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## Ludwigs Angina- For I & D an Alternative Airway Management- A Case Report.

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### ABSTRACT

Ludwigs angina is a lethal infection affecting the submandibular, sublingual and submental spaces resulting in airway edema, distortion, and obstruction and death may be inevitable due to airway mishaps and septicemia. We present a case of ludwigs angina, managed successfully at Sree Balaji Medical College with TIVA+O<sub>2</sub>.

**Keywords:** ludwigs angina, airway, mask ventilation

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## METHODS

A 62-year-old male has been admitted in ICU with complaints of pain in the mouth and neck, and difficulty in swallowing for 3 days. He was posted for emergency surgical incision & drainage. He is a known diabetic more than 15 years, on insulin, Hypertensive on treatment. On examination swelling was present in the anterior aspect of neck extending from submental to submandibular region & submental to suprasternal region bilaterally. He was dyspnoeic, tachypnoeic with supra sternal and intercostal retraction. Blood pressure was 140/90 mmHg. Other systemic examination was normal. Essential emergency investigations were done. Keeping ready the airway crash cart, I&D was done with IV Glycopyrrolate 0.2 mg, Ketamine 100 mg and Fentanyl 100 mcg. Airway was maintained with face mask through Magills circuit.

## RESULTS

A case of Ludwig's angina for emergency Incision and drainage was successfully managed TIVA and Oxygen supplementation via mask.

## DISCUSSION

Ludwig's angina was firstly described by Wilhelm Fredrick von Ludwig in 1836. Ludwig's angina is a serious, life threatening if not early recognised and treated due to septicemia and asphyxia caused by expanding edema of soft tissues of the neck. Ludwig's angina has been occurred more usually in adults than children.

Conventionally, Ludwig's angina has been more seen in patients with poor oral hygiene. Most of the cases are due to infected lower molars or pericoronitis, which is result of inflammation of the soft tissues surrounding the crown of a partially erupted tooth, most commonly the second or third molar. Although Ludwig's usually develops in immunocompromised persons, it can also develop in healthy individuals. In children, Ludwig's angina has an identified odontogenic source only 50% of the case, in contrast with the 70% to 90% incidence of odontogenic origin reported in adults. Other etiologic sources in children include oral mucosa lacerations, submandibular sialadenitis and mandibular fractures. As well as, herpetic gingivostomatitis tongue piercing and lymphatic vascular malformation can cause this disease.

Ludwig's angina, a rapidly progressive cellulitis of the floor of the mouth, involves the submandibular and sublingual spaces of the face. The infectious process expands superiorly and posteriorly, elevating the floor of the mouth and the tongue. The hyoid bone limits the process inferiorly, and swelling spreads to the anterior aspect of the neck, causing distortion and a "bull neck" appearance. This causes displacement of both the oral tongue superiorly and posteriorly, producing a potentially life-threatening obstruction of the airway at the level of the oral cavity and oropharynx.

Patients can have swelling, pain, and elevation of the tongue, malaise, dyspnea, fever, neck swelling, redness of the neck and dysphagia. The submandibular area can be sometimes with palpable crepitus. The most feared complication is airway obstruction due to elevation and posterior displacement of the tongue. The fatality rates reported 54% to 60% due to airway obstruction. Blind nasal intubation should be avoided as it could cause bleeding, laryngospasm, oedema of the airway, rupture of pus into the oral cavity, and aspiration.

Although distorted anatomy, oedema, and secretions may contribute to difficulty with fiberoptic intubation, in skilled hand, flexible fiberoptic nasal intubation is the preferred method of airway management with high rates of success. Elective awake tracheostomy is performed in our unit if fiberoptic intubation is not possible and of course cricothyroidotomy or emergency tracheostomy if the need arises. This echoes the "Practice Guidelines for the Management of the Difficult Airway" that were adopted by the American Society of Anaesthesiologists in 1992 and updated in 1993. Recently, the trend in terms of management of Ludwig's angina and deep neck infections has evolved from aggressive airway management into a more conservative one. Wolfe et al. conducted a retrospective analysis of all deep neck abscesses treated within a seven-year period. A total of 65% of their patients had airway compromise. Moreover, 42% of these patients required advanced airway control techniques. In this particular series, no surgical airway was required for the patients. In contrast, Mathew et al. conducted a five-year retrospective study of their patients presenting with odontogenic maxillofacial space infections. A total of 14.6% of their patients presented with Ludwig's angina, and their preferred method for maintaining the airway was tracheotomy to endotracheal intubation. Potter et

al.compared tracheotomy versus endotracheal intubation for airway management in deep neck infections. They concluded that the use of tracheotomy permitted earlier movement to a noncritical unit and was associated with fewer intensive care costs and less overall cost of hospitalisation.

Needle drainage can be performed to reduce the risk of spreading infection. Microorganisms that cause Ludwig's abscesses vary but the most commonly cultured organisms are aerobic and anaerobic species, include Staphylococcus, Streptococcus, and Bacteroides species [3].

### **CONCLUSION**

Awake fiber optic intubation is the preferred method to secure airway. In our case we managed with TIVA + O<sub>2</sub> + intermittent CPAP ventilation as an alternative method to maintain the airway.

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