

Pediatric Penetrating Oropharyngeal Trauma: A Soap Bar?

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Abstract

We report the first case of oropharyngeal trauma caused by a soap bar, an innocuous object used as a method of discipline. A 6 year-old male had a bar of soap placed into his oral cavity after being dishonest with his parents. The patient fell to the ground causing a rather deep laceration to the left tonsillar pillar. There was no neck crepitus and the patient was neurologically intact. Surgical exploration and repair included tonsillectomy and palatoglossus flap reconstruction. This patient was fortunate and suffered no long term complications. Current literature regarding pediatric penetrating oropharyngeal trauma is reviewed. Penetrating pediatric oropharyngeal trauma resulting in severe injury is rare, but the potential for life-threatening complications and neurologic sequelae exist. Re-examination of this method of discipline must be considered, and this can certainly be addressed through parent education in the primary care setting.

Keywords

Pediatric oropharyngeal trauma, Discipline, Penetrating oropharyngeal trauma, Parent education.

Introduction

Oropharyngeal trauma most commonly occurs with children as a consequence of penetrating injury from a foreign body. The average age of injury is 4 years of age, two times more common with males (1). The most common site of injury of the left palate, given a majority of patients are right hand dominant and would hold the offending object in that hand (1). The presentation can vary greatly, from a clear history of oropharyngeal impalement to dyspnea and bleeding from the mouth (2). Rayatt described a lip laceration and undiagnosed left soft palate injury that manifested the following day as hemiplegia and expressive dysphasia from carotid artery thrombosis (3). Child abuse should always be considered; one case of suspected abuse was found only after the child was admitted at another hospital with a spiral femur fracture (2,4).

Most cases of oropharyngeal trauma result from children running and falling with an object in their mouth, causing blunt or penetrating injury. This is the mechanism in our case, although it involves an unusual foreign body as the penetrating object. We present a case of a soap bar, used as a method of discipline, to “wash the mouth” of a child who was dishonest. Pediatricians must be aware of the presentation, management, potential complications, and necessary parent education for oropharyngeal injuries.

Case Presentation

A six-year old male with no significant past medical history presented to a pediatric emergency department with level I trauma services with penetrating injury to the oropharynx caused by a soap bar. This patient's mother tried to discipline him by placing a partially used bar of soap into his oral cavity after he was caught telling a lie. After placement of the soap bar, the patient tried to run away, tripped and fell causing the soap bar to puncture into the left side of his throat. He experienced approximately five minutes of bleeding for an estimated volume 40 mL of blood. No further bleeding occurred. On physical examination, he was in no acute distress with stable vital signs. Oral cavity and oropharyngeal examination yielded a traumatic laceration to the left tonsillar pillar which extended down to the posterior tonsillar pillar (see Figure 1).

The patient was immediately taken to the operating room and the injury was explored further, confirming no extension past the posterior tonsillar pillar. The left tonsil was medialized into the oropharyngeal airway. Due to the obstructive nature of the tonsil, a tonsillectomy was performed. The anterior tonsillar pillar was divided at the lateral aspect and used as a rotation flap to reconstruct the defect (see Figure 2). On follow-up, 4 weeks post-operatively, the patient had no complaints with full recovery from the surgical repair.

Discussion

Oropharyngeal trauma can lead to bacterial invasion of the fascial planes in the neck, causing retropharyngeal infection, abscess, pneumomediastinum, mediastinitis, or subcutaneous emphysema (3). Kosaki reported three of 12 cases of penetrating oropharyngeal injury that were complicated by mediastinal and retropharyngeal infection while receiving prophylactic oral antibiotics (5). Other studies report lower frequency of infectious complication; Hellman reports one case of facial cellulitis among 131 cases (1).

Carotid artery thrombosis is a rare but dangerous complication of oropharyngeal trauma. Compression of the artery between the penetrating object and the transverse process of the second or

third vertebrae during a blunt blow can cause disruptions in the intima of the vessel (6). These small tears in the intima of the carotid artery can lead to thrombosis and propagation or embolism into the cerebral vasculature. Because of the mechanism for neurologic sequelae, manifestations typically follow a “lucid interval” or delay in symptom onset, which can range from three to 48 hours (7).

After completing the initial trauma evaluation, careful physical exam should include observation for extent of injury, neurological status, and palpation for retained foreign body. In our case, the inferior displacement of the left tonsil presented the potential for airway obstruction. The timing of injury should be taken into account as patients can be initially asymptomatic (7). Sekhar reports an embedded pen plug over one centimeter in length remaining in place for three months before extruding, manifesting as unilateral tonsillitis refractory to antibiotic treatment (8).

Imaging studies for evaluation of oropharyngeal trauma remains controversial. Most recommend lateral neck radiography to evaluate for retropharyngeal air or abscess, foreign body, and plain chest radiography for pneumomediastinum (2,4). Computed tomographic angiography has been utilized to assess the great vessels in oropharyngeal impalement injuries (3). However, neurologic sequelae have been found with seemingly innocuous injury (7). Soose evaluated the use of CTA in oropharyngeal trauma and found no correlation with severity of injury (9). With the unpredictability of the development of neurologic injury, CTA as a routine screening evaluation is not always performed, but it is certainly a less invasive alternative to traditional angiography. Carotid angiography with interventions (i.e. balloon occlusion or stenting) or vascular surgical consultation can be considered when suspicion of severe vascular injury is present.

Conservative treatment of oropharyngeal trauma is generally recommended. Prophylactic antibiotics have been used in most cases (1,4,5,9,10). Surgical repair of oropharyngeal lacerations have been more recently reserved for injuries that require exploration for foreign body, hemostasis, repair of large avulsed flaps or through and through injuries of the palate to avoid wound contracture and velopharyngeal incompetence (3,4,11).

Because of the concern for cerebrovascular events, initial studies recommended admission and close inpatient monitoring of all oropharyngeal trauma patients (7). However, the rate of neurologic sequelae is very low. There were no documented events in five recent series involving 363 patients (1,4,5,9,10). Given the infrequency and variability in the time course of presentation, subsequent studies have concluded that with a reliable social structure, most patients can be discharged home with thorough counseling and discharge education (1,4,9,10,11). Patients with retropharyngeal air, emphysema, and

pneumomediastinum are admitted for intravenous antibiotics and close monitoring (5,8).

Parents are instructed to return if the patient develops symptoms of mental status changes, irritability, focal neurologic deficit, nausea or vomiting within the first 48-72 hours of injury. As mentioned earlier, infection can occur even with prophylactic antibiotics; manifestations of mediastinitis, pneumomediastinum, and retropharyngeal infection should be part of discharge education (5). Other recommendations include soft diet for five days and appropriate follow up with a pediatrician or otolaryngologist within seven to ten days from the initial injury (11). Admission is warranted when there is concern for inadequate observation at home or non-compliance with follow-up.

This is the first case report of penetrating soap bar injury to the oropharynx. The discipline of children by “washing the mouth out with soap,” must be re-examined and discouraged, as the potential for serious injury from the soap bar penetration exists. Warning labels on soap bars and caregiver education may help to reduce future injury.

Figures

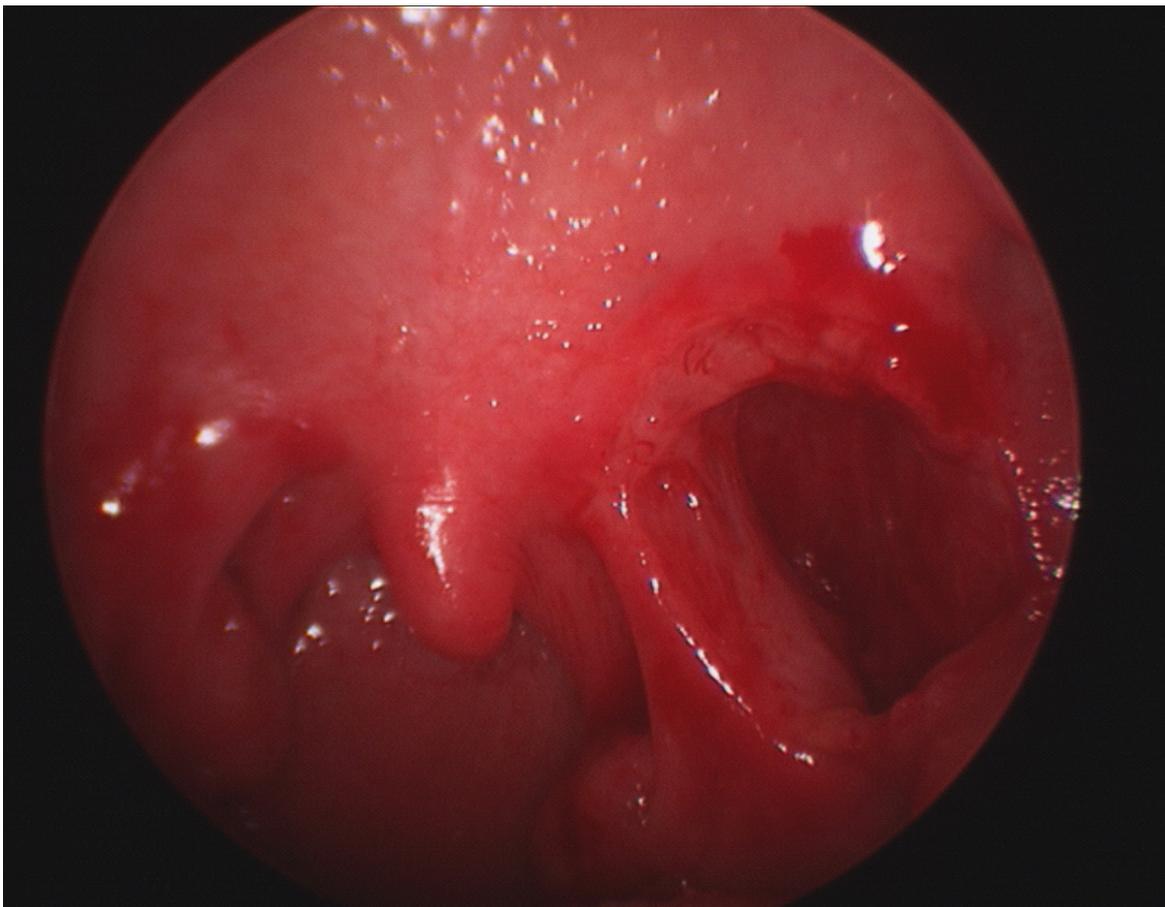


Figure 1: Large cavity caused by penetrating injury to left tonsillar pillar with medialization of left palatoglossus and tonsil.

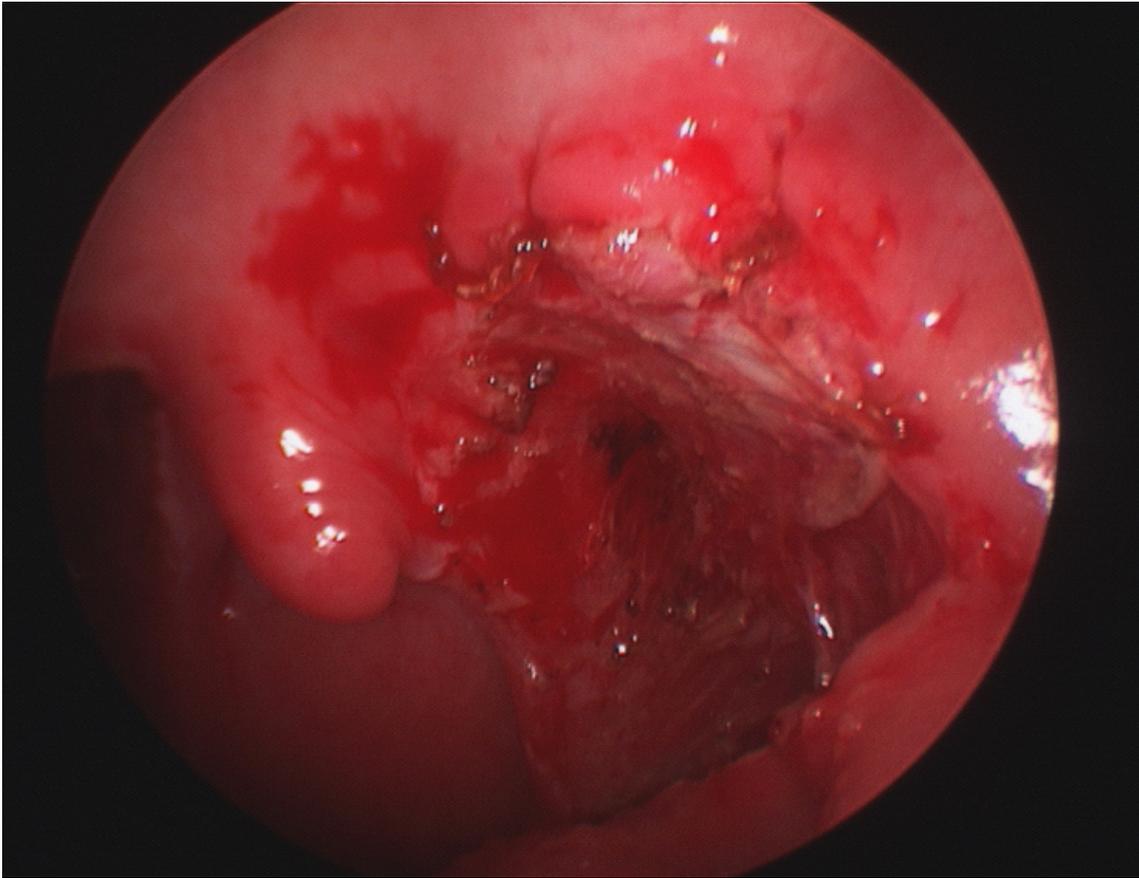


Figure 2: Reconstruction of the traumatic defect following tonsillectomy with palatoglossus rotation flap with the mucosal surface externalized.

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