

AIRWAY MANAGEMENT IN ANKYLOSING SPONDYLITIS WITH INTUBATING LARYNGEAL MASK AIRWAY –A CASE REPORT

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Introduction:

Patients of Ankylosing Spondylitis (AS) are difficult to intubate as a result of cervical spine rigidity, leading to inadequate extension of head and nonalignment of oral/pharyngeal and laryngeal planes. They are usually managed along the awake limb of difficult airway algorithm¹. Here we present a case report of 60 years male presenting for laproscopic cholecystectomy, with severe Ankylosing Spondylitis who refused awake fiberoptic intubation and was successfully intubated using ILMA under general anaesthesia.

Case report:

A 60 years old male presented to surgical outpatient department with history of pain on right side of upper abdomen and dyspepsia for last one year. Clinical examination and investigation diagnosed cholecystitis with cholelithiasis. He was scheduled for laparoscopic cholecystectomy.

Pre anaesthetic examination revealed the patient to be a known case of Ankylosing Spondylitis for past 40 years with progressive thoracolumbar kyphosis limiting his ability to lie in supine position and necessitating use of two pillows beneath his head for support. Airway examination showed adequate mouth opening with poor dentation, Mallampati grade IV and restricted neck mobility. A preoperative assessment of difficult intubation was made. On explaining the possibility of difficult intubation, the patient refused to give consent for

awake fiberoptic intubation. Use of Intubating laryngeal mask airway (ILMA) under general anaesthesia for intubation was planned

On the day of surgery patient was premedicated with oral ranitidine 150 mg and alprazolam 0.5 mg two hours before surgery with a sip of water and injection glycopyrrolate 0.2 mg intramuscularly one hour before. In the operation room the patient was made to lie supine with the head adequately supported on pillows and routine monitoring like electrocardiogram, noninvasive blood pressure, and pulse oximetry were instituted. Anaesthesia was induced with patient breathing spontaneously incremental concentration of sevoflurane with 50% nitrous oxide in oxygen. With the disappearance of eyelash reflex, relaxation of jaw tone and inspired concentration of sevoflurane 3% Intubating laryngeal mask size 4 was inserted using single handed rotational technique and cuff was inflated with 30ml of air. Adequacy of ventilation was checked by absence of pericuff leak on ventilation with airway pressure of 15 cm of water and square wave capnograph waveform. A small bolus of propofol (30 mg) was now administered to deepen the plane of anaesthesia for intubation. A normal flexometallic tube (with short bevel) of size 7.5 was passed through the ILMA and the patient could be intubated successfully in first attempt itself. Position of tube was confirmed by auscultation and capnography. Muscle relaxation was instituted with inj. vecuronium bromide 0.1 mg, ILMA was removed and maintenance of anaesthesia was done with 66% nitrous oxide in oxygen, sevoflurane and inj. morphine 0.1 mg/kg. Intra operative period was uneventful. At the end of surgery, remaining effect of neuromuscular blockade was reversed with inj. neostigmine 2.5 mg and glycopyrrolate 0.4 mg, patient extubated and shifted to PACU.

Discussion:

Difficult airway is a challenge to anaesthesiologists. Reduced range of motion, or fixed cervical spine in patients of AS is a major problem in anaesthesia^{2,3,4}. Such patients are usually managed along the awake limb of difficult airway algorithm. A problem of intubation with standard laryngoscope in such cases is due to nonalignment of the oral/pharyngeal and laryngeal axes making intubation difficult.

Various options available for intubation in such cases are:

- a. Blind nasal intubation
- b. Use of light wand
- c. Awake fiber optic intubation
- d. LMA
- e. ILMA
- f. Retrograde intubation
- g. Surgical airway—tracheostomy

Use of fiberoptic intubation is the gold standard alternative technique for intubation in these cases, against which all other techniques are compared. The efficacy of ILMA as ventilatory device and aid to blind intubation is well proven and comparable to fiberoptic intubation^{5,6}. The advantage of ILMA is due to (a) easy insertion in patients with immobile neck⁷ (b) better use as airway intubator⁸ (c) easy maneuver to adjust the position of mask in relation to glottic opening⁹. The disadvantage is its limited use in cases of limited mouth opening (<20mm), presence of large cervical osteophytes or patients with fixed extension deformity of neck¹⁰.

Reported success rate of blind tracheal intubation via ILMA varies between 89.51%-100%^{9,11}. Use of various devices or different types of endotracheal tubes have reported with different success rates. Various methods used for intubation through ILMA are

1. Specialized flexometallic tubes⁹
2. Standard short bevel flexometallic tubes¹²
3. Standard PVC endotracheal tubes^{13,14}
4. Gum elastic bougie through ILMA¹⁵
5. Cook airway exchanger⁴
6. Fiberoptic bronchoscope through ILMA

Different types of endotracheal tubes have been used by investigators for blind intubation through ILMA. Use of specialized reinforced silicone tube with modified bevel is the standard. Use of short bevel reinforced endotracheal tube with leading edge at side was successfully used by us in this case. Murashima¹² et al have reported low success with such tubes; however we have been using them for sometime and have not encountered any difficulty in intubation. The crux of success is always to align ILMA with glottic opening before attempting intubation. High success rate of intubation has also been achieved with use of standard PVC tubes in reverse position for intubation through ILMA. Advantage of use of PVC tube is low cost, easy availability, disposable, more sizes of tubes to choose.

Choice of LMA/ILMA for airway management, in cases of AS is determination of oropharyngeal axis first described by Ishimura¹⁶ et al. An angle between oral and pharyngeal axis >90 degree is required for insertion of LMA/ILMA. Any condition where angle is smaller than 90 degree, alternative ways (retrograde intubation, transtracheal jet ventilation, surgical airway) must be considered for intubation¹⁷. We chose inhalational induction with sevoflurane in this case to minimize the risk of sudden loss of airway. Use of propofol is also acceptable; however chances of apnoea are higher. Use of muscle relaxant for

blind intubation with ILMA is controversial. If the desired depth of anaesthesia is achieved, use of muscle relaxant is not required for intubation. We used a small bolus of propofol for achievement of acquired depth of anaesthesia and hence muscle relaxant was not required

In conclusion inhalation induction with sevoflurane followed by intubation through ILMA is a reasonable option in patients of AS who refuse awake fiberoptic intubation.



Picture: Patient of Ankylosing Spondylitis with restricted neck mobility.

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