

Ludwig's Angina: An Uncommon Neck Infection: Case Report

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ABSTRACT

Ludwig's angina is a disease which is characterised by the infection in the floor of the oral cavity. Ludwig's angina is also otherwise commonly known as "*angina*". Previously this disease was deemed as fatal but later on it was concluded that with proper treatment this infection can be removed and the patient can recover. It mostly occurs in adults and children are not affected by this disease. As the infection spreads further it would affect the wind pipe and lead to swellings of the neck. The skin around the neck would also be infected severely and lead to redness. The individual would mostly be febrile during this time. Since the airway is blocked the individual would suffer from difficulty in breathing. If the infection spreads to the internal ear then the individual may have audio impairment. The main cause for this disease is dental infections caused due to improper dental hygiene.

Keywords: Ludwig's angina, tracheotomy, fiberoptic intubation

INTRODUCTION

Ludwig's angina is a rapidly progressive, potentially fulminant cellulitis involving the sublingual, submental and submandibular spaces. It may or may not involve par pharyngeal space.¹

The word Angina is derived from the Latin word *anger* which means to stangle. Ludwig's angina was coined after the German physician, Wilhelm Friedrich von Ludwig, who first described this condition in 1836 as a rapidly and frequently fatal progressive gangrenous cellulitis and edema of the soft tissues of the neck and floor of the mouth.² Other synonyms include angina ludovici, cyananche, carbuculus gangraenosus, morbus strangulatorius and angina maligna.³

Despite the recent advances in therapy, rare and potentially life-threatening complications may still arise from time to time and as a result, account for significant morbidity and mortality.

CASE REPORT

A 26 year old female patient presented with a chief complaint of inability to open the mouth, pain and swelling in relation to the lower jaw and neck since a day. Patient revealed history of pain in left lower tooth region 4 days back and has taken treatment from local doctor (Tab. Brufen three times a day), but the pain had not subsided. Past medical, dental and family histories were noncontributory.

On physical examination, he had respiratory distress and was toxic in appearance and his vital signs were mentioned immediately. His temperature was 101.3°F with a pulse rate of 104 beats per minute, blood pressure of 140/90 mmHg and a respiratory rate of 27 breaths per minute.

On extraoral examination there was diffuse swelling in the lower third of the face measuring approximately 4*3 cm extending from left angle of mandible to right angle of mandible with bilateral involvement of the submandibular and sublingual spaces.

The overlying skin appeared reddish, stretched and shiny. On palpation, the swelling was tender with elevated temperature. Patient had difficulty in breathing and restricted mouth –opening, with an interincisor gap of 1 cm.

Intraoral examination revealed vestibular swelling and obliteration in the region of 35 (root stump) and 36 with pus discharge from gingival sulcus. Generalized attrition and gingival recession were noted. Orthopantomograph revealed grossly destructed 46, 37, missing 26, and root stumps with 14, 18, 25, 35, 36. Depending on the history and clinical examination, a diagnosis of Ludwig’s angina was made. Patient was scheduled for emergency drainage of the abscess followed by intravenous injections of augmentin 1.2 gm twice a day, metrogyl 100 mg thrice a day, and intramuscular injection of voveran 75 mg once a day for 5 days. Patient was recalled after 5 days, the swelling was subsided, and patient was scheduled for further treatment with extraction of 35 and 36 (root stumps) followed by oral oral prophylaxis and replacement of missing teeth.



Fig1: Pre-op pic showing the extraoral swelling in the neck



Fig 2: Pre-op pic showing the incision



Fig 3: Pic showing the drainage of the pus



Fig 4: Post- operative pic



Fig 5: Pic showing the insertion of the corrugated rubber tube for the drainage of the pus



Fig 6: Pic showing the corrugated rubber tube and suture placed and irrigated with the povidone iodine solution

DISCUSSION

Cellulitis involving the sublingual, submental, submandibular and par pharyngeal spaces (Figures 1 to 6). The commonest cause is an infected lower wisdom, and this is seen in our practice. Ludwig begins as a mild infection and progresses to induration of the upper neck with pain, trismus and tongue elevation. The most serious complication of course is respiratory embarrassment. It is therefore essential to act quickly so as not to lose the airway. Angina is derived from the Latin word *angere* which means to strangle. Ludwig's angina appropriately describes deep neck abscesses in which the swelling of critical spaces which threaten to elevate the floor of the mouth displaces the tongue posteriorly and thereby strangles the patient. In our case, our patient had severe trismus which is suggestive of involvement of the submasseteric space which was explored thoroughly. Ludwig's angina preantibiotic era carried a very high mortality rate of around 50%, but it is still considerably high today at around 8%–10%⁴. The bacterial agents commonly isolated include streptococci viridans, staphylococcus aureus and staphylococcus epidermidis. Only 7% of Ludwig's angina cases are due to group A haemolytic streptococcus⁵. Early antibiotic treatment should be broad spectrum to cover gram-positive and gram-negative

bacteria as well as anaerobes. Penicillin, metronidazole, clindamycin, and ciprofloxacin are often the antibiotics of choice. 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 fibreoptic intubation, in skilled hand, flexible fibreoptic nasal intubation is the preferred method of airway management⁶ with high rates of success⁷. Elective awake tracheostomy is performed in our unit if fibreoptic 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 Anesthesiologists in 1992 and updated in 1993⁷. 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 one⁸. Wolfe et al.⁸ 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.⁹ 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.¹⁰ 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. In our unit, it is common practice when patients have bilateral neck swellings and trismus to keep the patient intubated for 24–48 hours if they have been orally intubated or fibre-optic nasal intubation. This is to allow the oedema to settle which will inevitably get worse postoperatively and can compromise the airway further. In the past, there have been occasions in our unit where the patient has been extubated postoperatively and needed to go back to theatre for an emergency awake tracheostomy, hence, the prolonged intubation. Each case should obviously be taken at its own merit, and these are by no means stringent guidelines.

CONCLUSION

Ludwig’s angina is potentially a life threatening condition and should be treated with respect. Broad spectrum antibiotics, surgical drainage, and airway management are paramount to prevent respiratory failure.

Learning Points

- (i) Recognize the condition early.
- (ii) Commence broad spectrum antibiotics and steroids.
- (iii) Do not waste time imaging patient.
- (iv) Early communication with anaesthetist.
- (v) Awake fibre-optic nasal intubation with surgeon on stand by for surgical airway.
- (vi) If nasal intubation is successful, consider prolonged intubation to avoid tracheostomy which has its own set of complications.

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