



Anaesthetic management in submandibular abscess patient- A case report

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Abstract

Airway management in a patient with submandibular gland abscess patient is a challenging task as it presents a scenario of anticipated difficult airway and any flaw may predispose to grave mortality and morbidity. Skillful airway management is of utmost importance in deep neck infections. We present a case of 8-year-old female child, with an extra-oral indurated swelling, planned for surgical decompression of submandibular abscess under general anaesthesia. From initial assessment to post-operative recovery, submandibular abscess requires close monitoring and collective efforts of anaesthesia and surgical teams. Efficient assessment of the airway, impending complications and measures to effectively tackle them through a step- wise yet vigilant approach, can help in fortuitously tackling a difficult airway situation like this.

Keywords: Submandibular abscess, difficult airway, Fibreoptic intubation Supraglottic odema.

Introduction

Salivary gland abscess is due to bacterial or viral infection in the salivary gland or duct leading to reduced flow of saliva, because of blockage or inflammation in the salivary duct. Submandibular abscess was first

described in 1836 by Wilhem Fredrick von Ludwig. Mortality was greater than 50% in the pre-antibiotic era. Submandibular space infection is a rapidly spreading, bilateral indurated cellulitis occurring in supra- hyoid soft tissue. Successful management of submandibular abscess involves an accurate diagnosis, understanding the anatomy and spread of infection in the head and neck region. It is an aggressive, rapidly spreading cellulitis, without lymphadenopathy with potential for airway obstruction and requires careful monitoring and rapid intervention for prevention of asphyxia and aspiration pneumonia.

Case report

An 8 years old female child, weighing 20 kg, came to the emergency department with the chief complaints of pain, swelling of the lower jaw and neck, with fever and inability to eat. Patient had respiratory distress and was toxic in appearance, temperature 103° F, with pulse rate of 124/min, BP- 130/80 mm/hg and respiratory rate of 35/min. Mouth opening was limited to one- finger only (inter-incisor distance of 1.5 cm), with swollen tongue. Extra-orally, swelling was indurated, non-fluctuant with unilateral involvement of submandibular gland of right side. Patient was planned for surgical decompression of

submandibular abscess under general anaesthesia. Ideally, submandibular abscess should be managed with awake fibre-optic guided nasal intubation if the patient is cooperative. Patient was ASA grade 1. Initial assessment suggested difficult mask ventilation and laryngoscopy due to painful soft tissue swelling of the neck and oral cavity. ENT surgical team was informed about the emergency tracheostomy as the last respite to secure the airway. Systemic examination revealed tachycardia and tachypnea, laboratory findings were not available. After attaching all the standard monitors (ECG, NIBP, Peripheral O₂ saturation probe), peripheral vascular access was obtained with 18G cannula in the left hand. Considering the age and restraints in ventilation, no premedication was given to the child so as to prevent any respiratory compromise. As the child was uncooperative, we decided to maintain the patency of airway with a nasopharyngeal airway (after adequate lubrication of the NPA as well the more patent nostril with lignocaine jelly), inserted in the awake state. Inhalational induction with sevoflurane 8% was attempted with gentle mask ventilation. Anaesthesia was then deepened with Sevoflurane 6% in 100% O₂ and propofol 2mg/kg. Check laryngoscopy was attempted, mouth opening had increased, glottic opening was almost visible (Cormack Lehane grade 2B). Patient was then ventilated again and appropriate dosage of Succinylcholine 1.5mg/kg was given intra- venously. A minute following this, gentle and careful laryngoscopy was attempted, intubation done with 6mm ID endotracheal tube, and thus airway secured. Correct placement of endotracheal tube was confirmed by auscultation and capnography. Following this, injection Fentanyl 2ug/kg was given. Surgical procedure lasted for 90 minutes and intra- operative course was

uneventful and patient extubated without any adverse events.

Discussion

Awake fibreoptic intubation is the gold standard in adults, which is not possible in uncooperative children especially less than 12 years of age. Primary concerns in this case were difficult airway, difficult bag and mask ventilation, reduced mouth opening, narrowing of upper airway (due to painful mouth opening), supraglottic odema, bleeding, and spread of infection to head and neck region. We planned to do a check laryngoscopy under conscious sedation, to scrutinize the ease of intubation after neuromuscular blockade with scoline. Our last respite being elective tracheostomy in case of failure to successfully securing the airway. Securing an intravenous cannula in the pre- operative room, can be of added advantage subsequently, in the operating room for conscious sedation especially wherein fibre -optic guided intubation cannot be attempted and inhalational induction might not suffice due to painful mask ventilation and inadequacy to attain a perfect seal. In our case, we had taken care to secure an intravenous cannula beforehand in the pre-op holding area, which helped us induce conscious sedation with sevoflurane and propofol both and attempt for check laryngoscopy. Though we succeeded in our attempt to secure the airway thereafter, one should always be ready with a plan B for securing the airway. Our last respite or plan B was elective surgical tracheostomy by the ENT team, which was primed before taking up the case in the operating room. Keeping the airway patent through a nasopharyngeal airway (until the airway is secured) is also a good proposal especially in infective lesions like submandibular abscess where the tongue might be also edematous and approximating with the posterior

pharyngeal wall, thus occluding the airway and making the ventilation further difficult. We, therefore, decided to overcome this strain by inserting the nasopharyngeal airway.

Conclusion

From initial assessment to post-operative recovery, submandibular abscess requires close monitoring and collective efforts of anaesthesia and surgical teams. Efficient assessment of the airway, impending complications and measures to effectively tackle them through a step-wise yet vigilant approach, can help in fortuitously tackling a difficult airway situation like this.

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