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A toothbrush impalement injury of the floor of mouth in autism child

CASE REPORT

Ryo Sasaki[1,2], Hiroto Uchiyama[1], Toshihiro Okamoto[1], Kenji Fukada[1], Hideki Ogiuchi[1], Tomohiro Ando[1]

[1]Department of Oral and Maxillofacial Surgery, Tokyo Women's Medical University, School of Medicine, Shinjuku-ku, Tokyo; [2]Institute of Advanced Biomedical Engineering and Science, Tokyo Women's Medical University, Shinjuku-ku, Tokyo, Japan

Abstract – Penetrating injuries in the oral cavity are common in children. However, penetrating injuries with retained foreign bodies are rare. We report a case of a toothbrush impalement injury of the floor of the mouth in a child with autism. A 5-year-old boy with autism presented with an accidentally impaled toothbrush in the oral cavity. He was taken to the operation room and examined under general anesthesia. The handle of the toothbrush was cut off using rib scissors for mask ventilation, and intra-oral intubation was performed. The toothbrush was located approximately 2.5 cm into the floor of the mouth. The toothbrush was removed uneventfully. Intravenous antibiotic therapy was instituted during hospitalization, and discharge from the hospital occurred 4 days after the operation.

Key words: autism; floor of mouth; impalement; penetrating injury

Correspondence to: Dr. Ryo Sasaki; Department of Oral and Maxillofacial Surgery, Tokyo Women's Medical University, School of Medicine, 8-1 Kawada-cho, Shinjuku-ku, Tokyo 162-8666, Japan
Tel.: +81 3 3353 8111
Fax: +81 3 5269 2367
e-mail: sasaki@oms.twmu.ac.jp

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Penetrating injuries in the oral cavity in children are common and are usually able to heal with conservative treatment. However, potentially life-threatening complications may occur, including deep neck infection and carotid injury with subsequent internal carotid thrombosis and stroke (1–3). Penetrating injuries with foreign bodies such as pens or pencils, toothbrushes, chopsticks, or toys in the oral cavity (so-called 'pencil injuries') frequently occur in the soft palate, posterior pharyngeal wall, and tonsils (4–6). Reports of pencil injuries localized to the floor of the mouth in children are very few in number (7). Moreover, pencil injuries with retained foreign bodies in the floor of the mouth in children are very rare. We report a penetrating injury with a retained toothbrush in the floor of the mouth in a boy with autism.

Case report

A 5-year-old boy with autism presented with an accidentally impaled toothbrush in the oral cavity (Fig. 1). He was quickly transferred to our emergency service. Evaluation revealed no active bleeding, indication of airway obstruction, or neurological deterioration. However, adequate examination of his oral cavity was not possible because of his agitation. He was taken to the operation room and examined under general anesthesia. In the operation room, the handle of the toothbrush was cut off using rib scissors for mask ventilation, and intra-oral intubation was performed. The toothbrush was located approximately 2.5 cm into the floor of the mouth (Fig. 2). Based on the depth and insertion angle of the toothbrush, the injured region was considered to be located above the mylohyoid muscle, and thus the patient had no carotid injury. The toothbrush was removed uneventfully, the wound was irrigated, and a penrose drain was inserted and sutured. Intravenous antibiotic therapy was instituted during hospitalization. The drain was removed and the patient was discharged from the hospital 4 days after the operation.

Discussion

Although penetrating injuries with retained foreign bodies in the palate in children have been reported (5, 6),

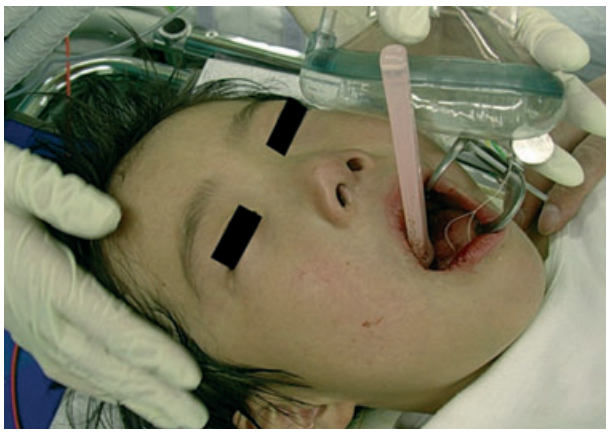

Fig. 1. Impalement of the floor of the mouth with a toothbrush in a child with autism.

penetrating injuries with retained foreign bodies in the floor of the mouth in children are very rare. In this case, adequate examination of the patient's oral cavity and CT were not possible because of his agitation. He was examined under general anesthesia, and the toothbrush was uneventfully removed. It is reported that penetrating injuries localized to the floor of the mouth may develop parapharyngeal space infections (7). Parapharyngeal space infection is a serious medical condition that may lead to potentially fatal complications, including mediastinitis and airway obstruction. The parapharyngeal space is a fat-filled space that extends from the base of the skull to the hyoid bone and communicates directly with the submandibular space anteroinferiorly and the retromandibular space posteriorly (8). Moreover, the submandibular and sublingual spaces communicate at the posterior border of the mylohyoid muscle (8). Therefore, penetrating injuries of the floor of the mouth may easily develop parapharyngeal space infection via the sublingual and submandibular spaces, and this may lead to potentially fatal complications. Chauhan et al. (7) stated that pencil injuries localized to the floor of the mouth may develop parapharyngeal space infections because of the potential for implantation of anaerobic organisms into the floor of the oral cavity by the penetrating object, and even the effect of gravity and exposure of the wound to saliva are contributing factors predisposing to infection of these particular injuries.

Saravanan (9) proposed that patients with penetrating injuries of their oral cavities with life-threatening complications should be carefully observed for the following: bleeding from the site of injury, signs of airway obstruction, nausea or vomiting, pyrexia and the presence of infection at the site of injury, soft tissue swelling, and neurologic changes.

The treatment strategy for penetrating injuries with retained foreign bodies in the floor of the mouth in children comprises evaluation under general anesthesia, foreign body removal, wound irrigation, wound repair, and antibiotic administration to prevent contamination.

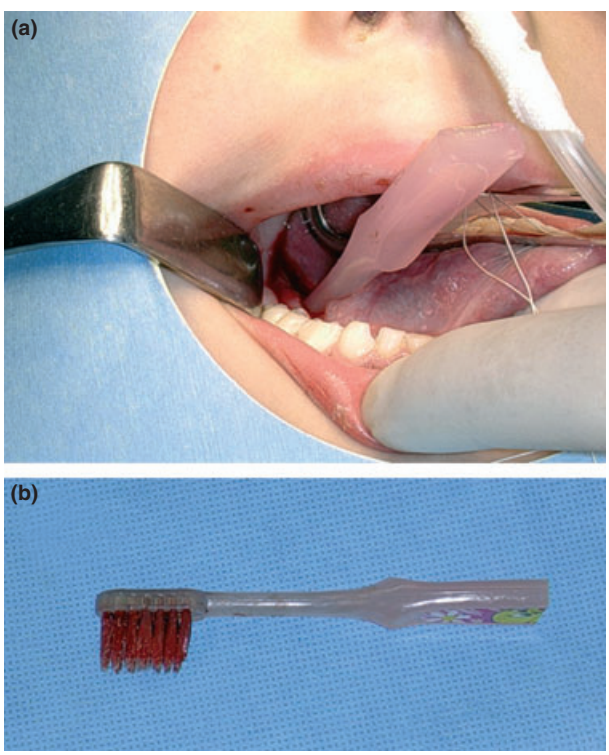

Fig. 2. (a) Toothbrush located approximately 2.5 cm into the floor of the mouth along the mandible. (b) The retrieved toothbrush.

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