

Case Report


A case report of Ludwig's angina

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Abstract

Ludwig angina is a rapidly progressing submaxillary, submandibular, and sublingual necrotizing cellulitis of the floor of the mouth that can have lethal consequences due to airway obstruction. Various aerobic and anaerobic microorganisms, and less often fungi, have been implicated to cause Ludwig angina, including oral flora such as *Streptococci* and *Staphylococci*. Early recognition and use of parenteral antibiotics can prevent mortality and morbidity. We report a case of 30 years old male who was admitted to hospital with chief complaints of neck swelling, toothache, dysphagia and difficulty in opening mouth. Blood counts showed leukocytosis with neutrophilia along with raised ESR. Pus was drained after incision in submental and submandibular space and was transported to Microbiology department for further processing. Gram staining of pus showed many pus cells, spirochetes and fusiform shaped bacilli.

Key words

Ludwig's angina, Spirochetes, Gram staining.

Introduction

Ludwig's angina is a form of severe acute diffuse cellulitis that rapidly spreads bilaterally affecting the submandibular, sublingual and submental spaces resulting in a state of emergency. It is named after the German physician, Wilhelm Friedrich von Ludwig who first described this condition in 1836 [1]. Prior to the development of antibiotics, mortality for Ludwig's angina

exceeded 50%. As a result of antibiotic therapy, along with improved imaging modalities and surgical techniques, mortality currently averages approximately 8% [2, 3].

In Ludwig's angina, the submandibular space is the primary site of infection [4]. This space is subdivided by the mylohyoid muscle into the sublingual space superiorly and the submaxillary space inferiorly. The majority of cases of

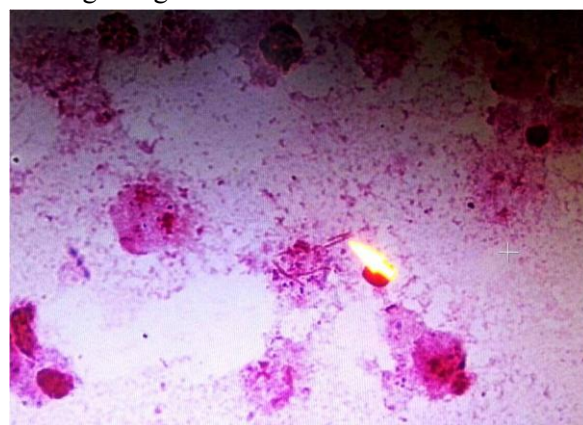
Ludwig's angina are odontogenic (80%) in etiology, primarily resulting from infections of the second and third molars [5]. Once infection develops, it spreads contiguously to the sublingual space. Infection can also spread contiguously to involve the pharyngomaxillary and retropharyngeal spaces, thereby encircling the airway. Other causes include peritonsillar or parapharyngeal abscesses, mandibular fractures, oral lacerations/piercing or submandibular sialadenitis, and oral malignancy [6]. Predisposing factors include dental caries, recent dental treatment, systemic illness such as diabetes mellitus, malnutrition, alcoholism, compromised immune system such as AIDS and organ transplantation. Treatment with high dose steroids improve mouth opening and airway obstruction by rapidly reducing the oedema. Along with steroids high dose IV antibiotic therapy with beta lactum antibiotics, aminoglycosides and metronidazole is highly recommended.

Case Report

A 30 years old male reported in ENT department of Ram Lal Eye and ENT hospital, Government Medical College, Amritsar with chief complaint of swelling over right side of neck, right toothache, dysphagia, and difficulty in opening the mouth since 4 days. It was associated with low grade fever and excessive salivation from mouth. On physical examination, he had normal built. His vital signs were temperature 100°F, pulse rate 98 beats per minute, blood pressure 124/76 mmHg and respiratory rate 22 per minute. Patient was unable to open the mouth and has abscesses on left 1st premolar and right 3rd molar. Incision and drainage was done under LA with stab incision on submental space and bilateral submandibular space. Corrugated rubber drain was placed in the wounds on both sides and extraoral bandage was given. Blood reports were TLC 13800, DLC 74, 22, 02, 02, 00 and ESR 48. Pus after incision was received in microbiology department for gram staining and culture in thioglycolate broth. Gram staining showed many pus cells (7-10/HPF), spirochetes and fusiform

shaped bacilli (**Figure - 1**). Patient was put on Augmentin 1.2 g IV TDS, Inj Metrogyl 100 ml IV TDS, Inj Amikacin 500mg IV BD and Inj Diclofenac 1 amp IM BD. Extraction of root stump was advised by dentist when patient have mouth opening. Airway management was not done as patient did not show any symptoms of respiratory distress.

Figure - 1: Gram stained smear showing *Spirochetes* and *Fusiform bacilli* in a case of Ludwig's angina.



Discussion

Ludwig's angina and deep neck infection is an emergency case because of their tendency to cause oedema, distortion and airway obstruction. Causative agents are *Beta haemolytic streptococci*, anaerobic bacteria such as *Peptostreptococci* and *Bacteroids* [5] and spirochaetes. Incision and drainage along with intravenous Beta lactum antibiotics, aminoglycosides and metronidazole are recommended for treatment. Monitoring and protection of airways in severe cases, and where appropriate urgent ENT surgery, maxillofacial surgery and/or dental consultation to incise and drain the pus pockets are highly recommended. The most feared complication is airway obstruction; therefore it is the primary therapeutic concern [3]. Needle drainage can be performed to reduce the risk of infection. Tracheostomy has been considered as a gold standard of airway management in patients with deep neck infections [7].

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