

Management of Acute Submandibular Space Infection: A Case Report

Dr Lanka Mahesh¹, Dr Praful Bali², Dr Nikita Gulati³, Dr Sushmita⁴

¹Bds , Mba , Dha, Ph.D, The Specialist Clinic, New Delhi , India

²Mds, Ph.D, Private Practitioner At Bali Dental Center, New Delhi India

³Reader, Department Of Oral Pathology Its Dental College Muradnagar, Up, India

⁴Bds , Private Practitioner, The Specialist Clinic, New Delhi, India

Abstract

Acute submandibular space infections are serious odontogenic infections that may become life-threatening without prompt and effective management. This report presents the case of a 50-year-old male with a history of tobacco use and previous endodontic treatment, who developed a unilateral submandibular space infection. A comprehensive approach involving systemic antibiotics, hospital admission, and surgical intervention led to successful resolution of the infection. 1, 2

KEYWORDS: Submandibular space infection , cyst enucleation; trismus; OSMF

Introduction

Submandibular space infections typically arise from odontogenic sources and can rapidly progress if not addressed timely. The infection often presents with systemic signs and can lead to airway compromise or deep space involvement. Early diagnosis and a multidisciplinary management approach are crucial. 1-3

Case Presentation

Patient History

A 50-year-old male, reported to our clinic with pain and swelling in the **lower right posterior region**. The patient had undergone **endodontic treatment** in the same region approximately two years prior. He also gave a significant history of **tobacco chewing and smoking for 20 years**. both of which are risk factors for poor oral health and delayed healing. 3



FIG 1 – PRE OP IMAGE

THE PATIENT COMPLAINED OF :

- Pain and swelling in the lower right jaw
- Fever
- Malaise
- Headache

Clinical Examination

- **Extraoral findings: (FIG 1)**
 - Firm, tense swelling in the **right submandibular region**
 - **Erythema** and **warmth** of overlying skin
 - **Tenderness** on palpation
- **Intraoral findings:**
 - **Elevation of the floor of the mouth**
 - **Trismus** (limited mouth opening and difficulty in tongue movement)

Based on the clinical signs and symptoms, a **provisional diagnosis** of **unilateral submandibular space infection** was made. 1,2

Investigations

An **RVG (radiovisiography)** of the region was taken, confirming the presence of a **cystic lesion** associated with tooth #46. Additionally, **blood investigations revealed elevated CBC and TLC counts**, indicating an active infection. 4

Treatment and Management**Hospital Admission**

The patient was admitted for **2 days** for close monitoring and to manage systemic signs. The following **IV medications** were administered:

- **Monocef 1g** (Ceftriaxone Injection IP) – BD
- **Metrogyl Injection 5mg/ml** (Metronidazole Injection USP)
- **Dynapar Injection** (Diclofenac Sodium Injection IP 75mg/ml)

These medications are commonly used in the empirical management of odontogenic infections and help in reducing both systemic and local inflammation 1,5

Post-Hospital Care

After a 2-day hospital stay, once the systemic signs stabilized and the swelling reduced, the patient was **discharged** with continued IV antibiotics at home.(Fig 2)



Fig 2 – recovery at 4th day

Surgical Management

Following normalization of systemic parameters and reduction in swelling, a **surgical procedure** was carried out:

- **Extraction of tooth #46**
- **Enucleation and curettage** of the associated cyst (FIG 3 A AND B)
- Placement of **Blue M gel** in the socket to promote healing

This approach ensured complete removal of the infection source and enhanced tissue healing 1,5.

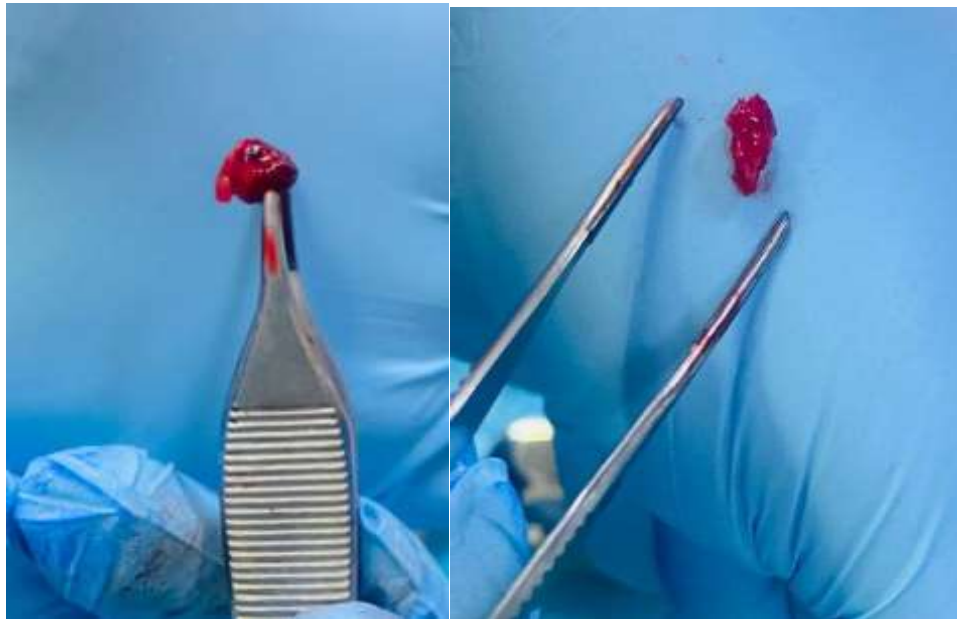


FIG 3 A AND B – SOFT AND HARD TISSUE

Post-Operative Care

The patient was prescribed:

- **Oral Metrogyl** (Metronidazole) for 5 days
- **AUGEMENTIN 625 mg** for 5 days
- **Zerodol sp** for 5 days
- **Pantop 40** for 5 days
- **Blue M MOUTHWASH USE** to promote oral hygiene

The cystic tissue was sent for **histopathological examination** for biopsy confirmation.

Follow up after 2 weeks check there are perfect healing. (fig4 a and b)



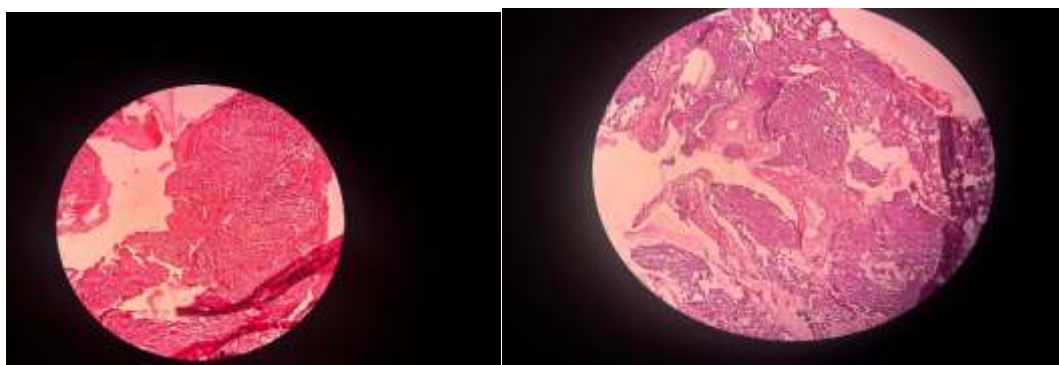
Fig 4 a and b – final at 2 weeks post op image

HISTOLOGICAL DIAGNOSIS -

SOFT TISSUE - Submitted H&E section shows a fibrocellular connective tissue stroma exhibiting dense acute and chronic inflammatory cell infiltrate, including neutrophils, lymphocytes, and plasma cells. Areas of hemorrhage are evident, characterized by extravasated erythrocytes within the stroma. Foci of coagulative necrosis are present, demonstrating loss of normal cellular architecture with eosinophilic, acellular zones debris. The surrounding connective tissue shows fibroblastic proliferation and early granulation tissue formation.

HARD TISSUE - Submitted H&E section show fragments of hard tissue comprising irregular, bony trabeculae showing empty osteocytic lacunae, and peripheral resorption. Inter-trabecular spaces exhibit a fibrocellular stroma infiltrated by chronic inflammatory cells predominantly lymphocytes. Foci of hemorrhage and vascular congestion are also noted.

IMPRESSION - Compatible with the clinical diagnosis of space infection. (FIG 5 A AND B)



(FIG 5 A AND B – H & E STAINS IMAGE)

• Relevant Medical History

The patient had a known history of **Oral Submucous Fibrosis (OSMF)** diagnosed 6 years prior, with **reduced mouth opening** and **fibrotic bands** on the buccal mucosa. At that time, he was treated with:

- **Intralesional steroid injections** (Kenacort – Triamcinolone Acetonide Injection IP 40mg/ml, Abbott), administered bilaterally
- **Oral physiotherapy**, including stretching exercises and mouth-opening devices

This history was relevant to his limited mouth opening (trismus), which complicated both clinical examination and surgical access 3.

Discussion

This case emphasizes the importance of a prompt, systematic approach in diagnosing and managing submandibular space infections, particularly in patients with predisposing factors such as:

- Previous dental procedures
- Tobacco habits
- Compromised oral health

The **submandibular space** is frequently involved in odontogenic infections of mandibular molars due to their anatomical relationship with the mylohyoid muscle 222. Standard management includes:

- Infection control with IV antibiotics
- Elimination of the source (tooth extraction and cyst enucleation)

- Surgical drainage when necessary
- Supportive therapy to manage systemic involvement 1,4,5.

Conclusion

Unilateral submandibular space infections demand urgent attention to prevent further complications. This case emphasizes the importance of recognizing early signs, initiating immediate antibiotic therapy, and executing timely surgical intervention for effective resolution. 1,2

References

1. Jevon P, Abdelrahman A, Pigadas N. Management of odontogenic infections and sepsis: an update. *Br Dent J*. 2020;229(6):363–370.
2. Vytla M, Seeto I, Sambrook PJ, Goss AN. Clinical guidelines for the management of odontogenic infections in the tertiary setting. *Aust Dent J*. 2019;64(3):238–245.
3. Bahl R, Sandhu S, Singh K, Sahai N, Gupta M. Odontogenic infections: Microbiology and management. *Contemp Clin Dent*. 2014;5(3):307–311.
4. Sreetharan SS, Paul G. Odontogenic Orofacial Space Infections. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 [cited 2025 Aug 27]. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK589648/>
5. Pellecchia R, Holmes C, Barzani G, Sebastiani FR. Antimicrobial Therapy and Surgical Management of Odontogenic Infections. In: Pogrel MA, editor. *A Textbook of Advanced Oral and Maxillofacial Surgery*. London: IntechOpen; 2016. p. 45–60.