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## MANAGEMENT OF IMPALEMENT INJURY IN A 4 YEAR OLD CHILD

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### ABSTRACT

Impalement injuries of the soft palate and oropharynx are common in children, especially those of preschool age. These injuries are particularly common in toddlers, given their propensity to fall easily while carrying objects in their mouths. Although most of these injuries do not have lasting sequelae, some can have devastating neurological complications and consequently, careful assessment of the patient during the early stages of trauma is imperative. Close follow-up for up to 72 h, and parental counseling and instruction should be considered as part of their immediate care. This paper presents a case of impalement injury of the soft palate in a 4 year old girl and its management.

**KEYWORDS:** Impalement injury; laceration of soft palate

### INTRODUCTION

Impalement injuries of the oropharynx and particularly of the soft palate are relatively common in children. Children frequently run around with objects in their mouths. Left unsupervised, they may fall and suffer minor oropharyngeal trauma.<sup>[1]</sup> The mean age of patients presenting with impalement injuries has been reported as being under 4 years of age. Males are two to three times more likely to be involved than females. The most common objects causing impalement injuries in children are sticks, pens/pencils, cylindrical toys, and straws. Sticks were implicated in 25% to 30% of the cases reviewed. Even toothbrushes have been reported to be the cause of injury in young children.<sup>[2]</sup> Literature reveals that most of these injuries may be managed by conservative approach followed by observation since the initial symptoms are limited with few further complications.<sup>[3]</sup> Though innocuous in appearance, for a small proportion of

children, these type of injuries can result in several complications requiring active management, some of which are potentially life-threatening.<sup>[1]</sup> However, due to the paucity of such events there is no evidence base or clear, accepted consensus on a particular management protocol for these injuries.<sup>[3]</sup> The present report describes the case of a 4-year old child managed by surgical intervention under general anesthesia.

### CASE REPORT

A 4-year old female patient accompanied by the parent reported with the chief complaint of cuts and ulcers in the mouth since a day, associated with difficulty in swallowing food. History revealed that the child encountered trauma to the palate when she was playing with sharp jowar stick. While she was placing it in mouth & hit to a wall which pierced into the soft palate area resulted in a laceration. On examination, patient was conscious, no neurological problems were seen. But there was significant clotted blood and mucus in the oral cavity. The patient had difficulty in swallowing. However, complete intra-oral examination was not possible due to the poor patient cooperation. Hence, a decision was taken to complete the examination and treat the child under general anesthesia. The entire procedure and the potential risks of general anesthesia were explained to the parent and informed oral and written consent were obtained. Intra oral examination revealed a deep laceration evident at the junction of hard & soft palate approximately 1.5x2 cm in size. Floor was covered with slough (Fig. 1). There were no signs of similar injuries to adjacent soft tissues and palpation revealed no foreign body impalement. The wound was debrided, cleaned with betadine antiseptic solution. The mucosal tear was deep and seemed to warrant the need for approximation of the tissue ends by suture placement. Hence, a number 4-0 vicryl sutures were placed (Fig. 2). The patient was kept under observation overnight. On



Fig. 1: Deep laceration evident at the junction of hard & soft palate



Fig. 2: After suturing



Fig. 3: One month post-operative picture

discharge, she was given a 5-days course of antibiotics and analgesics. Instructions were given to the parents to observe the child for 48-72 hour and to report back if any problems were found and also to follow a soft diet for 7 days. The patient was reviewed after a week and a month post operatively. The mucosal defect had healed well with no inadvertent postoperative symptoms (Fig. 3).

#### DISCUSSION

Impalement injuries of the oropharynx and particularly of the soft palate are relatively common in children. However, young children, particularly toddlers, are most involved in these types of injuries. Children frequently run around with objects in their mouths. Left unsupervised, they may fall and suffer minor oropharyngeal trauma.<sup>[1]</sup> The mean age of patients presenting with impalement injuries has been reported as being under 4 years of age. Males are two to three times more likely to be involved than females.<sup>[2]</sup> The most common objects causing impalement injuries in children are sticks, pens/pencils, cylindrical toys, and straws. Sticks were implicated in 25% to 30% of the cases reviewed. The mechanisms of injury in decreasing order of frequency are a) falling on an object carried in the mouth; b) direct force applied to an object being held in the mouth; c) falling or running into a stationary object with the mouth open.<sup>[3,4]</sup> The mechanism of injury in the present case seems to

fall into the second category. Management of impalement injuries in children includes complete examination to note signs or symptoms of the following: airway obstruction, uncontrolled hemorrhage, acute infection (e.g. pyrexia, nausea, swelling of the cervical soft tissues), neurological changes (e.g. focal neurological changes, alterations in mental status, nausea, vomiting), gross mucosal tears which may be in need of suturing.<sup>[5,6]</sup> A thorough medical history, followed by careful clinical and radiographic examination along with a sound knowledge of surgical anatomy, pathology and microbiology, will allow the clinician to accurately assess the injuries and the inherent potential risks. The intra oral examination of a young child can be difficult for several reasons:

- The relatively poor access for examination offered by a small oral cavity
- The minimal cooperation
- The distress to a young child following a traumatic incidence may mean the child will no longer cooperate with strangers (i.e., dental or medical personnel) and can resist the attempt to view a traumatized area.

Hence, good visualization and assessment of an intra-oral laceration may often prove difficult. Incomplete examination will give little/no indication as to the depth of the laceration and its degree of penetration through the deeper tissues.

Little indication of the seriousness of the trauma may be evident. Infection can occur through the oral micro-flora that is carried into the deeper tissues with the initial injury or later through the mucosal laceration itself. This can then spread rapidly into the surrounding tissues and have life-threatening consequences.<sup>[5,7]</sup> Since the complete clinical examination was difficult in our case owing to the child's agitated condition and accumulation of blood and mucus over the wound, it called for examination under general anesthesia followed by the mucosal repair by suturing.

#### CONCLUSION

Though the literature highlights the management of impalement injuries on an outpatient setting, Penetrating injuries to the soft tissues of the oral cavity should be considered as potentially serious and should be managed only in a controlled environment. The present case highlights the need of examination in hospital set up under general anesthesia. However, every case should be managed on individual basis. Post-trauma monitoring is essential even if the initial injury appears to be minor, as complications may not manifest immediately. Pediatric dentist should continue to warn parents about the dangers of children playing with objects in their mouths.

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