

Nasotracheal Intubation in a Pediatric Patient with Temporomandibular Joint Ankylosis

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Abstract: Temporomandibular joint (TME) ankylosis is disease that occurs due to the attachment of mandibula to the base of the skull and restricts opening of the mouth and causes problems in air way management. In this report, in a pediatric case in whom unilateral TME ankylosis developed after traffic accident and who had mouth opening of 1cm. and our nasotracheal intubation experience with the help of a videolaryngoscope is presented. A 11 year old girl at the weight of 34kg. had limitation of mouth opening following a traffic accident and Ear Nose Throat (ENT) department diagnosed her with unilateral TME ankylosis and operation was planned. Tiromental distance was 2cm and sternomental distance was 4,5. Patient was evaluated as difficult intubation and intubation with laryngoscope was planned. Mallampati score was 4, and ASA score was 2. Induction was made with propofol without losing spontaneous respiration. Cormac Lehane grade was found to be II and patient was intubated nasotracheally with 5.5. mm tube using videolaryngoscope. Following the surgical procedure lasting three hours, a successful extubation procedure was carried out using sugammadex. In the prediction of difficult airway, short and muscular neck, low set mandibula, protruding maxilla incisors, movement restriction in temperomandibular joint, longer alveolar mental distance, cercial movement limitation, mouth opening, tiromental distance, mallampati neck movements, prognathia and body weight are used as predictors. Videolaryngoscopes make it possible to image anatomical structures clearly and to carry out laryngoscopy without bringing oral cavity, pharynx and larynx planes to the same level and to perform endotracheal intubation. In children with temporomandibular joint ankylosis, videolaryngoscope is a safe method in providing airway with nasotracheal intubation.

Keywords: Temporomandibular joint (TME) ankylosis, mandible, videolaryngoscope, difficult intubation

INTRODUCTION

Temporomandibular joint (TMJ) ankylosis is a disease that occurs as a consequence of attachment of mandibula to skull base, restricts opening of mouth and leads to problems in airway management [1]. Failures in intubation are among the important causes of morbidity and mortality associated with anesthesia. In case of failure in laryngoscopy with Macintosh blade, among alternative airway tools, supraglottic airway tools, rigid and flexible intubation endoscopes and modified layrngoscope blades can be used [2,3]. When conventional laryngoscopes are not successful, videolaryngoscopes may be a good alternative [2,3]. The aim of this case report is to present our experience in nasotrachal intubation with the help of a laryngoscope in a pediatric patient in whom unilatearl TME ankylosis developed and had a mouth opening of 1cm.

CASE REPORT

An 11 year old girl at the weight of 34kg. whose mouth opening was limited after a traffic

accident was diagnosed with TME ankylosis by ENT department and operation was planned. Patient had unilateral movement limitations associated with TME were; tiromental distance was 2 cm and sternomental distance 4.5 cm. Patient was evaluated as a case of difficult intubation and intubation with videolaryngoscope was planned. Relatives of the patient was informed about the procedure and their written consent was obtained. Preoperative laboratory investigations were normal and routine monitorization procedure was carried out with Electrocardiography (ECG), noninvasive blood pressure, capnography and pulse oximeter. Preoperative vital findings were as follows: TA: 115/65 mmHg, KAH: 89 beat /min. and , SpO₂:99%. Mallampati score was 4 and ASA score 2. Preparation was made for difficult intubation with all sizes of mask, tube, blade and lma. Anesthesia induction was carried out with lidocain HCl 2 mg/kg, propofol (Propofol Fresenius® - Fresenius Kabi Istanbul, Turkey) and 1 mcg/kg fentanyl (fentanyl, Abbott) with intach spontaneous respiration. No difficulty was encountered in mask ventilation. After

ventilation with 100% O₂ with videolaryngoscope (King Vision, USA) Cormac Lehane grade II was identified and with the help of magil pens ,she was successfully intubated nasotracheally at the first attempt. Maintenance of anesthesia was made with 50% O₂ and 50% air mixture and %2 sevofluran and 0.5 mcg/kg/min remifentanyl (ultiva, Glaxo Smith Kline, USA) .After surgical operation lasting for three hours, sugammadex (Bridion, Merck Sharp Dohme, Hollande) was administered for neuromuscular block antagonization and the patient was extubated successfull and transferred to ear nose throat service.



Fig-1: Restricted mouth opening in patient

DISCUSSION

Difficult airway occurs at the rate of 2-8% during anesthesia practices [2]. Difficult airway is among the leading causes of mortality and morbidity associated with anesthesia. Therefore, alternative airway tools should be kept ready in case airway is difficult [3]. In the prediction of difficult airway, short muscular neck, Low set mandibula, protruding maxilla incisors, longer alveola mental distance and lack of cervical movement are frequently used physical examination symptoms. In addition, mouth opening, tiromental distance, mallampati score , neck movement, prognathia problem, and body weight are other parameters used in the evaluation of difficult airway [4]. In cases of difficult airway, there are various airway options such as blind nasal intubation, intubation with the aid of videolaryngoscope and tracheostomy [5]. Videolayrngoscopes make it possible to image anatomic structures clearly, to carry out laryngoscopy without bringing oral cavity, larynx and pharynx planes to the same level and to perfrom endotracheal intubation. It may be used as a alternative airway tool in patients with difficulty of airway due to its such characteristics. In the present case, nasotracheal intubation was carried out successfully at the first attempt using videolaryngoscope.

CONCLUSION

In each patient, preoperative airway evaluation should be carried out carefully and cases with risk factors should be determined in advance. In patients thought to be challenging for intubation, alternative and adjuvant airway tools should be kept ready.

Videolaryngoscope should always be kept in mind in children as an alternative or fiberoptic approach since it is not requires as much experience as it does and awake intubation is almost impossible in children. Especially in children with temperomandibular joint ankylosis making conventional laryngoscopy nearly impossible, videolaryngoscopy is a safe method in maintaining airway.

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