# THE LARYNGEAL MASK AIRWAY FOR DIFFICULT AIRWAY IN TEMPOROMANDIBULAR JOINT ANKYLOSIS

**- A Case Report-**

BEHZAD AHSAN**, GHAZAL KAMALI*
AND KARIM NESSERI***

## Abstract

Patients with Temporomandibular Joint Ankylosis are among difficult airways and anesthesia and airway management of these patients encounter anesthesiologists with challenge. Herein we report a case of Temporomandibular Joint Ankylosis with difficult ventilation after failed attempts to intubate with fibroptic broncoscopy a disposable Laryngeal Mask Airway reestablishes the ventilation. The case suggests that the disposable Laryngeal Mask Airway may be useful in airway management of patients with a Temporomandibular Joint Ankylosis.

**Key Words:** Teporomandibular joint ankylosis, airway management, Disposable Laryngeal Mask

## Introduction

Temporomandibular joint (TMJ) ankylosis is a condition that may cause chewing, digestion, speech, esthetic, hygienic and psychological disorders[1,2] in general. Different factors may cause TMJ ankylosis. Trauma and infection are among the most common etiological factors of TMJ[2]. Other less common causes include local and systemic inflammatory conditions (rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis)[3], neoplasms, measles, pseudoankylosis, and unknown[1,4]. Airway management of TMJ ankylosis makes a specific challenge for anesthsiologistes in general anesthesia. They have limited mouth opening and laryngoscopy and intubations may be difficult or impossible. Atrophy of jaw muscles specially in geriatric patients add to these problem and may cause additional ventilation difficulty. We report the successful airway management of a difficult ventilation and intubation patient due to TMJ ankylosis by insertion of the disposable LMA Solus without tracheal intubation.

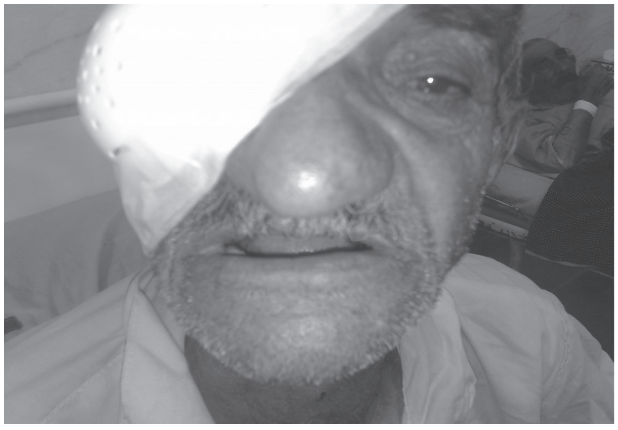
## Case Report

A 75-year-old man was admitted by the ophthalmic service because of penetrating eye trauma. He had a history of trismus for 15 year. Since the patient had no cooperation, and refused a local anesthesia, the ophtalmologist requested general anesthesia. He was edentulous, and

* Department of Anesthesia, faculty of medicine, Kurdistan University of Medical Sciences, sanandaj, Iran.
** Department of ophtalemology, faculty of medicine, Kurdistan University of Medical Sciences, sanandaj, Iran.
*** Department of Anesthesia, faculty of medicine, Kurdistan University of Medical Sciences, sanandaj, Iran.
**Corresponding author:** Karim Nasseri, Department of anesthesia, Beasat Hospital, Keshavarz St, Sanandaj, Kurdistan state, Iran., Tel: 00988716660733, Fax: 00988713285890. E-mail: nasseri_k@muk.ac.ir

his exam was notable for a limited mouth opening (maximum intergum distance in midline 10 mm), and nasal septum deviation. His Mallampati classification was impossible to elicit (Fig. 1). Physical findings included bilateral deformity of ankle and wrest joints, and restricted cervical motion. The lateral face x ray showed sclerosis of TMJ. (Fig. 2 and 3) All other routine investigations were unremarkable. We planned to insert tracheal tube guided by fibroptic broncoscope. After the monitoring of ECG, SpO2, and noninvasive blood pressure, the patient was preoxygenated with 100% O2. He underwent intravenous induction with 100 μg fentanyl, 3 mg midazolam, and 120 mg propofol. Naloxone and flumazenil were prepared for the potential development of cannot ventilate, cannot intubate. Face mask ventilation with an oral airway was rather difficult because of the patient's restricted neck extension, and toothless condition. Direct laryngoscopy was avoided. After good oxygenation, Oral fibreoptic bronchoscopy was attempted with no visualization of the glottis aperture. While attempting fibreoptic bronchoscopy, the patient's SpO2 decreased to fewer than 40%, face mask ventilation again was initiated. After unsuccessful attempts to oxygenation we inserted a size 3 disposable LMA Solus and correct placement was confirmed by increasing SpO2, and capnography. It was decided to precede surgery with the patient breathing spontaneously through the LMA. Oxygen saturation was maintained 92-96% throughout the procedure. The procedure and post-operative recovery was uneventful.

*Fig. 1*
*A 75-year-old men with an intergam distance of 10 mm*



## Discussion

Temporomandibular joint (TMJ) ankylosis advocate a serious problem for airway management[3]. Our patient had TMJ ankylosis because of which he had restricted mouth opening making direct laryngoscopy impossible. In difficult situations the options for securing airway are: fiberoptic bronchoscopy (FOB), intubating laryngeal mask airway, intubation using lighted stylet and tracheostomy[5]. Although FOB is a gold standard for securing airway in these patients, but it was unsuccessful because of restricted patient's head extension, and limitation to use nasal path. Second steep was using LMA.

The LMA that was introduced in 1988 is an alternative to endotracheal intubation for certain routine anesthetics and is an adjunct in emergency airway management. Regardless of the shape, size, and manufacture the LMAs are essentially two large groups, those with epiglottic bars (ventilating LMA), and those with open distal end intubating LMA. The LMA does not necessitate direct laryngoscopy for

*Fig. 2*
*Lift lateral face x ray showed TMJ sclerosis*

insertion and, therefore be placed quickly. The LMA also could restrict the airway trauma occasionally caused by instrumentation with rigid laryngoscopes[6], supplies adequate ventilation, and can be used as a channel for tracheal intubation[7]. The intubating LMA is a useful apparatus for managing patients with difficult airways and can be particularly useful where FOB is impossible[8]. In the operating room, insertion, and intubation success rate is close to 100% and 90% respectively, whether difficult intubation is predicted or not[9].

The two available LMA in our operating room are classic and Solus. We use the Solus (Intersurgical, Ltd), which is an potentially intubating LMA. The Solus LMA has the same sizes and design as the other LMAs, but it has a harder cuff, and needed more attempts to be inserted than did the other disposable LMAs[10]. We insert this LMA correctly in first attempt and does not try again for intubation through that, because the oxygenation of the patient was good and the duration of the surgery were short.

We used combination of low dose midazolam, fentanyle, and propofol for induction of anesthesia without muscle relaxants. These combinations result in a good condition for ventilation, and prevent unexpected effects of muscle relaxants[11].

In conclusion, the LMA Solus allowed optimal ventilation in patients with a difficult airway. We suggest utility of the LMAs in situation that securing airway by FOB isn't possible.

*Fig. 3*
*Right lateral face x ray showed TMJ sclerosis*

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