

Rare Complications Following Non-Odontogenic Infection Involving Head and Neck Fascial Spaces-A Case Report

Durga Akhila Damodar N*

Visiting Surgeon, USA

***Corresponding author:** Durga Akhila Damodar Neelaiahgari, 16033 N Moon Valley drive, United States, Email: iamakhila2020@gmail.com

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Abstract

Oro-fascial infections present as fascial space infection that spread through fascia and its attachment. The common etiology of space infection are of Odontogenic origin which may lead to some life threatening conditions. However, rarely space infections are also caused by non-odontogenic infection. The etiologies of space infection are the grossly decayed, periodontally compromised tooth or a secondary infection of pathologies. Complications that occur due to spread of infection varies and can be life threatening. The most common immunocompromised condition is diabetic mellitus, spread of space infection in uncontrolled diabetes mellitus is extensive. We here like to describe a case of Oro-fascial space infection of non-odontogenic origin in uncontrolled diabetes mellitus that lead to facial palsy and parotid fistula.

Keywords: Complications; Diabetes Mellitus; Space Infection; Nerve Injury

Abbreviations

SMS: Sub Massetric Space; CT: Computer Tomography.

Case Report

A 48-year-old woman presented to the unit, with severe pain and swelling on the right side of her face. She had a history of recurrent infections and a recent episode of a pustule formation [1,2]. Examination revealed significant swelling, redness, and pus discharge on the lower part of her face [3-5]. Visual acuity in her right eye was within normal. Despite a limited mouth opening, no dental issues were found. Correlating clinical finding, a diagnosis of an acute abscess involving sub massetric space (SMS), right periorbital, canine, and masticatory space were suspected [1,2,6]. Radiographs and computer tomography (CT) supported the clinical diagnosis and follow-up findings [7]. Blood tests indicated elevated markers of infection and high blood sugar

levels. Cultures revealed several bacterial strains commonly associated with diabetic infections [8].



Figure 1: Presentation of patient.



Figure 2: Unilateral facial palsy.

The patient was diagnosed with orbital cellulitis and an abscess involving multiple facial spaces, likely originating from a previous skin infection as shown in Figure 1. She was admitted for intravenous antibiotics and surgical drainage of the abscess [1]. After about a month, as she healed developed a fistula on her cheek with serous discharge and facial palsy. A CT confirmed fistula connecting to the parotid gland, likely due to the spread of infection [7]. Causes for intra-cranial and pathological causes of facial nerve damage were ruled out, and the diagnosis was narrowed down to swelling leading to neuropraxia (Figures 1 & 2). The condition was monitored closely and treated with nerve regenerative injections. Eventually, the infection resolved, and facial nerve function improved satisfactorily.

Discussion

Buccal space infections commonly start from infected molars in the upper and lower jaw and spread between facial muscles. They can extend from the jawbone to the cheek area due to a gap where muscles don't fully attach. This area, called the sub masseteric space (SMS) is between the masseter muscle and the jawbone [2,7].



Figure 5: Parotid leak.

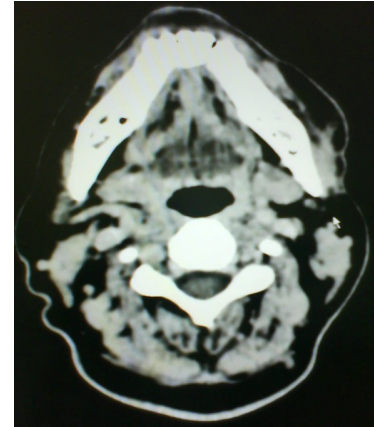


Figure 4: Computer tomography at the level of parotid showing contracture to the Parotid.

Therefore, SMS represents a potential space between the laterally placed masseter muscle and the mandibular ramus, which is located medially [1]. Spread of infection through potential anatomic space and further extension through the SMS are possible (Figure 3). The superficial and deep temporal spaces, the parotid space, the medial pterygoid space, the canine space, preseptal orbital space and the space of the body of the mandible are all in close proximity to the SMS also get involved [1,2]. Infections can spread from here to nearby spaces like the temporal, parotid, and orbital areas [3]. The case discussed here had a insidious diagnosis of diabetes mellitus that affects the spread of infection, prognosis and healing. In brief, in the setting of poor glycemic control, granulocyte adherence, chemotaxis, phagocytosis and bactericidal activity are impaired. Further, infection in patients with diabetes maybe more severe and recalcitrant [6].

The clinical features of our case are like marked trismus is a pathognomonic sign, which reflects involvement of the overlying masseter muscle and pre-orbital oedema indicating group orbital inflammation [1].

Mastication and swallowing are severely restricted, and at presentation the patient was dehydrated and feverish [1]. Once an SMS and preseptal abscess develops, therapeutic management requires early Incision and drainage (I&D) with dressing and debridement in case of an external communication [5].

Several wound dressing materials available in market can be used, in our case we used chlorhexidine gauze packs and betadine irrigation.

Follow-up reveals the occurrence of facial nerve palsy and a parotid fistula. Considering the course of case, development of facial palsy is due to massive infection in the masticatory

space, the nerve injury is likely indirect. The potential causes of facial nerve palsy include nerve compression from an infection within the parotid capsule, which is a closed space leading to nerve compression [9].

Another complication encountered is a parotid fistula, which was diagnosed through a radio-graph followed by the injection of radiopaque dye externally through the opening. Parotid fistulas can stem from various causes such as trauma, parotid gland disorders, or medical interventions (Figures 3 & 4). In this instance, the fistula is believed to have resulted from an intra-parotid infection that breached the gland's capsule externally. Management of the parotid fistula involved antibiotic therapy to control the infection [10].

In cases of maxillofacial infection, we rarely encounter non-odontogenic infections that affect the spaces in the head and neck, involving both external and internal structures. These infections can present in a manner similar to odontogenic space infections.

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References

- Balaji SM (2023) Oral and Maxillo Facial Surgery. In: Elsevier Health Sciences, 4th (Edn.), Topazin Goldberg Hupp, India, pp: 1104.
- Ohshima A, Arijy Y, Goto M, Izumi M, Naitoh M, et al. (2004) Anatomical considerations for the spread of odontogenic infection originating from the pericoronitis of impacted mandibular third molar: Computed tomographic analyses. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 98(5): 589-597.
- Kim K, Kim J, Jang K, Moon Y, Park S (2007) Orbital abscess from an odontogenic infection. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 103(1): e1-e6.
- Clifford-Jones RE, Ellis CJK, Stevens JM, Turner A (1982) Cavernous Sinus Thrombosis. *Journal of Neurology, Neurosurgery, and Psychiatry* 45(12): 1092-1097.
- Amponsah EK, Donkor P (2007) Life-Threatening Oro-Facial Infections. *Ghana Medical Journal* 41(1): 33-36.
- Anthony H Barnett (2006) Diabetes Best Practice and Research Compendium. Berri Medical Library, pp: 288.
- Mandel L (1996) Diagnosing protracted submassetric abscess: The role of computed tomography. *J Am Dent Assoc* 127(11): 1646-1650.
- Macdonald KE, Boeckh SB, Stacey HJ, Jones JG (2021) The microbiology of diabetic foot infections: a meta-analysis. *BMC Infectious Diseases* 21: 770.
- Tolstunov L, Belaga GA (2010) Bell's Palsy and Dental Infection: A Case Report and Possible Etiology. *J Oral Maxillofac Surg* 68(5): 1173-1178.
- Al-Muharraqi MA, O'Sullivan EC (2010) Unilateral facial nerve paralysis following an infected lower third molar. *Int J Oral Maxillofac Surg* 39(2): 192-195.