



CASE REPORT

Accidental Swallowing of a Molar Band

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ABSTRACT

Accidental ingestion or aspiration of foreign bodies is considered as a medical emergency in dentistry. Despite their rare occurrence, accidental ingestions are associated with various complications and morbidity, thereby necessitating prevention of their incidence along with early and effective management. Herein, we report a case of accidental swallowing of an orthodontic molar band in a patient with unilateral cleft lip and palate and its management.

Keywords: Accidental ingestion, molar band, cleft lip, palate

INTRODUCTION

Accidental ingestion or aspiration of foreign bodies (e.g., dental material, appliances, or instruments) is one of the serious complications encountered in clinical dentistry. It may result in airway obstruction and thus cause severe breathlessness or internal hemorrhage due to perforation of the gastrointestinal tract, leading to death (1-3).

According to a review by Tamura et al. (4), dental foreign bodies accounted for 3.6%-27.7% of all foreign bodies ingested or aspirated, with ingestion being more prevalent than aspiration. When comparing different dental specialties, orthodontic appliances are the second most common dental foreign body to be ingested (5). The various factors responsible for higher incidence of aspiration of orthodontic appliances are the relative small size of orthodontic appliances, presence of saliva, limited accessibility in the posterior region of the jaws, and supine position of the patient (2, 6). Furthermore, the morphology and muscles of the soft palate in addition to the velopharyngeal seal can play a major role in the occurrence of such aspirations. Patients with cleft palate have a short soft palate with velopharyngeal insufficiency. Ha et al. (7) reported that individuals with repaired cleft palate have shorter and thinner levator muscles than those of healthy individuals. Therefore, orthodontists should be more careful when performing clinical procedures in cleft palate patients.

The present case report describes accidental swallowing of a molar band in a patient with unilateral cleft lip and palate (UCLP) and its management.

CASE PRESENTATION

A 15-year-old boy with repaired UCLP was under treatment at a postgraduate cleft lip palate clinic. His medical history was noncontributory and revealed a negative family history of cleft. He had unilateral left-sided cleft lip and palate in which the scar tissue of the repaired lip extended from the base of the nose to the upper lip on the left side, a deformed alar dome of the left side, a deviated nasal septum to the right side, abnormal columella, and an obliterated philtral dimple. The other intraoral findings included Angle's Class II subdivision malocclusion on the left side, crossbite from the upper left central incisor to the upper left canine, and constricted maxillary arch. Lateral cephalogram tracing and intraoral photographs of the patient revealed a short

soft palate (Figure 1). Maxillary arch expansion for correction of the crossbite with quad-helix appliance followed by fixed orthodontic appliance therapy was planned. After 3 months of maxillary arch expansion, upper and lower arch bonding was performed with 0.022×0.028-inch slot Roth prescription bracket system (Figure 2).

During routine follow-up, the patient reported to the clinic with the complaint of a loosened upper right molar band. While re cementing the molar band, it slipped into his oral cavity. To prevent the molar band from entering the oropharynx, the patients' head was turned downward and he was asked to cough. Despite repeated coughing, the band could not be retrieved. Subsequently, the oral cavity and oropharynx were visually inspected under good illumination. Failure to locate the band led to suspicion of ingestion or aspiration of the molar band. However, the patient did not show any signs and symptoms of airway obstruction. The patient was immediately taken to the medical emergency department. A posteroanterior chest X-ray was performed (Figure 3), and it revealed that the molar band was lodged in the neck region but the position was not fully clear. Subsequently, a lateral cervical spine X-ray was taken to confirm the location. It was

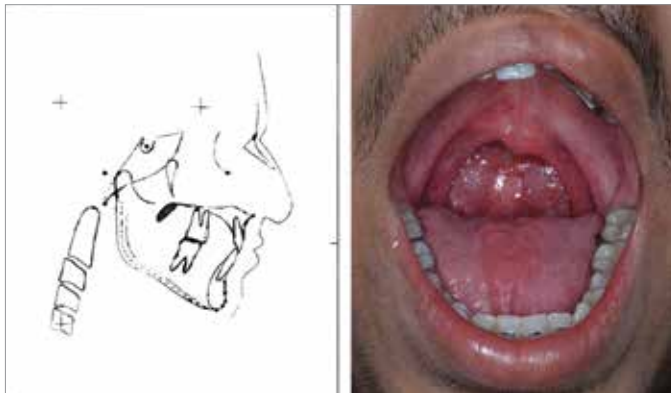


Figure 1. Lateral cephalogram tracing and clinical intraoral photograph showing a short soft palate

found that the molar band was located in the cervical part of the esophagus (Figure 4). As the patient was asymptomatic, endoscopic examination and retrieval of the molar band was planned by gastroenterologist. The molar band was successfully retrieved with an endoscope (Figure 5), and the patient was discharged on the same day without any complication.

DISCUSSION

Ingestion or aspiration of a dental foreign body is a potential complication in dentistry. Owing to higher incidence of accidental ingestion observed in clinical orthodontics, a standard guideline for the prevention and management of this complication is a must during orthodontic procedures (2, 3, 8-10).

- Guidelines for prevention:
 - A. General guidelines:
 1. Mobile phones should be switched off in the clinic to prevent distraction.
 2. A textured latex glove should be used for better grip on dental appliances and instruments.
 3. High-speed suction with a pharyngeal tip should be mandatory, especially while operating in the posterior regions of the jaw.
 4. High-viscosity impression material should be used.
 5. Extra precaution should be taken when treating very young, special need, and cleft patients.
 6. Patients should be instructed to report immediately in case of breakage of appliance.
 7. All staff, including the operating dentist, should be trained and updated in basic life support and first aid skills.
 - B. Specific guidelines:
 1. All the components of removable appliances should be made smooth and inspected for any sign of fracture at every appointment.
 2. Radio-opaque acrylic should be used to facilitate easy visualization and location in case of ingestion or aspiration.



Figure 2. Mid-treatment intraoral photograph showing a 0.018-inch SS wire in the upper and lower arches



Figure 3. Posteroanterior radiograph showing the swallowed object in the neck region



Figure 4. Lateral cervical spine radiograph showing the swallowed object in the cervical part of the esophagus

3. The transpalatal arch, quad-helix, molar band, and expansion appliance keys should be tied and secured with floss while performing intraoral adjustments.



Figure 5. Image showing the molar band retrieved from the esophagus

4. Gauze pads should be used as a barrier while adjusting appliances or cutting the distal end of wires.
5. The cutting ends of distal end cutters should be checked for trapped wires and wiped off with gauze after every cut.
6. Distal end cutters should be periodically checked for signs of failure of “safety hold” and accordingly replaced.
7. The distal ends of arch wires should be cinched, if possible.
8. Temporary anchorage devices should be secured to the main appliance with a ligature wire.

- **Management:**

Despite all precautions, mishaps occasionally occur. Therefore, clinicians must be capable of providing early and effective management to minimize patient discomfort and complications. Management depends upon the type, size, and location of the foreign body as well as whether it has been ingested or aspirated.

In case a foreign body accidentally slips into the oral cavity during dental procedures, the head of the patient should be turned sideways or downwards and he/she should be asked to cough to prevent the foreign body from entering the oropharynx. Next, the oral cavity and oropharynx of the patient should be thoroughly examined under light. If the object is visible, forceps or high-speed suction should be used to retrieve it. If the object is not visible, ingestion or aspiration should be suspected. The patient should be observed for any sign or symptom of airway obstruction. If present, the Heimlich maneuver should be attempted to dislodge the foreign body. Upon failure to dislodge, every attempt should be made to maintain the airway. The patient should be immediately taken to the emergency department for radiographic localization and further management.

If the patient shows signs of respiratory distress, emergency airway should be established immediately. Once the airway is maintained, the foreign body can be retrieved using an endoscope. However, if on radiographic examination (chest and/or abdominal X-ray) the object is found to be ingested, the patient should be advised not to panic and eat a diet rich in cellulose. Serial radiographs should be taken for localization, and the patient should be closely monitored until the object is excreted. If the foreign body is not excreted and found to be impacted in esophagus, it should be retrieved using Foley's catheter (for small blunt objects) or an endoscope (for large sharp objects). Failure to retrieve the foreign body by endoscopy or in cases where the patient shows symptoms of gut perforation (fever, vomiting, abdominal pain, and distention) may require surgical intervention.

CONCLUSION

This case report presents successful retrieval of an accidentally swallowed molar band from the cervical part of the esophagus in a patient with UCLP. Owing to a short soft palate, the risk of ingestion or aspiration of a foreign body is relatively higher in patients with cleft palate. This necessitates extra precaution during the treatment of these patients. Dentists and, in particular, orthodontists must be capable of preventing the incidence of such ingestions and familiar with early and effective management.

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