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Case Report

Anaesthetic Management of Temporomandibular Joint Ankylosis in Paediatric Patient

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ABSTRACT

Temporomandibular joint (TMJ) ankylosis presents with reduced mouth-opening, is associated with dentition and orthognathic problems. Airway management in such cases is very challenging. Though numerous intubation techniques for intubation has been developed Blind nasal intubation is most commonly used method for intubation in patients with limited mouth opening, other techniques for difficult intubation are video laryngoscopy or fiber optic intubation ,retrograde intubation, invasive airway access like cricothyrotomy or tracheostomy. The purpose of this presentation is to report the challenges encountered in the airway management of an eleven-year old female with recurrent TMJ ankylosis.

Key words: airway management, blind nasal, temporomandibular joint ankylosis.

INTRODUCTION

TMJ ankylosis classified according to location (intraarticular or extraarticular). According to type of tissue involved (bony, fibrous, fibro-osseous), extend of fusion (complete or incomplete). [1,2] Ankylosis is most commonly associated with trauma (31-98%) local or systemic infection (10-49%), systemic disease (10%), or neoplasm. In case of trauma it is hypothesized that intraarticular hematoma, with scarring and excessive bone formation, leads to hypomobility. [1,2] Treatment goal for all hypomotility disorders is restoration of normal and comfortable jaw motion and prevention of disease progression. [2]

As TMJ ankylosis presents with anatomic difficulties like limited mouth opening, hypoplastic mandible, awkward dentition, it makes intubation a challenging task [3,4] Blind nasal intubation technique is chosen to give general anesthesia. [5] To provide a definitive airway fiber optic laryngoscope, instruments for retrograde intubation and surgical airway should be ready. [6-8]

CASE REPORT

11 year old female weighing 25kg was posted for right sided temporomandibular joint ankylosis release. Patient is having restricted mouth opening since 3 years of age was operated for same at age of 6 years and 9 years but due to lack of physiotherapy ankylosis reoccurred, her mouth opening is 1 finger approx. 6 mm. teeth are irregularly arranged, severe hypoplasia of right horizontal and vertical ramus, mandibular and coronoid processes, mandibular fossa is very shallow and hypoplastic. Patient's

airway is assessed. On examination of the nasal cavity, there was no deviated nasal septum, no hypertrophy of turbinate, or any nasal mass the child was reassessed for management of difficult intubation and necessary instruments made ready and planned for blind nasal intubation, with set for surgical airway and retrograde intubation also kept ready. All routine investigations haemogram, BUN, creatinine, chestx-ray, ECGdone.

Fig.1: OPG showing mouth opening

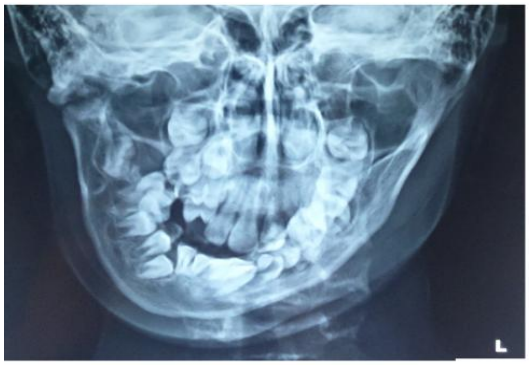

Fig.2: OPG showing malaligned teeth

Preoperatively, nasal decongestant 0.05% xylometazoline was instilled in the nostrils. Monitoring is done using pulse oxymeter, Non invasive BP and ECG,.IV cannula no.22 is connected and patient is preloaded with ringer lactate at 65 ml/hr. Patient is premedicated with inj. glycopyrrolate 0.1mg IV., inj ondansetron 3 mg IV, inj. midazolam 0.75mg IV, inj. tramadol 50 mg IV.As patient is uncooperative for awake intubation, Inj. propofol 50 mg IV given. Patient is intubated with blind nasal intubation technique with portex ET tube no.5.5. after confirmation of tube placement patient is maintained on O2 , N2O, and sevoflurane and muscle relaxation obtained by inj vecuronium 2.5 mg IV. Patients' vitals are maintained throughout the procedure. Procedure lasted for 4 hrs. After spontaneous respiratory attempts, reversal is obtained by Inj. neostigmine 1.25 mg and inj. glycopyrrolate 0.2 mg IV .Patient extubated after proper suctioning and after confirming adequate respiratory attempts and tone. Patient shifted to recovery room for further monitoring.

DISCUSSION

Generally in case of difficult airway, some better options for airway management like orotracheal intubation, Laryngeal Mask Airway (LMA), Intubating LMA (ILMA), Combitube are used but as there is limited mouth opening only few options are left and they are blind nasal intubation, retrograde intubation, transtracheal jet ventilation, Fiberoptic videolaryngoscopic intubation and surgical airways like Tracheostomy [7] and cricothyrotomy In this patient, we planned for blind nasal intubation and tracheostomy and retrograde intubation were kept as the final resort for airway management as they are more invasive in nature. [8,9]

During blind nasal intubation tube can advance into trachea, anteriorly, laterally into pyriform sinus, or into esophagus. [10] Confirmation of tube placement is done by listening to breath sounds, auscultation of breath sounds, and capnography. [11]

Fiberoptic video laryngoscope is gold standard, as, blind nasal intubation may cause injury to middle or inferior Turbinate, infection, nasal mucosal injury and epistaxis. [12] But its cost and availability and technical difficulty limits its use in rural setups.

As nasal intubation is a blind procedure and unavailability of paediatric

videolaryngoscopy, instruments for retrograde intubation and surgical airway should be ready. [6-8]

Fig.3: Mouth opening before surgery **Fig.4:Blind nasal intubation**

Blind nasal intubation is technique of choice in many situations in maxillofacial surgery and facial trauma surgeries [5] due to its success rate, cost effectiveness, and its noninvasiveness, and no need for expensive instruments.

CONCLUSION

In temporomandibular joint ankylosis, fibreoptic guided awake nasal intubation is a gold standard safer and better alternative to other techniques. But due to its unavailability and cost, blind nasal intubation is a technique of choice in many conditions.

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