



LUDWIG'S ANGINA AND ANAESTHETIC MANAGEMENT - A CASE REPORT.

¹DR SREELATHA B AND ²DR SULOCHANA DASH

Department of Anaesthesiology and Critical Care, Saveetha Medical College, Chennai, Tamilnadu.

ABSTRACT

Ludwig's angina is an acute infection of submandibular space causing airway oedema and narrowing leading to partial to complete obstruction of upper airway. Anaesthetic management in patients with Ludwig's angina is a challenge in view of a difficult airway. This case report represents anaesthetic management of a 75 yr old female with Ludwig's angina having type 2 diabetes and systemic hypertension posted for emergency drainage where the airway was secured by elective nasotracheal fiberoptic intubation without any complications.

Key words: Ludwig's angina, difficult airway, Fiberoptic intubation.



DR SULOCHANA DASH

Department of Anaesthesiology and Critical Care,
Saveetha Medical College, Chennai, Tamilnadu.

*Corresponding author

INTRODUCTION

Ludwig's angina is an acute infection and inflammation of submandibular and sublingual space causing airway oedema leading to partial to complete upper airway obstruction. These patients need timely intervention and securing of airway failing which may lead to asphyxia and death. Our case was managed successfully by electively securing airway with awake fiberoptic nasotracheal intubation after anaesthetising the airway by local anaesthetics.

CASE REPORT

A 75 yr old female patient weighing 80kg and height of 156 cm was known diabetic since 10 years and hypertensive since 5 yrs on oral hypoglycemics and tablet amlodipine. She presented with a 10 days old history of gradually increasing painful swelling of the lower jaw which was extending down to the neck. It was associated with fever, productive cough, decreased mouth opening and dysphagia. There was no history of difficulty

in breathing. She was obese, febrile, dehydrated, tachypnoic with a pulse rate of 110/ min, BP of 140/100 mmHg and SpO₂ of 96% on room air. Airway examination showed restricted mouth opening (inter incisor gap of 1.5 cm), decreased range of neck mobility, trismus and oedematous tongue. Mallampatti grade could not be assessed. There was a diffuse indurated swelling in the submandibular region and sublingual region with pus pointing out. Examination of respiratory system showed bilateral rhonchi and basal crepts. Cardiovascular system was normal. Investigations showed Hb of 7.5g%, total leucocytes count of 41000/cubic mm, random blood sugar of 340mg% but ketones were negative. Renal parameters and coagulation studies were normal. Chest X ray showed mild cardiomegaly with increased bronchovascular markings. CT scan of neck was showing multiple abscess collection in submental and sublingual region. ECG was normal.



Figure 1
showing the neck swelling.



Figure 2
showing restricted mouth opening.

After thorough pre anaesthetic evaluation, the risk involved with surgery under anaesthesia was explained to the patient and relatives and informed written consent was obtained. Patient was nebulised with Salbutamol as she had rhonchi. Blood sugar correction was started with inj. Human Actrapid infusion as per tight control regimen (@ Blood sugar/ 100 U/hr) after securing an 18G IV cannula in left forearm and was premedicated with intravenous Inj. Ranitidine and Metoclopramide. All the essential drugs and equipment and difficult airway cart was kept ready. The patient was shifted to the operating room and monitors (ECG, NIBP, pulse oxymetry and capnometry) were connected and baseline values were recorded. Inj Glycopyrrolate 0.2 mg and inj. Midazolam 1 mg were given IV. Nasal decongestion was achieved with 4% lignocaine and Xylometazoline nasal pack. Airway was anaesthetised with Superior laryngeal and transtracheal block and 10% lignocaine oropharyngeal spray. Inj. fentanyl 30 micg was given IV to make the patient comfortable. A lubricated fiberoptic bronchoscope (FOB) with a 7mm endotracheal tube(ETT) mounted on it was introduced through the right nostril and slowly advanced. Base of tongue and epiglottis were found to be oedematous but FOB could be easily advanced with little manipulation. After visualisation of vocal cords which were also normal the FOB was further advanced till carina was seen and then ETT tube was advanced and trachea was intubated. After checking for bilateral air entry and confirmation with capnography ETT was secured with plasters. Patient was induced with IV Propofol, fentanyl and vecuronium as per her dose requirement. Anaesthesia was maintained with air, oxygen and isoflurane. Surgery was started which lasted for one hour. Throughout intraoperative period her vital parameters were normal. As the patient had rhonchi and crepts and there was airway oedema she was shifted to ICU with endotracheal tube and electively ventilated for three days till her lung signs improved and airway oedema subsided and than extubated. During her post operative period blood sugars were under control and vitals were stable. On 4th post operative day she was shifted to ward.

DISCUSSION

Ludwig's angina was first described by Wilhem Fredrich Von Ludwig in 1836. It manifests as a rapidly spreading fulminant cellulitis of sublingual and submandibular area appearing as brawny induration and often associated with predisposing factors like previous dental extraction, immunocompromised state, mandibular trauma, submandibular sialoadenitis and peritonsillar abscess. Most common organisms associated with Ludwig's angina are Staph. Aureus, Staph epidermidis and anaerobic streptococci. The signs and symptoms of Ludwig's angina are local pain, swelling and trismus, fever, dysphagia and oedema of the airway. Tongue becomes oedematous and gets pushed upward leading to airway obstruction. Mortality due to this is about 8 – 10 %.In such cases airway needs to be protected .Death can occur due to loss of control of airway during airway intervention while anaesthetising the patient⁷.Other complications associated with it are spreading of infection leading to mediastinitis, meningitis which further increases mortality to 20 – 50%². In the initial stages the disease can be managed conservatively with antibiotics. But advanced disease where there is threat to airway needs to be managed surgically. Anaesthetic management of such cases are challenging as the patients present with a difficult airway due to distorted anatomy as a result of cellulitis. Failure rate to secure airway with conventional direct laryngoscopy and intubation is very high. The other technique blind nasal intubation is also associated with increased high failure rate and complications like bleeding rupture of the abscess leading to aspiration and laryngospasm. Trauma to airway during nasal intubation might lead to complete airway obstruction resulting in cannot intubate and cannot ventilate (CVCI) state. Elective awake tracheostomy before anaesthesia to protect airway was the standard technique before development of FOB. But this method has also complications like difficult access to trachea due to oedema, spread of infection to thorax, aspiration of pus and late complications like tracheal stenosis⁹. So awake fiberoptic intubation after airway anaesthesia is the ideal method in such

patients as success rate with this is high. But there are few incidences of failure with this technique because of distorted anatomy. Success rate further can be improved by proper preanaesthetic counselling, anaesthetic planning and management. A

back up tracheostomy should be kept for all such cases to protect airway. This case was successfully managed with optimal patient preparation, elective FOB guided awake intubation and ventilating the patient during post op period till airway oedema subsided.

REFERENCE

1. Loughnan TE., Allen DE. Ludwig angina: the anaesthetic management of nine cases. *Anaesthesia*: 40:295-7; 1985.
2. Durand M, Joseph M: Infections of the upper respiratory tract. In Harrison's Principles of Internal Medicine Volume 1. 16th edition. McGraw-Hill: New York: 191; 2001.
3. Perkins CS, Meisner J, Harrison JM. A complication of tongue flap piercing. *Br Dent J*; 182:147-8;1997.
4. Stanley RE, Liang TS: Acute epiglottitis in adults. (The Singapore experience). *J Laryngol Otol*: 102:1017-1021;1988.
5. William AC. Ludwig's Angina: Surgery, gynaecology and obstetrics.; 70:140-3, 1940.
6. Neff SP, Merry AF, Anderson B. Airway management in Ludwig's Angina. *Anaesth Intensive care*; 27:659-61.1999.
7. Ovassapian A, Tuncbilek M, Weitzel EK, Joshi CW: Airway management in adult patients with deep neck infections: A case series and review of the literature. *Anesth Analg*: 100:585-589;2005.
8. Parhiscar A, Har-EL E: Deep neck abscess. A retrospective review of 210 cases. *Ann Otol Rhinol Laryngol*: 110:1051-54; 2001.
9. Busch RF, Shah D. Ludwig's Angina: improved treatment. *Otolaryngol Head Neck Surg*; 117:172-175;1997.
10. Saifelddeen K, Evans R: Ludwig's angina. *Emerg Med J*: 21:242-243; 2004.