

# Ludwig's angina – A case report

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## Summary

Ludwig's angina is a potentially lethal oro-facial cellulitis due to oro-dental infection. The aetiology and management of a case of Ludwig's angina are briefly discussed.

*Key words:* Ludwig's angina, antibiotic, airway and periapical abscess.

## Introduction

Ludwig's angina is an aggressive, rapidly spreading and potentially lethal cellulitis involving the submandibular, sublingual and submental spaces bilaterally. It is manifested by brawny suprahyoid induration and tender swelling of floor of the mouth. The tongue becomes generally edematous and is pushed superiorly into the palate and oropharynx. This displacement together with the oedema of the submandibular region can cause a rapid airway obstruction. It is therefore a therapeutic emergency because of its inherent life-threatening nature. Early and aggressive use of antibiotics and protection of the airway are the two important steps in its management.<sup>1</sup> Surgical intervention is only indicated in those who develop localised abscess.

Ludwig's angina is rarely seen nowadays<sup>1,2</sup> and therefore, its existence may not be recognised. The decrease in its incidence is attributed to the early and widespread use of antibiotics for the treatment of oro-dento-facial infections and also due to improved oro-dental care.

## Report of a case

A 23-year old Indian lorry attendant was referred to the Oral Surgery Department for a submandibular swelling with tongue elevation and difficulty in swallowing for the past three days. It was progressively getting bigger and as a result, caused a difficulty in breathing and slurred speech (Fig 1).

He appeared ill with respiratory distress. There was a large, firm submandibular and sublingual swelling with marked trismus and tender to touch. The tongue was elevated against the palate which made thorough intra-oral examination not possible. Radiograph showed grossly carious lower right second premolar and first and second molars (Fig 2).

His temperature 39°C, respiratory rate 22/min, pulse-rate 90/min and blood pressure was 130/70. He was a known case of asthma. A clinical diagnosis of Ludwig's angina was made.

**Immediate management:** A nasopharyngeal airway was inserted to make breathing easier. Intravenous line was obtained and blood sample taken for routine haematological investigations.

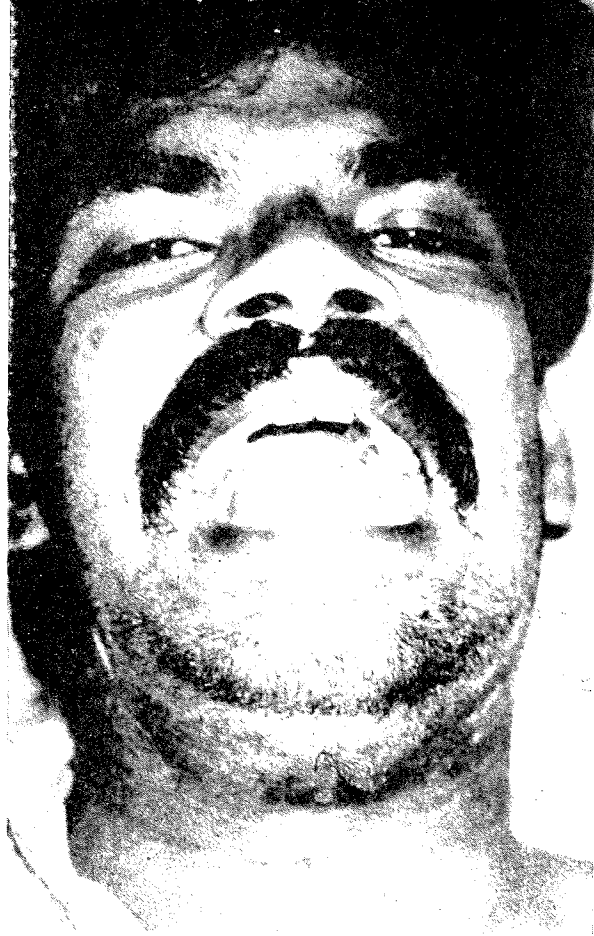


Fig. 1. A photograph showing swelling of submandibular region, elevation of the tongue and a corrugated rubber drain at the submental area.



Fig. 2. Radiograph showing carious teeth with areas of apical radiolucencies.

A 5% Dextro-saline was infused. Metronidazole 500 mg, dexamethasone 10mg and 1 mega unit of crystalline penicillin were injected intra-venously.

Slight fluctuation was elicited at the submental region. Local anaesthetic solution was infiltrated into the area and a wide-bore needle inserted to obtain pus for culture and sensitivity. This was followed by incision and drainage. A corrugated rubber drain was placed and secured with sutures. An absorbent dressing was used and changed regularly.

He was warded and nursed at 45° position. To facilitate breathing, a mask with humidified oxygen was provided. Metronidazole 500mg eight hourly, ampicillin 500mg six hourly and dextro-saline drip were continued.

Copious amounts of purulent material came out from the incised wound. The wound was regularly irrigated with normal saline. Pus culture showed a heavy growth of staphylococcus aureus resistant to penicillin, tetracycline and cephaloridine but sensitive to methicilline, erythromycin and bactrim. Erythromycin was then added to the regime. Three days after admission there was an improvement in mouth opening and a reduction of the swelling. The offending teeth were then extracted under local anaesthesia. Three days later he was discharged and then reviewed regularly. The healing was uneventful.

## Discussion

Dental periapical abscess from lower molar teeth, penetrating injury to the floor of the mouth, osteomyelitis and compound fracture of the mandible can lead to Ludwig's angina.<sup>1</sup> Infected dental extraction socket could also lead to Ludwig's angina.<sup>3,4</sup> The case described was due to periapical abscess of either one of the badly carious right second premolar, first and second molars, which was classic, (Fig 2). His oral hygiene was poor which in fact encouraged odontogenic infection. Also his nutritional status was not good either due to lower socio-economic back-ground.

One other reported cause of Ludwig's angina was infected squamous cell carcinoma of the tongue.<sup>5</sup> However 70% of cases are attributed to dental aetiology and the most common causative micro-organism affected are streptococcus and staphylococcus.<sup>1,7</sup> Bacteroides have also been reported to be causative organism in Ludwig's angina.<sup>8</sup> In this case, the predominant micro-organism were staphylococcus aureus which were resistant to commonly used antibiotics such as penicillin and tetracycline. The antibiotic regime was modified and erythromycin was added to the regime as suggested by culture and sensitivity result which was continued for ten days.

Recent reports<sup>1,2,6,7</sup> have stressed the importance of airway maintenance and early high dose broad-spectrum antibiotics. In classic Ludwig's angina, swelling of floor of the mouth, raised and large oedematous tongue together with tense brawny oedema of the submandibular area can therefore cause rapid airway obstruction. Tracheostomy is therefore necessary and preferably done under local anaesthesia, especially in cases with impending obstruction and those for surgical drainage under general anaesthesia.<sup>7</sup> There was no actual airway obstruction in the case described and nasopharyngeal airway was helpful. Prophylactic surgical decompression is no longer preferred and the surgical incision is done only if there is fluctuation and the presence of pus.<sup>1</sup>

It is emphasized that the attending doctor be aware of the condition being serious and potentially fatal. As such, bilateral submandibular and sublingual swelling with a history of toothache or

extraction is highly suggestive of the Ludwig's angina and patient ought to be referred for urgent management.

## References

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