

A CASE REPORT ON LUDWIG'S ANGINA

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Abstract:

A fast spread of soft tissue cellulitis in the neck and mouth floor is known as Ludwig's Angina. Ludwig's angina typically begins with infection from the second and third lower teeth in the submandibular region and then extends to the sublingual region on the same side. It then moves to the contralateral submandibular region after crossing the lingual space to the opposing side. This case report is about 73 years old was admitted in nephrology ward with chief complaints of swelling over both sides of neck, below the jaw and tooth ache gradually progressing. US-NECK: k/c/o- Ludwig's angina, left few level-1B lymph node noted largest measuring 6.6*5.1mm. A second drainage tube was inserted, and regular saline was used to irrigate the wound. Cefotaxime 1 g Bd, gentamycin 80 mg BD, and metronidazole 500 mg TID were administered intravenously for 7 days, with tapering doses of Inj. Dexamethasone 8-4 mg Bd administered during the first two postoperative days, and ZYTEE GEL L/A administered to relieve pain close to the surgical site. Through the incision and drainage, postoperative irrigation was carried out, and the infected tooth and drainage were removed after 36 hours.

Key Words: Ludwig's Angina, Cellulitis, Sublingual, Submandibular, Respiratory obstruction, Dexamethasone, Edema.

Introduction:

Ludwig's Angina was first described by German doctor William Frederick von Ludwig in 1836. ⁽¹⁾ Ludwig's Angina is a rapidly spreading cellulitis of the soft tissues in the floor of the mouth and neck ⁽²⁾. Ludwig's Angina is a severe, extensive cellulitis that affects the second and third submandibular, sublingual, and submental areas bilaterally. It has an early onset and quick development, and it puts the patient in an emergency situation since it obstructs the airway ⁽²⁾.

Infection from the second and third lower molars in the submandibular region is the typical starting point for Ludwig's angina, which then spreads to the sublingual region on the same side. From there, it travels across the lingual space to the opposite side before going to the contralateral submandibular region. The submental space is affected by lymphatic spread. Moreover, it could begin in the sublingual space and move on to the submandibular zone. The epiglottis becomes infected from the sublingual area, and the edema of the glottis and respiratory obstruction result. The infection spreads posteriorly in the tongue's substance in the gap between the hypoglossus and genioglossus muscles.

Many bacteria, primarily aerobes and anaerobes such as haemolytic streptococci, staphylococci, and Bacteroides, are responsible for Ludwig's angina. Gram-negative organisms such as *Neisseria catarrhalis*, *Escherichia coli*, *Pseudomonas aeruginosa*, and *Haemophilus influenzae* have also been mentioned in studies. A few of the symptoms include a painful neck swelling, tooth discomfort, dysphagia, dyspnea, fever, and malaise. Other symptoms include tachypnoea, trismus, and drooling, as well as sensitive, firm swelling in the submental area and anterior neck without fluctuation (as determined by physical examination). There will be a high white blood cell count. The main therapeutic approach is airway control. It is required to maintain an airway with endotracheal intubation. ⁽⁶⁾

Predisposing variables include trauma, recent dental work like dental extractions, any tooth aches, systemic diseases including diabetes mellitus (DM), malnutrition, alcoholism, a weakened immune system like AIDS, and malnutrition. Children will experience it de novo, or without any apparent cause. ⁽²⁾

Case Report:

A male patient of 73 years old was admitted in nephrology ward with chief complaints of swelling over both sides of neck, below the jaw and tooth ache gradually progressing (for 4 days), breathlessness (for 1 day), swelling of both limbs, tenderness, fever (2 days), H/O throat pain. He had a past history of CAD, HTN, DM and CKD (PTCA) (for 6 months). This patient had Ludwig's angina due to *Staphylococcus aureus*. Upon physical examination, there was palpable bilateral submandibular and submental edoema as well as sublingual space elevation. Erythema was present on both sides of the submandibular and submental areas, as well as on the anterior neck side down to the sternal notch. CT SCAN examination it was found that f/s/o cellulitis of right parotid and submandibular spaces with extension into parapharyngeal and retro pharyngeal, Decayed teeth present in the upper right back teeth. Laboratory investigations were found to be Hb-10.2g/dl, WBC-11,200cells/cu mm, sr.cr-5.5mg/dl, HbA1C – 7.1%. US-NECK: k/c/o- Ludwig's angina, left few level-1B lymph node noted largest measuring 6.6*5.1mm. Patient had undergone for Tracheostomy, a surgical procedure by inserting breathing tube into the windpipe. Edematous fluid was drained through multiple incisions over neck region which will help to breathe easier.

Normal saline was used to irrigate the incision, and a separate drainage tube was inserted and stitched to the skin using silk sutures. Cefotaxime 1 g Bd, gentamycin 80 mg BD, and metronidazole 500 mg TID were administered intravenously for 7 days, with tapering doses of Inj. Dexamethasone 8-4 mg Bd administered during the first two postoperative days, and ZYTEE GEL L/A administered to relieve pain close to the surgical site. Through the incision and drainage, postoperative irrigation was carried out, and the infected tooth and drainage were removed after 36 hours. After the tracheostomy tube was removed, the skin was strapped on the fifth postoperative day. Tracheostomy tube care was also provided during this time. The patient was healed.

Discussion:

Ludwig's angina and deep neck infections can result from improper airway treatment and are deadly due to their propensity to primarily induce edema, distortion, and obstruction of the airway. Patients may be treated with monitoring and intravenous antibiotics in the early stages of the illness. Advanced infections will necessitate surgical drainage to secure the airway. This is made more challenging by the restricted airway caused by the discomfort, trismus, airway edema, and tongue displacement. One of the suspected causal agents was described as -haemolytic streptococcus, which is typically associated with anaerobic germs like Pepto streptococcus and pigmented Bacteroides. From the deep neck infections, Streptococcus viridians (40.9%), Staphylococcus aureus (27.3%), and Staphylococcus epidermis (22.7%) were isolated ⁽¹⁾.

To avoid an airway obstruction, our patient received a surgical debridement, antibiotics, and endotracheal intubation. Due to the swelling's incomplete clearance, debridement was required. The teeth implicated in cases where the illness originated in the mouth should be extracted in order to eliminate the infection's cause. However, in our case report, the potential of a life-threatening airway compromise made surgical incision and drainage more important than tooth extraction because of the substantial involvement of the neck regions with the fluid collection on imaging. As a result, the neck and airway results of each patient determine the best course of airway care in Ludwig's angina. ⁽²⁾

In the pre-antibiotic age, Ludwig's angina had a relatively high mortality rate of over 50%; currently, that rate is closer to 8–10%. The most often isolated bacteria are Staphylococcus aureus, Staphylococcus epidermidis, and Streptococci viridian. Group A -haemolytic streptococcus is only responsible for 7% of instances of Ludwig's angina. The first round of antibiotic therapy should cover both gram-positive and gram-negative bacteria as well as anaerobes. In this case study, frequent antibiotic choices were ciprofloxacin (Fluroquinolones), clindamycin, metronidazole, Dexamethasone, and penicillin. ⁽²⁾

- ✓ By maintaining good oral hygiene,
- ✓ we can reduce your risk of acquiring Ludwig's angina,
- ✓ having routine dental examinations
- ✓ Planning on obtaining a tongue piercing should be done if you need urgent treatment for your mouth and tooth infections.
- ✓ If you experience any excessive bleeding or swelling, see a doctor right once. should use mouthwash with antiseptic liquid once day and brush their teeth two times daily.
- ✓ Never disregard any gum or tooth pain. When bleeding occurs from the tongue, gums, or teeth, see a doctor.
- ✓ The signs include breathing issues, neck pain, and tongue swelling. Ludwig's angina frequently occurs after a tooth infection, another oral infection, or a mouth injury. ⁽⁵⁾

The symptoms include:

Having discomfort or tenderness in the area of your mouth that is directly below your tongue, having trouble swallowing, drooling, neck pains, neck swelling, feeling weak or exhausted, having an earache, having a fever, or having the chills.

The patient in this journal also complained of edema, pain, elevation of tongue, fever, neck swelling, dysphagia, and induration in the submandibular region. saliva cannot be swallowed due to an impending airway impairment. The most dangerous side effect was airway blockage brought on by tongue's elevation and also posterior displacement. The use of needle drainage procedures can lower the likelihood of infection spread. ⁽¹⁾

Conclusion:

This case study highlights very typical but severe case of Ludwig's angina in a demographically unusual age range. When mostly systems are implicated, this is one of the life-threatening illnesses that calls for initial intervention and also a multidisciplinary team. Dentists should be aware of the condition and recognise the need for prompt treatment when it does manifest in children, despite the fact that it is quite rare in the paediatric population.

References:

1. Ludwig's Angina – A Case Report 02/02/2017, by Christos Papadopoulos, DDS; Andrew Wong, DDS, MSc, FRCD(C); Jason Choi, DDS, FRCD(C); Wa Sham Cheung, DDS, FRCD(C)
2. Rare Angina: A Case Report of Ludwig's, Anuradha Sakhuja, Dhan B Shrestha, corresponding author Barun B Arya, 2022 Jun; 14(6): e25873. Published online 2022 Jun 12. doi: 10.7759/cureus.25873
3. Case report: Ludwig's angina: A case report and review of management, Sasikala Balasubramanian, P Elavenil, S Shanmugasundaram. Department of Oral and Maxillofacial Surgery, SRM Dental College and Hospital, Ramapuram, Chennai, DOI: 10.4103/0976-433X.138778 CR, 2014 | Volume :5 | Issue: 3 | Page: 211-214.
4. case report on Ludwig s angina: mariya Thomas Chacko, ijrr journal vol.6; issue:12; dec 2019
5. Ludwig's angina: a case report with a 5-year, Angina di Ludwig: un caso clinico con 5 anni di follow-up, 2 October 2018. <https://doi.org/10.1016/j.gien.2018.06.001>
6. <https://www.healthline.com/health/ludwigs-angina>
7. Airway management in adult patients with deep neck infections: A case series and review of the literature. *Anesth Analg* 2005; 100:585-9.
8. Ludwig's angina—An emergency: A case report with literature review. *Candamourty Journal of natural science, biology, and medicine*. 2012 Jul;3(2):206.
9. Murphy SC: The person behind the eponym: Wilhelm Frederick von Ludwig (1790-1865). *J Oral Pathol Med*. 1996, 25:513-5. 10.1111/j.1600-0714.1996.tb00307.
10. Gaspari RJ: Bedside ultrasound of the soft tissue of the face: a case of early Ludwig's angina. *J Emerg Med*. 2006, 31:287-91. 10.1016/j.jemermed.2005.11.044