

LARYNGEAL MASK AIRWAY INSERTION IN A CASE OF DIFFICULT INTUBATION (CASE REPORT)

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SUMMARY

Total hip replacement was planned in a patient with the diagnosis of juvenil rheumatoid arthritis. Cervical immobilization was noted on the premedication visit. The thyromental distance of the patient was below 4 cm with grade 4 of Mallampati classification. We failed to intubate the patient endotracheally with direct and fiberoptic laryngoscopy. The airway maintenance was achieved by laryngeal mask airway and the operation was terminated successfully. In this case, we showed that a noninvasive method the laryngeal mask airway can be used as an alternative in difficult intubations and in different position like lateral decubitus.

Key words: Laryngeal mask airway, rheumatoid arthritis, difficult intubation

ÖZET

28 yaşında juvenil romatoïd artrit tanısı alan hastaya total kalça protezi operasyonu planlandı. Preanestezik evaluasyonda servikal immobilizasyon, Mallampati sınıflaması ile Grade 4, tiromental mesafe 4 cm'den az olarak saptandı. Servikal hareket kısıtlılığı nedeniyle laringoskop yönlendirilmediğinden endotrakeal intübasyon girişimi, kör nazal ve fiberoptik laringoskopi denemelerinde başarıları olunamadı. Laringeal maske (LM) ile hastanın havayolu devamlılığı sağlandı. Operasyon başarı ile tamamlandı. Biz bu olguda havayolunun emniyeti için noninvaziv bir yöntem olan LM kullanarak zor intübasyonda ve pozisyon değişikliklerinde LM'nin alternatif bir yöntem olacağını gösterdik.

Anahtar sözcükler: Laringeal maske, romatoïd artrit, zor intübasyon.

The laryngeal mask airway (LMA) maintains the airway under anesthesia without endotracheal intubation (1). LMA is used in the management of a difficult airway. Rheumatoid arthritis is a disease of unknown origin characterized by immune mediated synovitis. The patient who present the most significant challenge to the anesthesiologist are those with advanced disease having deformity, instability and destruction many of joints. Throughout the body the cervical spine, hips, shoulders, knees, elbows, ankles, wrists and metocarpophalangeal joints may all be affected (2). The trachea may be difficult to intubate for a number of reasons (ankylosis of cervical spine, hypoplasia of mandible) that are most prominent in those with

juvenile rheumatoid arthritis (3). Some technical problems of concern are airway management and cervical spine instability (4).

CASE REPORT

A 28 year old male weighting 46 kg was admitted to orthopedics unit for total hip replacement because of juvenile rheumatoid arthritis (I.D: 622980 / Date: 05.12.1995). Juvenile rheumatoid arthritis was diagnosed 26 years ago. Total hip replacement was planned one year ago. However it was postponed because of failed intubation. He had no history of other disease. Oral opening was measured 4 cm, thyromental distance was below 4 cm, it was classed as Mallampati Grade 4. Cervical spine was immobile. He was assessed as a

candidate for difficult intubation. His preanesthetic routine laboratory values were within normal limits. He was premedicated with 5 mg benzodiazepine orally. Operating room was prepared for difficult intubation. Alternate laryngoscopes, endotracheal tubes and LMA of assorted size, fiberoptic intubation equipment, retrograde intubation surgical airway access (e.g. cricothyrotomy) an exhale carbon dioxide detector was available.

On arrival in the operating room the patient was monitored for arterial tension, heart rate, oxygen saturation and capnography. The patient breathed 100 % O₂. Five minutes later propofol 140 mg was given intravenously. No muscle relaxant or opioid was used. Attempt to intubate was failed because manipulating the laryngoscope was difficult owing to cervical immobilization. Blind nasal intubation and fiberoptic laryngoscopy failed also.

By that time propofol was given as needed. Then LMA (size 4) was inserted without difficulty and anesthesia was maintained with 50 % NO₂, O₂ and 1.5 % isoflurane. He was positioned on left lateral decubitus. No hemodynamic or respiratory changes (SpO₂, in range of 98-99, ETCO₂ in range of 30-32 mmHg) occurred during the procedure. At the end of surgery the patient was transferred to the intensive care unit. The patient was extubated without any difficulty. A second operation for contralateral hip was planned twenty days latter. LMA (size 4) was inserted, the patient was positioned on right lateral decubitus. There was no problem during the operation or extubation.

DISCUSSION

Difficulties in endotracheal intubation are an etiologic factor in patient morbidity and mortality (5). Current American Society of Anesthesiologist practice guidelines suggests that the LMA has role in the management of the difficult airway. The laryngeal mask which is a non invasive technique (when compared to retrograde intubation or transtracheal ventilation) might be considered as an alternative in case of difficult intubation. Insertion of the LMA is a simple noninvasive maneuver in the can not intubate, can not ventilate situation (6).

LMA is one of the suggested contents of the Portable Storage Unit for difficult Airway Management (7) The major disadvantage of the LMA however, is that it does not provide complete sealing of the airway against airleak or aspiration. The elective use of the device is contraindicated in any of the conditions associated with an increased risk of aspiration (8). LMA is also contraindicated in patients who have blood present in the upper airway. The use of the LMA is relatively contraindicated in patients with local pathology in the pharynx and larynx such as a tumor, abscess, edema and/or hematoma and whenever it is anticipated that positive proximal airway pressures in excess of 25-30 cmH₂O will be required to adequately ventilate the lungs (8).

A Mallampati Grade 3 should indicate to the anesthesiologist that correct seating of the LMA may not always possible (5). When the LMA is in its ideal position, the epiglottis and esophagus

are outside and the laryngeal opening is totally within the rim of the LMA; this is obtained only 50- 60 % of the time (9-11).

When the epiglottis is within the proximal rim of the LMA, the tip of epiglottis is downfolded forward the larynx 50-90 % of the time and lateral aryepiglottic folds are infolded toward the larynx half of the time. The distal rim of the LMA is usually wedged in the hypopharynx, but in 10-15 % cases the esophagus may be clearly seen inside the distal rim. These variations represent a partial degree of obstruction, do not cause any apparent difficulty with respiration and in 95-99 % of adult and pediatric patients the airway is ultimately judged to be clinically acceptable (12). The most common causes of poor LMA placement are inadequate anesthesia or inadequate relaxation, failure to negotiate the 90° turn from the posterior pharynx to the hypopharynx (11). The patient had severe ankylosing spondylitis because of the fused, cervical spine in the flexed position. Brain's technique couldn't be used. We inserted the LMA without moving the head.

Even in experienced hands successful intubation with the fiberoptic scope requires

several minutes, therefore another technique should be used if an airway must be established rapidly in the face of severe hypoxia (13). Excessive force should be avoided to minimize laryngeal trauma as well as trauma to the delicate fibers at the tip of the scope. Occasionally the bronchoscope will enter the trachea easily but the endotracheal tube cannot be advanced over it, this is usually due to the bevel catching on the right arytenoid (oral) or epiglottis (nasal) depending on the approach. In a previous study of oral fiberoptic intubation, Schwartz et. al described difficulty in passing an endotracheal tube over the scope 80 % of the time (12 of 15 patients) (14). In another study of nasal fiberoptic intubation, Ovassapian et al. described difficulty in passing a nasotracheal tube over the scope 1.2 % (5 of 413 patients). Difficulty was described in 1 of 61 patients with limited neck motion or unstable neck.

In our case, we used oral and nasal approach, the bronchoscope entered the trachea in both, but the endotracheal tube could not be advanced over it. We decided to insert LMA as a noninvasive procedure for securing the airway to avoid laryngeal trauma and hipoxia.

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