

An unusual surgical complication: Slipped molar lodged in vocal cords and its anesthetic management

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ABSTRACT

Background: Extraction of wisdom tooth is one of the most common surgical interventions, as it is more prone for impaction. Due to the pain and anxiety associated with the procedure, it is common to do this procedure under conscious sedation. However unexpected events do occur during the procedure and one such complication along with the prompt management is discussed here.

Case report: This case report details an unusual occurrence of a third molar tooth slipping during dental extraction and becoming lodged at the base of the vocal cords. The patient, a 52-year-old man with a history of hypertension, underwent the procedure under conscious sedation. The case report highlights the importance of preparedness and multidisciplinary coordination in managing rare complications during dental procedures under conscious sedation. The accidental aspiration of a molar tooth into the airway required prompt and effective intervention, using dexmedetomidine for sedation, fibre-optic bronchoscopy for visualization, and a range of retrieval instruments. Using video-assisted laryngoscopy and fibre-optic laryngoscopy proved indispensable in locating and safely retrieving the foreign body without resorting to more invasive procedures.

Conclusion: This case highlights the importance of anaesthesiologist's role in emergency management and comprehensive preparedness in dental practice.

1. Introduction

Dental procedures, particularly the extraction of third molar teeth (wisdom tooth) are common surgical interventions. However, they occasionally lead to rare and unexpected complications. One such complication is the accidental dislodgment of a tooth into the airway, which can result in significant morbidity if not promptly addressed. This case report details an unusual occurrence of a molar tooth slipping during extraction and becoming lodged at the base of the vocal cords. It also discusses the anesthetic management strategies employed for its retrieval.

Accidental aspiration or ingestion of teeth during dental procedures has been reported in the literature, of which 92.5 % enters the GI tract and 7.5 % entering the trachea, though it remains an uncommon event^{1,2}. Some of the causes include supine positioning for good visibility and use of slippery instruments. Such incidents are concerning due to the

potential for airway obstruction, leading to respiratory distress and requiring immediate medical intervention³. The anesthetic management of patients with foreign bodies in the airway is particularly challenging. It necessitates meticulous planning and execution to ensure patient safety and successful retrieval of the foreign body⁴.

In this case, we present a rare instance where a molar tooth, dislodged during a routine extraction, was found lodged at the base of the vocal cords and its anesthetic management.

2. Clinical report

We present a 52-year-old man who presented to the outpatient department with complaints of left sided tooth pain and frequent episodes of food particles been stuck to the tooth. On examination he was found to have impacted third molar in the left side. The orthopantomogram also revealed impacted third molar on the right side and he was

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planned for wisdom tooth (third molar) extraction under conscious sedation. Conscious sedation was considered for this patient as he was extremely anxious and the patient had requested for a painless experience. The patient had a history of hypertension, which was well-controlled. Preoperative blood investigations, echocardiogram, and chest X-ray were normal. Airway assessment was normal with a Mallampati grading of 2. The patient was accepted for the surgical procedure under the American Society of Anesthesiologists (ASA) physical status classification II. An informed consent was taken from the patient for the current intervention informing him about all the available treatment options.

On the day of surgery, the patient was oxygenated with 4 L of O₂ via nasal prongs and was sedated with intravenous pentazocine 15 mg and midazolam 1 mg. The surgery commenced with the administration of additional local anesthesia to the surgical area. During the removal of the molar tooth, due to slippery surgical field the tooth was dropped and aspirated into the oral cavity, causing the patient to start coughing violently. The surgeon was unable to locate the tooth.

To manage the situation, the patient was administered an infusion of 50 mcg of dexmedetomidine to sedate and suppress the gag reflex. A fiber-optic bronchoscope was used to visualize the area, and the tooth was found lodged at the base of the vocal cords (Fig. 1). The oral cavity was sprayed with 10 % lignocaine to suppress the gag reflex further, and the decision was made to proceed with the retrieval of the tooth while the patient remained conscious but sedated.

Gentle laryngoscopy was performed using a Macintosh laryngoscope blade, not touching the posterior pharyngeal wall or base of the tongue to avoid triggering the gag reflex. The vocal cords were visualized, and an attempt was made to retrieve the tooth using Magill forceps. However, due to the Magill forceps' design and the airway's restrictive anatomy, the tooth could not be reached.

A second successful attempt was made using long artery forceps, which allowed the retrieval of the tooth without much difficulty (Fig. 2). The patient remained stable throughout the procedure and recovered without any further complications.

3. Discussion

Accidental aspiration of dental objects, though uncommon, presents a significant risk during dental procedures. This case underscores the critical importance of vigilance and readiness to manage airway emergencies during dental surgeries performed under conscious sedation. The aspiration of a tooth into the airway can lead to severe complications, including airway obstruction, respiratory distress, and potential damage to the respiratory tract.^{3,4} The notion that there is a probability

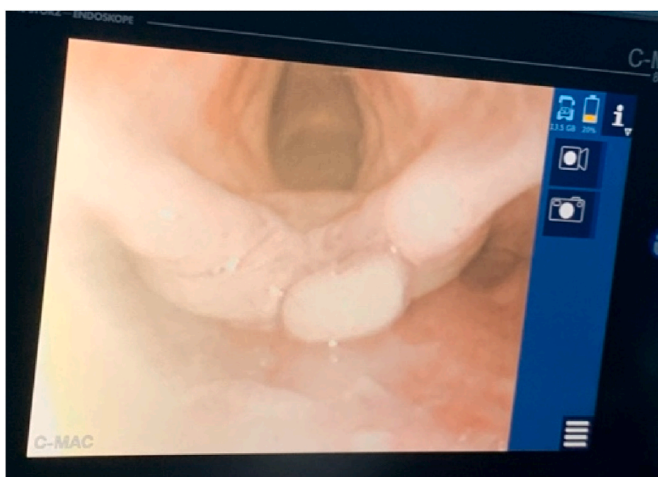


Fig. 1. Identification of tooth with fibreoptic bronchoscope.



Fig. 2. Retrieved tooth.

of teeth getting lodged into the airway should always be borne in mind and the dental surgeons should be aware of such a possibility.

In this particular case, the patient, a 52-year-old man with controlled hypertension, underwent the extraction of an impacted third molar under conscious sedation. The use of intravenous pentazocine and midazolam provided adequate sedation while maintaining the patient's ability to respond to commands and protect their airway, which is a key advantage of conscious sedation over general anesthesia.⁵ However, the unexpected aspiration of the molar tooth highlighted the inherent risks associated with even routine dental procedures and its prompt identification.

The immediate management of this airway emergency involved sedation with dexmedetomidine to suppress the gag reflex and facilitate a calm and controlled retrieval process. Dexmedetomidine a selective alpha 2 agonist known for its sedative, anxiolytic, and analgesic properties, with minimal respiratory depression, making it an ideal choice in such scenarios.⁶ The use of a fiber-optic bronchoscope was crucial in locating the tooth, demonstrating the value of this tool in managing airway obstructions.⁷

Initial attempts to retrieve the tooth using Magill forceps were unsuccessful due to the restrictive anatomy of the airway and the design limitations of the forceps. This necessitated a change in approach, with long artery forceps ultimately allowing successful retrieval. This case illustrates the importance of having a range of instruments available and being prepared to adapt techniques based on the specific circumstances.⁸

Moreover, this case emphasizes the significance of a multidisciplinary approach, involving anesthesiologists, surgeons, and nursing staff, to ensure patient safety and effective management of complications. The use of conscious sedation allowed for real-time assessment and intervention, avoiding the need for more invasive measures such as general anesthesia and endotracheal intubation.⁹ Hidaka et al. highlighted the use of video-assisted laryngoscopy to manage a dislocated dental bridge that obstructed the larynx. They demonstrated that video-assisted laryngoscopy provides enhanced visualization, which is crucial for safely navigating and removing foreign bodies from the airway without resorting to more invasive procedures.¹⁰ Mottaghi et al. described that immediate intervention with direct laryngoscopy and careful extraction using appropriate tools, such as Magill forceps, was effective. They emphasized the importance of swift action and precise techniques to minimize airway trauma and ensure patient safety.¹¹ Shah et al. report on the removal of a foreign body from the glottis. The authors described the successful use of direct laryngoscopy and retrieval instruments to remove the obstruction. They stressed the importance of maintaining airway patency and the use of sedation to facilitate the

procedure and reduce the risk of further complications. The study highlighted the need for experienced personnel and proper equipment in managing such cases. This highlights the need for designing appropriate equipment which can be used in retrieving foreign bodies lodged into the airway without causing much hemodynamic response. Also, the designing should be in such a way that it doesn't cause much discomfort to the patient.

4. Conclusion

This case report illustrates the critical importance of preparedness and multidisciplinary coordination in managing rare and potentially life-threatening complications during dental procedures under conscious sedation. The role of conscious sedation with dexmedetomidine and fibre-optic bronchoscopy proved indispensable in locating and safely retrieving the foreign body without resorting to more invasive procedures such as tracheostomy. In summary, the successful resolution of this rare complication highlights the importance of meticulous planning, rapid response, and the use of advanced airway management techniques in ensuring patient safety during dental procedures performed under conscious sedation. This case contributes valuable insights into the management of similar emergencies and reinforces the necessity of comprehensive preparedness in dental practice.

Patient consent

Patient consent was recorded for use of the photos and videos for educational purpose.

Credit statement

Ameerunnisha begum: Conceptualization, methodology, Supervision. Ramsesh Manohar Ram: Methodology, Investigation including the fabrication of the prosthesis and its clinical analysis, Data curation. Monisha Prasad: Writing- Original Draft, Writing-review and editing, Supervision.

Ethical clearance

Ethical clearance was obtained from the relevant institutional review

board or ethics committee.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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