

Acute Temporomandibular Joint Dislocation during General Anesthesia Using LMA Supreme

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ABSTRACT

Temporomandibular joint (TMJ) dislocation has been described in literature as a rare complication of LMA use. In this report, we describe the case of acute TMJ dislocation that occurred after LMA Supreme use in a 29 year old lady who underwent diagnostic hysterolaparoscopy under general anesthesia. The patient had an unremarkable airway and no history of TMJ subluxation or dislocation in the past. After induction of anesthesia, a size 3 LMA Supreme was successfully inserted in a single attempt after giving jaw thrust. After an uneventful surgical procedure the patient was reversed and the LMA Supreme was removed. After LMA removal, the patient was unable to close her mouth. The bony swelling palpable in the region anterior to bilateral TMJ confirmed the diagnosis of TMJ dislocation. A dental surgeon performed manual reduction of the same and the reduced position was secured using a bandage. Keywords: TMJ dislocation; LMA Supreme; Jaw thrust; General anesthesia; Muscle relaxant

Key Message: TMJ dislocation is a rare side effect of airway manipulation, particularly in a anaesthetized patient. Jaw thrust during LMA insertion can lead to TMJ dislocation even in normally functioning joint. TMJ should be routinely checked after LMA insertion to rule out TMJ dysfunction.

INTRODUCTION

Laryngeal Mask Airway (LMA) Supreme is a commonly used airway device during general anesthesia. Temporomandibular joint (TMJ) dislocation is a rare but reported complication of LMA use. We hereby report a case of bilateral acute TMJ dislocation that occurred during the course of anesthesia using LMA Supreme to secure the airway.

CASE REPORT

A 29 year old lady with primary infertility secondary to genital tuberculosis was planned to undergo elective diagnostic hysterolaparoscopy at our centre. Her routine investigations, systemic examination and airway examination was unremarkable and no difficultly in airway management was anticipated. The patient was categorized as ASA Class I and was planned for general anesthesia. Informed consent was obtained. In the operation theatre, standard monitors pulse oximeter (SpO₂), ECG, NIBP, EtCO₂ were attached to the patient. Intravenous Midazolam 0.02 mg/kg and Fentanyl 2 mcg/kg were administered as premedication and the patient was preoxygenated with 100% for 3 minutes. This was followed by intravenous induction with propofol titrated to loss of verbal response and vecuronium bromide 0.1 mg/kg. After achieving adequate muscle relaxation, LMA supreme of size 3 was inserted after giving jaw thrust. The device was successfully placed in a single attempt as confirmed by adequate chest rise and end tidal CO₂. Smooth passage of a size 12 F Ryle's tube through the gastric lumen and ventilator parameters during positive pressure ventilation further confirmed the correct placement of LMA Supreme. Anesthesia was maintained with 2% sevoflurane in a mixture of O₂ and N₂O in 40:60 ratios to maintain a MAC of 1. The surgical procedure completed in one hour and was uneventful. The patient was reversed with neostigmine (50 mcg/kg) and glycopyrrolate (10 mcg/kg) after respiratory efforts returned. Once the patient was fully responsive, the LMA Supreme was removed. Patient was unable to close her mouth and complained of discomfort in the preauricular region. On examination, bony swelling could be palpated in the region just anterior to both the temporomandibular joints. Dislocation of TMJ was suspected, a dental surgeon was called for who

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confirmed the diagnosis and counseled the patient regarding the need for reduction. TMJ reduction was performed without giving any sedation to the patient. After successful apposition, the TMJ swelling disappeared. The reduced position was secured using a bandage running from under the chin to the top of the head so that patient does not open the mouth widely. The bandage was left in place for 24 hours and patient was asked to avoid open her mouth widely. Diclofenac 1 mg/kg and paracetamol 15 mg/kg were given for both postoperative analgesia and joint pain. The patient was allowed sips of water after six hours and other liquids thereafter. On the first postoperative day, the bandage was removed and the patient was allowed to eat solid food but was cautioned against hard food items. By second postoperative day, she was able to open her mouth open widely without any recurrence of dislocation and was allowed normal food. The patient gave no history of TMJ subluxation or dislocation in the past. There was no history of trauma to the head or face and no history suggestive of presence of any connective tissue disorder or neuromuscular disorder.

DISCUSSION

TMJ dislocation is the dislodgement of the head of condyle of the mandible from the glenoid fossa in the temporal bone [1]. Anterior TMJ dislocation is by far the most common subtype [2]. Iatrogenic dislocation may occur after procedures requiring wide mouth opening namely; dental treatments, laryngoscopy, and endotracheal intubation and extubation [2-4]. Several case reports describe the occurrence of TMJ dislocation as a complication of LMA insertion as well [5,6]. The commonest manifestation of acute TMJ dislocation is the inability to close the oral cavity or "open lock," associated with pain in difficulty in speech and drooling of saliva. Pain in the preauricular region is often present. Palpation over the preauricular region suggests emptiness in the joint space [7]. Although diagnosis is mainly clinical, confirmatory diagnostic aids include plain and panoramic radiographies and three-dimensional computed tomography [1]. TMJ dislocation if not reduced in time, may lead to further problems such as intra-articular hematoma and adhesion formation, displacement of meniscus and auriculotemporal nerve damage from traumatic dislocation which leads to joint laxity [5]. Treatment of acute dislocation consists of pain relief and manual reduction under sedation. Though, in our patient no sedation was given during manual reduction, as the patient was in the immediate postoperative period and under the effect of analgesia given during intraoperative period. The technique of reduction was originally described by Hippocrates. In his technique the mandible is held with two arms from inside and outside the oral cavity (the external oblique line and the area under the mandible) and a downward, backward, and upward pressure is exerted bilaterally upon the mandible simultaneously. This method was also employed in our patient [8]. Despite many other proposed methods in use, this manoeuvre still has the highest success rate [1].

Although TMJ dislocation has been reported with LMA before, this will be the first case report to specifically associate this complication to LMA Supreme. Grasping the jaw and lifting it upward (jaw thrust), passive wide mouth opening, and loss of muscle tone, have all been described as factors that could lead to anterior displacement of the mandibular condyles under anesthesia [5]. In our patient, mouth was opened passively to facilitate LMA insertion although no undue pressure was applied. Muscle relaxants were administered to achieve surgical relaxation and mechanical ventilation. Both of these could have predisposed to the condition. Prompt recognition and treatment led to adequate management and prevention of further complications in our patient.

CONCLUSION

TMJ dislocation may not be anticipated in a patient without a history of TMJ instability, and is easy to miss during anesthesia while artificial airway is in situ. When recognized in time, this condition can be instantly corrected. However, if diagnosis is delayed, the consequences can be debilitating. Hence it is essential for all modern day anesthesiologists to not only be aware of this entity but also to ensure early management.

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