Role for Pre-emptive Analgesia to Increase the Accuracy of Airway Assessment in Patients having Painful Mouth Opening: A Case Report

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ABSTRACT

Careful preoperative evaluation and planning is essential to prevent airway-related morbidity and mortality during induction of anesthesia. According to previous studies, predictors of difficult airway include Mallampati III, limitation of jaw protrusion, male sex, presence of teeth, limited neck extension, and reduced thyromental distance. There are no clear-cut guidelines regarding application of difficult airway predictors in patient having painful mouth opening. In this case report, we have described our experience of pre-emptive analgesia to increase the accuracy of airway assessment in patient having painful mouth opening.

Keywords: Airway management, Analgesia, Fentanyl, Mucormycosis.

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INTRODUCTION

Careful preoperative evaluation and planning is essential to prevent airway related morbidity and mortality during induction of anesthesia.[1] Difficult airway (DA) has been defined as ″the clinical situation in which a conventionally trained anaesthesiologist experiences difficulty in face mask ventilation of the upper airway, difficulty in tracheal intubation, or both.″[2] Predictors of difficult airway include Mallampati III, limitation of jaw protrusion, male sex, presence of teeth, limited neck extension, and reduced thyromental distance. Here we describe a case of painful mouth opening in which preoperative airway assessment was facilitated using analgesics (fentanyl 2 mcg/kg). This case report has been prepared in accordance with CARE guideline. Written and informed consent for publication was obtained from the patient.

CASE DESCRIPTION

A 70-year-old female, BMI= 23 kg/m^2 was scheduled for open surgical debridement of right-sided rhinocerebral mucormycosis. She had been diagnosed with COVID-19, 6 weeks back for which she was put on steroids. Though she had recovered from COVID, she had developed rhinocerebral mucormycosis, for which she was undergoing treatment (10 mg/kg/day for the last 2 weeks). On examination, the airway examination revealed restricted mouth opening: (1 Finger Breadth) which led to a higher grading of Mallampati score (MP IV). The other parameters were: thyromental distance (thyroid incision distance more than 4.5 cm), normal neck extension, and mandibular elevation (upper lip bite test I degree).

Fentanyl (2 mcg/kg) was given to relieve the muscle spasm which increased to mouth opening to 2.5 finger breadth. Mallampati grading improved to II thereafter. After shifting the patient to operating room, standard ASA monitors were attached and base line vitals noted. An intravenous line was secured and infusion of balanced salt solution was started as maintenance fluid. Anestheia was induced with injection propofol 2 mg/kg and vecuronium 0.1 mg/kg. There was no difficulty in mask

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ventilation or intubation. The airway was secured with a 7.5 mm (ID) endotracheal tube without use of aided device for difficult airway management. Anesthesia was maintained with oxygen, air, and isoflurane. Surgery lasted for 3 hours and was uneventful. Patients trachea was extubated successfully and she was shifted to postoperative ward.

DISCUSSION

The probability of difficult mask ventilation has been estimated to be 2.7% and of difficult mask ventilation with difficult laryngoscopy to be 1.69%.[3] Among the various predictors of difficult airway, Mallampati score remains the most commonly used. It is a graded 4-level pictorial scale created to predict difficult intubation before general anesthesia and is routinely used in operating room worldwide.[4] This score has been extrapolated outside of the operating room to procedural sedation, with a number of specialty societies recommending it as a routine screening element. Painful mouth opening during preoperative airway examination affects the difficult airway predictors and gives a false impression of restricted airway. Difficult airway predictor applied in case of

restricted airway due to anatomical defect (cleft lip and palate, micrognathia, cranio-carpotarsal dysplasia, epidermolysis bullosa, scleroderma, oral submucous fibrosis, Plummer–Vinson syndrome, Hallermann–Streiff syndrome, Treacher-Collin syndrome, burns, trauma, postradiation therapy for facial cancer, surgically induced after treatment for cleft lip and palate, facial tumor or facial trauma, and trismus) cannot be extrapolated to patients in which restricted mouth opening is due to temporary or acute conditions (fascial muscle pain, trauma, tooth decay/dental pain, mumps, oral space infections, and trismus/temporomandibular dysfunction syndrome).

Nerve blocks and analgesics have been used to relieve acute trismus in various settings. Kojima et al.[5] successfully used ultrasound-guided inferior alveolar nerve block to subside pain due to mouth opening during dental procedure and to improve mouth opening 20–40 mm. According to them, the dental procedure was performed without difficulty and the patient could keep her mouth open throughout the treatment. Earlier mandibular nerve block had also been described to relieve acute facial muscle spasm. No case has been reported in literature wherein opioids have been used to relieve spasm to improve airway assessment. Here we were successful in securing the airway following IV administration of propofol and muscle relaxant vecuronium (0.1 mg/kg). There was no difficulty in mask ventilation or intubation.

There are no clear cut guidelines regarding application of difficult airway predictors in patient having painful mouth opening and in uncooperative pediatric patient. A supervised dose of analgesic/anxiolytic might be useful in such scenarios.

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