

Clinical presentation and challenges in the management of Ludwig's Angina: A case report

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Introduction

- ▶ Ludwig's Angina is a massive cellulitis of the facial spaces involving the submandibular, submental and sublingual spaces bilaterally. First described by Wilhelm Fredrick Von Ludwig, a German physician in 1836, it is a potentially fatal infection that rapidly spreads through the lymphatic channel to the floor of the mouth and neck. Majority of cases are odontogenic in aetiology.

- An infection arising from a molar tooth, especially the second and third molar, extends into the space below the mylohyoid ridge and rapidly descend into the sublingual space.
- In such early stages of the infection, a patient can be successfully managed with intravenous antibiotics and chairside incision and drainage.

- In severe cases, the infection can spread to the retropharyngeal and pharyngomaxillary spaces. This results in an elevation of the tongue, trismus and airway edema. At this stage, the airway is compromised and the patient is at risk of death if tracheal intubation is delayed.
- A case of Ludwig's Angina in a 25 year old male patient is presented and the challenges encountered during management in a low resource setup.

Case report

- A 25 year old male patient was referred from a nearby health centre to the dental clinic with a large swelling on the lower jaw and complaining of difficulty in swallowing and speaking. He also reported neck pain and difficulty in breathing.
- On inquiry, he gave a history of a tooth ache on the right lower jaw three days prior and that the swelling had been gradually increasing in size. He had laboured breathing and exhibited a 'hot potato appearance'. He was nil by mouth for two days.

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1 DAY POST INCISION AND
DRAINAGE

- ▶ Extraoral examination showed marked yellowing of the eyes and general malaise. He was pale-looking and frail. A massive cellulitis extending from the submandibular area to the pharyngomaxillary region was also noted.
- ▶ Intraoral examination revealed trismus of 1.5 cm interincisal distance and an elevation of the tongue. Based on the position of the cellulitis, we suspected a grossly carious right third molar tooth. Poor oral hygiene was also noted.

- ▶ A diagnosis of Ludwig's Angina was made based on the clinical presentation. An emergency surgical drainage was the best treatment option. However, due to the lack of an oral maxillofacial surgeon on call, the case had to be managed at the clinic.

The patient was admitted immediately to the male ward and diagnostic tests done. These comprised of a full haemogram, liver function test, renal function test and blood sugar level. He had a blood pressure level of 141/98 mmHg and a random blood sugar of 10.8mmol/l. There was a marked elevation in the white cell count and alkaline phosphatase(ALP) levels.

- Initial treatment with intravenous ceftriaxone, metronidazole, dexamethasone and intramuscular diclofenac was done. Incision and drainage followed under local anaesthesia and drains were left in-situ.

Discussion

- Diagnosis of Ludwig's Angina is based on clinical presentation. A dental cone beam computed tomography(CBCT) scan assesses the extent of the pharyngomaxillary and retropharyngeal involvement. The most severe complication of Ludwig's Angina is asphyxia which results from oedema in the soft tissue of the neck. Acute loss of airway can result in instant death if the airway is not secured.

- ▶ Despite early management, the mortality rate of Ludwig's Angina in our low resource setup remains markedly high. There are several factors that have contributed to this. A shortage of oral and maxillofacial surgeons is one of the key challenges. In my county, there is only one oral and maxillofacial surgeon and due to the overwhelming number of cases at the county referral hospital, he is unable to attend to many emergencies at a time. Hence many patients succumb while waiting for specialized care.

Post-operative instructions were given to the night duty nurses and support staff. Due to the severity of the trismus, extraction of the causative tooth was done the following day.

- ▶ The patient was monitored closely with daily dressing changes. The neck swelling improved over 48 hours. However, by the fifth day, oedema had spread to the chest cavity and the patient was showing no sign of improvement. He was referred to Coast Provincial Referral hospital for specialized care.

The availability of broad spectrum antibiotics and corticosteroids fluctuates from time to time and this has proven a major challenge causative bacteria are often gram negative anaerobic organisms and therefore penicillin, ciprofloxacin or clindamycin are usually the antibiotics of choice. Without the use of antibiotics, management of Ludwig's Angina becomes very difficult.

- Due to lack of a CBCT scan, the extent of involvement of Ludwig's Angina is difficult to assess. The scan is mostly available in private healthcare facilities where most less privileged people cannot afford to go. This has resulted in late diagnosis of the condition.

Conclusion

- ▶ Ludwig's Angina is a life threatening oral condition. Early diagnosis is important in the management of the disease. In advanced cases, surgical drainage and securing of the airway is important.
- ▶ An increase in the number of oral and maxillofacial surgeons posted to low resource setup hospitals is paramount in reducing the mortality rate of Ludwig's Angina. The primary responsibility of the government in improving the healthcare of the community should be increase in the availability of broad spectrum antibiotics and corticosteroids.

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