, an emergency tertiary paediatric otolaryngology consult was requested. Due to the prior case, a lateral soft tissue neck x-ray and local otolaryngology assessment were advised in the first instance. X-ray evaluation did not demonstrate a circular radio-opaque FB in the hard palate (figure 5). This was later confirmed by a Radiologist report. Upon local otolaryngology assessment, the child was swaddled and the distal edge of the FB was found using the end of a wax hook. The FB was subsequently peeled off the roof of the mouth by gentle proximal traction resulting in successful retrieval. Care was taken to avoid inadvertent dislodgment into the larynx. The FB was again a disc shaped tabletop party confetti piece. Re-examination of the oral cavity revealed no bleeding or palato-nasal fistula. The patient was discharged from the ED without complication. Both children were recommended for health visitor review in the community as per standard safeguarding protocol.

OUTCOME AND FOLLOW-UP

At 1 year follow up, neither patients developed any short or long term complications.

DISCUSSION

Both of our cases presented identically with an incidental finding of a shiny, silver, disc FB impacted on the roof of the mouth. Both were found to have significant mucosal oedema surrounding the FB suggesting impaction for a prolonged period of time or severity due to pressure effect. The salient point in the history was that neither child was in obvious pain or refusing food and drink, which would be expected with BBs known to cause caustic burns. Neither FBs had either an inscription on them or an inner rim, which produces the BB halo sign on X-ray imaging. However, endoscopic evaluation demonstrated scratches on the surface, which seemed to accentuate the metallic appearance.

The first case did not undergo X-ray evaluation whilst the second did. This was useful in differentiating the cause of this unusual presentation. The X-ray in the second case did not demonstrate a circular radio-opaque foreign body with a halo sign, which made a BB less likely in the differential. Tabletop confetti is made from metallised polyvinyl chloride (PVC), a synthetic plastic polymer. It is not clear from the literature how radiopaque this material is.

The management of each case was very different. The first case was transferred via blue light ambulance from a district general to a tertiary paediatric hospital. They were managed in theatre under a general anaesthetic by ENT as a surgical emergency. The second case was managed conservatively in a secondary care hospital ED without sedation or anaesthesia and discharged almost immediately after FB retrieval. The management of the second case prevented the need

for urgent ambulance transfer to a tertiary hospital, specialist paediatric anaesthetic and otolaryngology consultation, general anaesthesia and ultimately reduced parent anxiety.

To our knowledge there have been no prior reports of BB impaction of the hard palate misdiagnosed in the presence of tabletop confetti. Furthermore, a review of the literature did not identify any cases of hard palate impacted BBs. However, one case report described party confetti impaction of the hard palate misdiagnosed as a cleft palate.^[5]

LEARNING POINTS/TAKE HOME MESSAGES

We present the first two cases of tabletop party confetti impaction of the hard palate misdiagnosed as BBs. Lessons learned include:

- History is key – suspect an alternative diagnosis to button battery impaction in a well child who is eating and drinking
- X-ray evaluation is helpful
- Use of simple instruments can successfully retrieve the impacted FB
- Referral to local otolaryngology services in the first instance may help to preserve healthcare resources.

This case series follows 2013 CARE guidelines (<https://www.care-statement.org/checklist>), the patient's mother wanted to share our team's insights from their child's treatment with the medical community. Informed Consent was provided.

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FIGURE CAPTIONS

1. Figure 1. An endoscopic image of the FB impacted in the hard palate
2. Figure 2. An endoscopic image demonstrating a circular impression remaining in the hard palate due to significant mucosal oedema following retrieval of the FB
3. Figure 3. The FB was identified as a piece of shiny tabletop party confetti measuring 1.4cm
4. Figure 4. The hard palate FB can be clearly visualised on examination of the oral cavity
5. Figure 5. A lateral soft tissue neck x-ray, which fails to demonstrate a FB in the hard palate consistent with a BB