Case Report

ADVANCED LUDWIG’S ANGINA - A CASE REPORT

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ABSTRACT

Securing airway in a case of Ludwig’s angina with limited mouth opening is a challenging and dangerous task. Selecting the method for securing airway and timing is crucial in this condition. We present a case of Ludwig’s angina who underwent incision and drainage (a minor procedure). Chances of rupture of abscess while trying to secure the airway was a major threat, we successfully secured the airway of the patient with the help of a fiberoptic bronchoscope.

Key Words: Ludwig’s Angina, Fiberoptic Bronchoscope, Incision and Drainage

INTRODUCTION

Ludwig’s angina was first described in the year 1836 by German physician Karl Freidrich Willhelm Von Ludwig and hence named after him. It is also termed as angiitis ludovici. It is a diffuse cellulitis which is life threatening and involves the floor of the mouth and bilateral submandibular and sublingual (Srirompotong and Art-Smart, 2003) regions which can lead to progressive airway obstruction. The condition is characterized by fever, malaise, dyspnœa and tender swelling over the floor of the mouth and neck. In 80% of the cases there is history of associated dental infection (Dhingra and Dhingra, 2010). The cellulitis in Ludwig’s angina is due to mixed infection, both aerobic and anaerobic bacteria. It consists of mainly alpha-hemolytic streptococci, staphylococci and bacteroides group (Hartmann, 1999) and odontogenic infection developing from 2nd and 3rd molar teeth (Fritsch and Klein, 1992; De Bast et al., 2000).

CASES

Patients with Ludwig’s angina are challenging for an anesthesiologist if associated with neck swelling and restricted mouth opening.

Figure 1: The patient with neck swelling and restricted mouth opening
It is a report of a case of Ludwig’s angina that was successfully managed in our hospital using awake, fibreoptic technique. A 27 year old male presented to the emergency department with complaints of fever, pain, swelling over floor of mouth and neck (Figure 1). Patient had a history of tooth extraction 7 days ago for dental caries. On examination he was conscious, febrile (102°F), dehydrated, with restricted mouth opening (1 finger). In the room, air saturation was 94% and with oxygen saturation improved to 99%. His cardiovascular and respiratory system examination was within normal limits. Blood investigations were done which showed raised leucocyte count. After explaining the need for an emergency incision and drainage, informed consent was taken, even for tracheostomy in case of necessity. Patient’s co-operation was sought for awake fibreoptic intubation. Difficult airway cart was kept ready. After shifting the patient to operation theatre, monitors like non-invasive blood pressure, pulseoximeter and ECG were connected. Patient was prepared for awake fibreoptic intubation via nasal route using xylometazoline drops and 10% lignocaine spray was used to anaesthetize oral cavity and posterior pharynx. Fentanyl in titrated dose was given as sedation.

Figure 2: Introduction of fibreoptic scope through the right nostril

Fibreoptic scope with a 7mm size cuffed endotracheal tube preloaded was introduced through the right nostril (Figure 2). Fibreoptic scope was advanced and vocal cords were visualized and confirmed the trachea by visualizing carina. Once carina was seen endotracheal tube was threaded and position was confirmed with bilateral air entry and end tidal carbon dioxide trace.

Anaesthesia was then induced with Propofol and muscle relaxation using Vecuronium. Intermittent positive pressure ventilation was given with the help of ventilator and maintained with nitrous oxide 66% and oxygen 33%. Surgical site was prepared and incision and drainage was done. Approximately 150 ml of pus was drained and cavity was packed with Povidone iodine soaked gauze followed by compression bandage.

Figure 3: Improved mouth opening upon surgery
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After recovery from anaesthesia, patient was shifted to surgical intensive care unit with endotracheal tube in place and connected to T-piece with oxygen. Intravenous antibiotics and analgesics were given and patient was extubated after 48 hours. Mouth opening improved upon surgery (Figure 3).

DISCUSSION

Ludwig’s angina due to odontogenic infection has a mortality rate ranging from 8-10%. Factors responsible for this condition include odontogenic infection, dental treatment, sickle cell disease, compromised immune system, trauma, tongue piercing and idiopathic origin in children (Kurien et al., 1997; Perkins et al., 1997). In the pre-antibiotic era the reported mortality was as high as 54%. In the present scenario, where patients are treated with antibiotics, it varies between 0–8.5% (Neff et al., 1999). Airway management of patient with Ludwig’s angina for surgical drainage is a challenging task for anaesthesiologist. There is no consensus regarding the airway management in the available literature. The recommendations are based on authors’ personal experience and availability of resources. Suggested methods include tracheostomy, conventional laryngoscopy (after administration of muscle relaxant) awake blind nasal intubation and awake fibreoptic intubation (Ovassapian et al., 2005). Decompression of Ludwig’s angina under cervical block has also been reported.

Tracheostomy using local anaesthesia was considered as gold standard for management of these patients in the past (William, 1940). Tracheostomy in a patient with a compromised airway and distorted anterior neck anatomy can be very difficult or even impossible.

Other complications include risk of the spread of infection to the mediastinum, aspiration of pus, rupture of innominate artery spread of infection to thorax, airway loss and tracheal stenosis.

Conclusion

With introduction of fibreoptic bronchoscope and better training of anaesthesiologist in managing difficult airway, securing airway in a sedated patient using fibreoptic method is the best approach rather than considering tracheostomy in Ludwig’s angina.

REFERENCES


