Lingual Cellulitis Secondary to Sublingual Space Infection—A Rarity

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ABSTRACT

Tongue cellulitis is potentially life threatening as it causes dyspnoea and dysphagia. Infection of tongue secondary to sublingual space infection is a rare entity. The tongue is exposed to considerable bite trauma while chewing, but appears to be comparatively resistant to infection. This may be due to high vascularity, thick covering of keratinized squamous epithelium, unique muscular anatomy and the lubricating, cleansing, immunological function of saliva and salivary flow. Although lingual abscess has been discussed widely in literature, there is less evidence on lingual cellulitis. The main objective of presenting this article is to report a rare case of lingual cellulitis, secondary to sublingual space infection in a non–immunocompromised patient.

Key Words – lingual, cellulitis, space infection.

INTRODUCTION

Lingual cellulitis secondary to sublingual space infection is a rare clinical entity and is a potentially life threatening condition. It may result in airway compromise and disseminated infection to other regions. Tongue infection must be recognized promptly and treated as an emergency, especially when dyspnoea and dysphagia occurs. (1)

Sublingual space is located above the mylohyoid muscle attachment thus infection from root apices of anteriors, bicuspsids, and first molars progress to sublingual space. The main causative factors for sublingual space infections could be odontogenic in nature, namely periodontitis, pericoronitis, or complications during dental treatment like trauma during extraction of teeth, and infection of the upper airway.

Sublingual space infection presents clinically as a brawny, erythematous, tender swelling of floor of the mouth, beginning close to the mandible and spreading towards the midline or beyond. Only loose connective tissue rather than true fascia actually separates one side of floor of the mouth from the other. This anatomical situation permits bilateral spread of infection with ease.

The conditions predisposing to lingual cellulitis are traumatic injury and immuno compromised status of the patient. Medical evaluation for
defective host defence mechanism and history of trauma are essential for diagnosis. In acute cases, the diagnosis of tongue abscess can be attained clinically. In later cases culture and smear analysis are useful diagnostic tools, whereas antibiotics provide considerable amelioration of symptoms. Prophylaxis, early diagnostics and adequate treatment procedures are important factors which guarantee patient safety.

CASE REPORT
A 48 year old male reported to us with swelling and pain below the tongue since six days. Patient underwent extraction of the lower central incisors for periodontitis one week prior at a local dental clinic. Patient developed pain and swelling in the floor of the mouth, a day after the teeth were extracted. Patient also had difficulty in swallowing and protruding the tongue. On clinical examination intraorally, a diffuse swelling was noted in the floor of the mouth and a massive swelling noted in the tongue, with board like induration. Tongue was raised and highly tender with inability to close the mouth along with drooling of saliva. The overlying mucosa of tongue was intact and of normal colour. Sign of trauma could be identified in the anterior floor of mouth probably attributing to trauma due to needle prick during lingual infiltration. The floor of mouth was firm and erythematous. Submental and submandibular lymph nodes were palpable and tender. Extraction socket appeared to be normal. Hematological investigation revealed total leucocyte count to be 10500/cumm, neutrophil count 74 %, erythrocyte sedimentation rate 60 mm/hr. Random blood sugar and other blood investigation were within normal range. Hbs Ag and HIV 1&2 negative. CT scan revealed cervical lymphadenopathy with normal hard tissue architecture. Based on the clinical and CT findings a diagnosis of lingual cellulitis with sublingual space infection secondary to needle prick injury was made. Patient was planned for incision and drainage under local anesthesia (LA). Preoperatively patient was given I.V ringer lactate, injection crystalline penicillin 20 lakh unit (QID), metronidazole injection 100 ml, injection gentamycin 80 mg 1 hour before treatment. Under LA, a midline sublingual incision parallel to Wharton’s duct was placed to avoid injury to vital structures in the floor of mouth. Moderate amount of pus discharge was noted. Gram staining of pus showed numerous PMNLS, moderate amount of gram positive cocci and gram negative bacilli which revealed polymicrobial pyogenic bacterial infection. Culture sensitivity report showed the organism was sensitive to penicillin. Postoperatively patient was put on the above mentioned antibiotics and an analgesic tablet tramadol 50mg. On the first postoperative day, swelling of the floor of the mouth and tongue cellulitis was considerably reduced. Patient had no difficulty in breathing and swallowing. On the third post operative day, swelling was completely resolved with no pus drainage and the patient was discharged with oral antibiotics.

DISCUSSION:
The unique anatomy of floor of the mouth plays a major role in the development and extension of intraoral infections. In untreated cases, the mortality is close to 100%, both from the acute sepsis and from airway obstruction. Antibiotics and aggressive surgical treatment has significantly lowered mortality. Some studies have reported that complication rate still remains very high (i.e.) 18-28% of treated cases. Etiology of lingual abscess differs depending on its location; an abscess in the anterior two thirds of the tongue is the result of local trauma and an abscess in the posterior third of the tongue organizes as a spread of infection from the lingual tonsils, infected remnants of a thyroglossal duct cyst, or the first or second molars.
Tongue infection is as a result of an interaction between the compromised local or systemic defense and pathogenic microorganism. The first line of defense to an invading microorganism is the mechanical barrier of the tongue mucosa. Once the first line of defense is breached, and the host immune response is compromised, the tongue infection can be severe.\(^1\)

Foreign bodies also predispose to tongue inflammatory response and cellulitis even in healthy individuals. The recent literature reports reveal the clearly defined association between tongue abscess and piercing.\(^4\)

Although the tongue is constantly subjected to trauma, the inflammatory conditions of the tongue resulting from acute trauma are probably due to the tongue’s rich blood supply, unique muscular anatomy and thickness of covering mucous membrane. The tongue’s constant mobility helps the saliva to produce a perpetual cleansing effect.\(^2\)

The patient presented in this case report is not immunocompromised and is well built and well nourished. The reason for sublingual space infection might be trauma to the soft tissue during extraction or needle prick injury during LA administration. To support this the socket healing was satisfactory and there was no evident pus discharge. Usually sublingual space infections spread to submental and submandibular region. In the presented case it has spread in the form of cellulitis against gravity to the tongue.

Appropriate treatment planning for patients requires a clear differentiation between cellulitis and abscess.\(^7\) Several imaging technique can be used to evaluate the tongue swelling including sonography, computed tomography and magnetic resonance imaging.\(^5\)

Differential diagnosis includes number of diseases that may appear as a lingual swelling such as tumor, cyst, edema, infarction, and hemorrhage. Other causes of such swelling include metabolic macroglossia in lingual thyroid or hypothyroidism or developmental macroglossia in lingual thyroid or ectopic lymphoid tissue.\(^2\)

The differential diagnosis between abscess and cellulitis is essentially based on subjective findings and is consequently dependent on the level of experience in reading the radiograph. An area of low attenuation with a complete circumferential rim of enhancement is considered the hallmark of abscess. Unfortunately, CECT (contrast enhanced computed tomography) findings may be ambiguous in the transition stages from cellulitis to abscess; specifically, a thin or partial enhanced rim may be present in cellulitis.\(^7\)

**CONCLUSION**

Lingual cellulitis calls for prompt and aggressive management because they are potentially life threatening infections. The etiology for infection may be from a simple needle prick to the lingual soft tissue during administration of local anesthesia. Care must be taken to preserve the soft tissue which is one of the cardinal principles of oral surgical procedures. Antimicrobial therapy is the cornerstone of treatment. As in the presented case, incision and drainage was done without any delay at the initial stage and followed by systemic antibiotic and analgesic coverage. The importance of gentle tissue handling and use of aseptic measures will certainly avoid such iatrogenic complications.

**REFERENCES:**

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FIGURES AND LEGENDS

Figure 01: Intra oral preoperative view.

Figure 02: CT scan

Figure 03: Incision and drainage.
Figure 04: post operative view day 1.

Figure 05: post operative view day 3.