

**CASE REPORT**

## Tongue Entrapment in a plastic bottle in a young boy: a case report

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**ABSTRACT**

Tongue entrapment is a comparatively uncommon cause of tongue trauma. The anterior third of the tongue is the region of the tongue that is most often injured. Entrapment in a bottle is a rare presentation of tongue injury that happens most often in school-aged children. The process

for tongue trapping known so far is due to a vacuum reaction. Several approaches have been used to alleviate the pain of the injured child, monitor the progression of tongue edema, and protect the endangered airway. We depict a case of a young boy's tongue being entrapped in a plastic bottle and the procedure used to extract it.

**INTRODUCTION**

Tongue entrapment in a bottle is a rare phenomenon in the scientific literature.<sup>(1)</sup>It is a very uncommon childhood mishap that can lead to tongue edema and associated vascular complications. Threatened airway is the most dreaded complication of tongue entrapment. The management of this emergency includes airway safety and an innovative approach to safely release the tongue from the compressing site without exacerbating or injuring the patient.<sup>(2)</sup> We report a case of a young boy, who presented to the Pediatric emergency department with history of tongue entrapment in a plastic bottle.

**CASE REPORT**

An 8 years old boy, student of class II with no known co-morbid who was received in Pediatric Emergency Department with history of entrapment of tongue in a plastic bottle, while playing with it one hour back at school. Parents initially took him to a local hospital where plastic bottle was cut from the center to visualize the tongue and an attempt was made to remove the bottle, but that resulted in little bleeding from patient's tongue without any success of removal of the bottle, therefore he was referred to our Pediatric Emergency Department. On arrival in Emergency department child was anxious, in discomfort as the plastic bottle was encasing the anterior part of his tongue, well oriented, sitting with his mother.

Child's mouth was open with tongue protruding outside and bottle opening was encasing the middle third of the tongue which was not visible and anterior part of the tongue was swollen/edematous, pale with drooling of saliva and no active bleeding.

At the time of arrival to the Emergency Department, child was vitally stable. Systemic examination was unremarkable. Immediately, an emergency response was generated, although airway was secure, preparations were made for possible emergency tracheostomy or nasotracheal intubation as ENT team and Anesthesia teams were taken on board. Child was provided supportive oxygen via nasal prong. As plastic bottle was already cut from the center, when we received the boy in our Emergency Department, it was easy for us to visualize the tongue and take the necessary steps. Xylocaine gel was applied to the anterior third of the tongue and then, by twisting method after 15 minu-



**Figure 1**

tes the plastic bottle was removed (Fig 1). After removal of the bottle, it was noticed that tongue had swelling and little bleeding from the anterolateral side. Normal saline was used to irrigate the edematous tongue. Bleeding was stopped by application of pressure with sterilized gauze. Intra venous analgesics and dexamethasone was administered. Child was kept under observation as there was tongue edema, however, intubation was not required and during the stay in the Emergency Department. Family was counselled that tongue swelling will subside in a few days and danger signs were explained such as recurrence of bleeding, difficulty in breathing, in which case the child should be brought back to the Pediatric Emergency department. Patient was discharged on analgesics, antibiotic and local application of xylocaine gel. Follow up in Emergency clinic was given after 48 hours. After 48 hours, patient had regained normal tongue movement, edema had settled and there was minimal pain on eating.

## DISCUSSION

Tongue entrapment is a rare cause of injury to the tongue. To date, some cases have been reported previously in the literature.<sup>(1-10)</sup> To the best of our knowledge, only few cases have been reported of tongue entrapment in a plastic bottle. Anterior third part of the tongue is the most affected part of the tongue that is commonly injured.<sup>(3)</sup> Various methods have been applied for the removal of the bottle, and relieving the pressure effects on the tongue. <sup>(1-6)</sup> However, in most of the cases, it was seen that application of lubricant and traction only led to unsuccessful attempts of removal. <sup>(4-5,9)</sup> This was possibly because in our patient, the bottle was made of plastic, where as in most of the cases, tongue entrapment was mainly in a bottle with a metal body.<sup>(4,5)</sup> In one case report, the bottle had a brass ring at its mouth for which procedural sedation was required and ring cutters and retractors were used.<sup>(7)</sup> It was also noted that this accidental injury was mainly in children of school going ages 7 to 10 years <sup>(5)</sup>, similarly the age of our patient was 8 years. Chad W et al. and Vinay T. Fernandes et al. reports that possible cause of this accidental trauma could be mainly because the child would be trying to drink the last drop, as a result putting his/her tongue inside the bottle and sucking out air, which in turn creates a vacuum.<sup>(5,9)</sup>

Otolaryngologist should always be present to assess the airway of the patient, as tongue edema, pain or oral secretions could easily compromise the airway and emergency tracheostomy could be required.<sup>(5)</sup> In our case, the child presented early to the ED and he was immediately assessed and management was started, the use of general anesthesia was avoided, in contrast to operating room settings, as discussed by Chad W et al.<sup>(5)</sup>

As the plastic bottle was already cut from the proximal half, as demonstrated in Fig 1 the anterior third of the tongue was visualized. Operating room should always be ready in case of worsening of symptoms especially if there is a high suspicion of airway compromise. Although, in our patient, only the use of lubricant and twisting and traction forces was enough for the removal of the bottle and fortunately it took us minimum time to achieve the desired result, it is mentioned in different case reports that additional services were required, such as the use of a catheter, drilling of holes in the bottle to overcome the negative pressure.<sup>(3-5)</sup> Different cutting tools/drills were also used in some cases.<sup>(4,5,9)</sup>

In such situations, prompt treatment is important because management delay could exacerbate patients' symptoms and cause extreme distress. Also, the sooner the patient comes to you, the better, as it prevents complications such as lingual ischemia as reported.<sup>(2)</sup> While close monitoring might not be required once the patient is discharged home, as reported in other cases<sup>(3,5,9)</sup>, family should be counseled regarding signs of distress in the child, and the need to visit Emergency Department immediately in such circumstances. Once the bottle is removed, edema might persist and the child may not regain full movement of the tongue for some time, in some cases for about a week.<sup>(6,10)</sup>

## CONCLUSION

It is essential that, the Emergency Department should have the appropriate resources and equipment available to deal with such rare presentations. Urgent consult should be given to Otolaryngologist/anesthesiologist and close observation should be done if compromised airway is suspected. Adequate analgesia should be provided in the Emergency Department and the use of steroid should be considered as it helps to alleviate the pain and edema. Finally, we recommend that parents purchase a wide-mouthed bottle for their children to avoid such accidents.

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