

Unanticipated cannot intubate situation due to difficult mouth opening

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Abstract

We report a case of unanticipated difficult endotracheal intubation secondary to an abrupt onset of difficulty in opening the mouth in an anesthetized adult. A female aged 76 years with American Society of Anesthetists risk Class IV E with an apparently normal preoperative temporomandibular joint was scheduled for emergency laparotomy. Following rapid sequence induction, and muscle relaxation with rocuronium, the anesthesiologist noticed lock-jaw when intubation was attempted. She was ventilated with nasopharyngeal airway, but was progressively desaturating. An emergency tracheostomy was performed. Unfortunately, she sustained cardiac arrest and could not be revived. The complication of the lock-jaw is a nightmare to airway management, especially in an unprepared situation.

Key words: Anterior displacement, difficult intubation, lock-jaw, restricted mouth opening, temporomandibular joint

Introduction

Opening of an unconscious patient's mouth by an anesthesiologist to allow access for laryngoscopy and endotracheal intubation is usually a benign procedure. This is a case report of unsuspected difficult endotracheal intubation secondary to difficulty in opening the mouth in an anesthetized adult. This case illustrates that displacement of the temporomandibular joint (TMJ) could happen without warning or anticipation and can be fatal when the anesthesiologist is unprepared.

Case Report

A 76-year-old, 60-kg female, diagnosed with mesenteric ischemia, was scheduled for emergency laparotomy. Preoperatively, her oral airway was assessed as a Mallampati Class 2. No restriction of mouth opening was noted. There was no anticipated difficulty in intubation. Flexion and extension of the neck were normal. The

blood pressure was 100/70 mmHg, alongwith tachycardia and tachypnea. She was graded as American Society of Anesthetists (ASA) Grade IV E as she was hypertensive, diabetic with past history of coronary artery disease and ongoing mesenteric ischemia with severe sepsis syndrome and acute respiratory distress syndrome (ARDS). Laboratory results and electrocardiogram were unremarkable except for a low hemoglobin value of 7.6 g/dL and mild hyponatremia of 128 mmol/l.

After consultation with the patient's relatives regarding the poor physical condition and associated anesthetic risk, the attending anesthesiologist and anesthesia resident decided on general anesthesia with rapid sequence induction and intubation. Patient was preoxygenated for 5 min. Sellick's maneuver was applied. Patient was given 150 mg of pentothal sodium IV followed by 100 mg of rocuronium IV. An attempt to open the patient's mouth was made after 1 min for intubation. The teeth were firmly approximated, and the mouth could not be opened. There was no peripheral nerve stimulator to demonstrate adequate muscle relaxation. A second attempt 1 min later by the senior anesthesiologist also failed to open the mouth even by 1 mm. After failure to intubate, mask ventilation was attempted by positive pressure while continuing Sellick's maneuver. As the jaw was locked, airway obstruction could not be relieved by the usual maneuvers such as jaw lift and chin thrust, and hence a nasopharyngeal airway was used. Every attempt at opening the mouth was unsuccessful as the teeth were firmly opposed. A blind nasal intubation was attempted but was unsuccessful. Given that there was no anticipated difficult ventilation or intubation, the equipment required was not prepared in the

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Access this article online

Quick Response Code:



Website:
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DOI:
10.4103/0970-9185.150568

anesthetic room. The fiberoptic bronchoscope was not available. Ventilation was in-effective due to the noncompliance of lungs that resulted from ARDS. Oxygen saturations decreased to 92%. Decision for tracheostomy was made and the surgeon was immediately summoned and tracheostomy performed. The patient was progressively desaturating and the hemodynamics were deteriorating. During this period she sustained a cardiac arrest and could not be revived.

During the course of events, an attempt was then made to firmly, pull anteriorly on the jaw. Careful observation of the TMJ movement revealed that there was no forward or anterior motion of the mandibular condyle suggesting TMJ displacement. With great force, the mouth opened to a small degree, about 1 cm. Even on retrospective evaluation, the patient's relatives did not reveal any history suggestive of TMJ disorders.

Discussion

This case report illustrates a potential hazard in airway management during general anesthesia, which was more severe than the cases reported earlier. The anterior translation of the TMJ is important in mouth opening. The recommended jaw-thrust maneuver to overcome the locked-jaw and obstruction were in-effective in this case. Inadequate relaxation due to under-dosage of rocuronium could be excluded as the inability to open mouth persisted even after the death of the patient. The diagnosis of malignant hyperthermia and masseter spasm was questionable as the patient had not received any triggering drugs though masseter spasm in adults after intravenous induction of anesthesia even in the absence of volatile anesthetics has been described.^[1] Little attention is usually paid to TMJ disease as a cause of unsuspected difficulty with opening the mouth. It has been stated that severe anterior disc displacement can cause the mouth to lock in the closed position.^[2] It has been suggested as a cause of a "locked-jaw" in earlier publications.^[3-6] It is likely that this would occur during the course of airway management^[2,7] Even simple maneuvers like chin lift and jaw thrust could precipitate this complication.^[8,9] Holding the face mask with jaw thrust in the presence of muscle relaxation could have triggered the event in this case.

Most of the earlier reports describe temporomandibular dislocation in patients who have had past history of joint dysfunction or at least clicks.^[6,10] However, sometimes it may occur even in normal TMJ.^[5,9] No history of TMJ disease was forthcoming in the present case. History of TMJ disease is often missed on routine preoperative history and patient may not be forthcoming with the problem unless specifically asked for. It is therefore, possible to overlook the problem.^[6,11] A radiograph with the panoramic view of the joint would have been more confirmative, but unfortunately could not be done.

The fiberoptic bronchoscope was not immediately available in the operation theatre complex. All other devices are futile in the absence of mouth opening. The patient was presumed to have low lung compliance due to abdominal distension and sepsis, so cricothyroidotomy was not considered suitable. Moreover, ventilation was feasible with nasopharyngeal airway. The low preoperative oxygen reserve, hemodynamic instability reduced margin of safety for the apnea period. This has resulted in unfortunate demise of the patient despite attempting to perform a timely tracheostomy.

Temporomandibular joint disorders are common during anesthesia and though rare, lock-jaw is a possibility, which could be fatal when the anesthesiologist is not prepared. The availability of the flexible fiberoptic bronchoscope is most vital to management of the condition.

Acknowledgment

Prof. Gopinath Ramachandran, Head of the Department, Department of Anesthesiology and Intensive Care, Nizam's Institute of Medical Sciences, Hyderabad, Andhra Pradesh, India for his valuable inputs and guidance.

References

1. Asai T, Eguchi Y, Shingu K. Masseter spasm during induction of anaesthesia using propofol and fentanyl. *Eur J Anaesthesiol* 1998;15:614-5.
2. Aiello G, Metcalf I. Anaesthetic implications of temporomandibular joint disease. *Can J Anaesth* 1992;39:610-6.
3. Iguchi N, Fukumitsu K, Kinouchi K, Kawaraguchi Y, Yamanishi T. Lockjaw caused by induction of anesthesia in a volunteer bone marrow donor. *Masui* 2004;53:306-8.
4. Redick LF. The temporomandibular joint and tracheal intubation. *Anesth Analg* 1987;66:675-6.
5. Lim BS, Andrews R. Unexpected difficult intubation in a patient with normal airway on assessment. *Anaesth Intensive Care* 2001;29:642-3.
6. Rastogi NK, Vakharia N, Hung OR. Perioperative anterior dislocation of the temporomandibular joint. *Anesth Analg* 1997;84:924-6.
7. Sosis M, Lazar S. Jaw dislocation during general anaesthesia. *Can J Anaesth* 1987;34:407-8.
8. Lipp M, Daubländer M, Ellmauer ST, von Domarus H, Stauber A, Dick W. Changes in temporomandibular joint functions in various general anesthesia procedures. *Anaesthesist* 1988;37:366-73.
9. Oofuvong M. Bilateral temporomandibular joint dislocations during induction of anesthesia and orotracheal intubation. *J Med Assoc Thai* 2005;88:695-7.
10. Avidan A. Dislocation of the temporomandibular joint due to forceful yawning during induction with propofol. *J Clin Anesth* 2002;14:159-60.
11. Benumof JL. TMJ assessment before anaesthesia. *Br J Anaesth* 2003;91:757.

How to cite this article: Akasapu KR, Wuduru S, Padhy N, Durga P. Unanticipated cannot intubate situation due to difficult mouth opening. *J Anaesthesiol Clin Pharmacol* 2015;31:123-4.

Source of Support: Nil, **Conflict of Interest:** None declared.