



ANAESTHETIC CONSIDERATION OF TM JOINT ANKYLOSIS: A CASE REPORT

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INTRODUCTION

The Temporomandibular joints are bilateral joints comprising an articulation between the cranium and the mandible. Its ankylosis presents unusual problem. The commonest are inflammation and trauma which is often missed and noticed only when the mouth opening is severely restricted as a result of which child cannot bite and masticate solid foods.

TMJ ankylosis especially with mandibular hypoplasia presents a serious problem for airway management. In children with long standing bilateral TMJ ankylosis during the active growth phase, a hypoplastic and retrognathic mandible with severe bird face deformity is noted and hence obstructive sleep apnoea is common problem. Airway obstruction is secondary to structural encroachment on or pharyngeal and hypopharyngeal lumen, subatmospheric interpharyngeal pressure and hypotonicity of oropharyngeal muscles.^[1] Due to above patient may have anaesthetic risks.^[2]

Perioperative risk of apnoea, desaturation and dysrhythmia.

Difficulty in securing airway.

Post extubation desaturation and hypoventilation.

Associated cardiovascular and respiratory complication of OSA like right ventricular failure and cor pulmonale, (3), polycythemia.

Due to nil or limited mouth opening nasotracheal intubation either blind or guided by fiberoptic bronchoscope, retrograde intubation or tracheostomy are the safer technique of securing airway. Awake fiberoptic scope guided nasotracheal intubation is the safest technique of intubation.

KEYWORDS: Temporomandibular joint ankylosis, blind awake intubation, obstructive sleep apnoea, blind nasal intubation.

CASE REPORT

A 18yrs old male admitted to MDM hosp with TMJ. With restricted mouth opening from many years and difficulty in eating solids. The patient had history asthma since birth taking some homeopathy medicines. The patient had no clear history of trauma.

MATERIAL AND METHOD

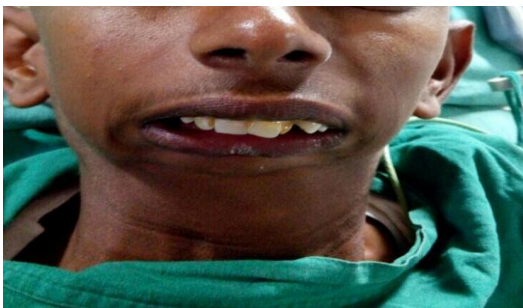
Details preoperative evaluation and investigations were done. The mouth opening was 1cm so Mallampatti couldn't assessed. The neck movements and nostrils patency was normal. The thyromental distance was 1.5cm. CT Scan showing bilateral TMJ ankylosis. X ray neck AP and lateral view taken to rule out shift of larynx and trachea. X-ray chest was showing some prominent bronchovascular markings. As receding chin and

micrognathic mandible was present so patient had typical look of bird face deformity. Routine investigations were normal. Consent for surgery, anaesthesia, cricothyroidectomy and tracheostomy was also taken. Then patient was scheduled for elective TMJ ankylosis correction under GA.

Before surgery patient was fasted overnight and were restricted from fluids 6 hrs preoperatively. A 18G i.v. cannula inserted in hand and ringer lactate infusion started. Inj Glycopyrrolate 0.2 mg iv given as premedication. Then xylometazoline decongestant and lignocain drops were placed into both nostrils.

After patient enter in operation theater, HR, NIBP, SPO2 were measured. ECG leads II connected. All connections

of FOB were checked. Patient was preoxygenated with 100% O₂. Then bilateral superior laryngeal nerve blocks (2cc of 1% xylocain on each side) and recurrent laryngeal nerve block given by injecting 2cc of 1% xylocain intratracheally. After 10min. of block Inj Fentanyl 50ug was given to reduce anxiety and hyperreactive airway. The bag and mask ventilation was very difficult due to micrognathia and receding chin. FOI was performed through rt nostril. During the procedure when fiberoptic bronchoscope just entered the posterior pharynx patient holds respiration and apnoea occurred and spo₂ falls to 5%. We just pushed the endotracheal tube upto pharynx and pulled out FOB. And ventilate patient by INSUFFLATION technique by connecting the tube(7mm) to circuit. The chest was visibly rising, spo₂ increased to 99%. again. Then we retry the procedure and proceed the bronchoscope into the ETT. AS when as the glottis was exposed., the bronchoscope was pared between the vocal cords an flexometallic nasal tube was gently advanced over the bronchoscope into the trachea. Inbetween all reactions of patient, body movements an change in vitals noted. After checking the position of tube, fiberoptic bronchoscope was removed. Then cuff of ETT inflated after auscultating the bilateral air entry in lungs. ETT cuffed and fixed. Hemodynamic responses were recorded every 5 min. After succesful intubation, the tracheal tube was attached to the close circuit and assisted ventilation was done. Then inj propfol 2 /kg given. Then halothane was started as inhalation and inj atracurium 0.5Mg/kg was given as NMDR agent, then put on ventilator on controlled mode. The maintenance was done by isoflurane1%, and atracurium 0.12 mg/kg. The patient was continous monitored. The total duration of surgery was 3hrs. The analgesia was repeated hrly. In the end neuromuscular blocking agent was reversed by neostigmin 0.05mg/kg. The patient was extubated on table after full airway assessment.



Preop front view



Preop lateral view



Preop mouth opening

DISCUSSION

TMJ ankylosis results in restricted or nil mouth opening and jaw function get affected. It may be unilateral or bilateral. In bilateral TMJ ankylosis facial symmetry is maintained but micrognathia is present. Birdface deformity, receding chin, narrow maxilla, protruding upper incisors with nil or few mms mouth opening are the features of bilateral TMJ ankylosis.

If the case remain untreated or neglected it may lead to malnutrition, facial asymmetry, and respiratory distress, and poor oral hygiene, caries or impacted teeth. Increased airway resistance and cor pulmonale^[3] may occur. The structural encroachment of oropharyngeal lumen, subatmospheric intrapharyngeal pressure, hypotonicity of oropharyngeal muscles resulted in airway obstruction. If occurred during growth of child it results in narrow oropharyngeal airway secondary to shortening of mandibular rami and narrowing of space between mandibular angle.

The above mentioned results in structural abnormalities with restricted or nil mouth opening results in difficulty in securing airway. Nasal intubation either blind or fiberoptic guided and awake or under anaesthesia, retrograde intubation and tracheostomy are the various techniques of securing airway. But out of these awake fiberoptic nasal intubation is the safest technique of intubation.^[6] Awake intubation needs patients cooperation, local blocks for nerve and topical anaesthesia for upper airway. If anaesthetic agents are used there is risk of Perioperative apnoea, desaturation and dysrhythmia.^[1] During the procedure laryngospasm may occur. Small doses of fentanyl given before intubation blunts the circulating response to tracheal intubation.^[4] Also fiberoptic nasotracheal intubation does not alter the hemodynamic.^[5]

The mainstay of difficult airway management remains flexible fiberoptic laryngobronchoscopy intubation. In the awake patient FOI maintain a wide margin of safety while producing minimal patient discomfort but requires adequate LA. Transnasal fiberoptic guided intubation under sedation or inhalational agents with spontaneous respiration is safest approach to intubation.^[6]

For the preparation of awake intubation two agents are used

1. BZDs and Opioids -there is sensitivity to benzodiazepine and opioids in such patients so should use in titrated doses strictly.^[1]

2. Antisialagogues- as oral secretions may make visualization via fiberoptic equipment difficult and may serve as a barrier to effective penetration of local anaesthetic into the mucosa. Glycopyrrolate is used.^[7]

For the superior laryngeal nerve block (larynx above the vocal cords), direct infiltration of 2ml Inj. lidocain 1%. Is accomplished by 25 G needle at level of thyrohyoid membrane inferior to the hyoid bone cornue on both sides of neck. And for the recurrent laryngeal nerve (larynx and trachea below vocal cords), trans tracheal block is accomplished at level of cricothyroid membrane after injecting 2ml of 2% Inj lidocain during coughing that disperses local anaesthetic. The use of sedatives was in titrated dose in preoperative period. When the spo2 falls we insert the ETT and just pulled out bronchoscope then ventilate. We did this to prevent the injury of nasal pathway which might be occurred due repeated manipulation of nasal pathway. Also it was difficult mask ventilation I.e can't ventilate due to micrognathia. The duration of surgery was long so patient was extubated when had good muscle power n head lifting and monitored for at least 30min in OT room. Then shifted to recovery room for observation. Intubation kit was kept ready if reintubation require.

CONCLUSION

It has been concluded that bilateral TMJ Ankylosis can be managed by awake fiberoptic nasal intubation under topical anaesthesia, without any complication like bleeding, stress response of intubation and need of anaesthesia. It is always a challenging to an anaesthetist. Also it needs a proper planning and all emergency equipments should ready before anaesthesia. Hence awake nasal fiberoptic intubation is safest approach of intubation.^[6]

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