

Odontogenic Submandibular and Descending Necrotising Fasciitis or Myositis – A Case Report on a Clinical Dilemma

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Abstract

The Rationale: Odontogenic space infection has the potential to spread uncontrollably into adjoining fascial spaces. Prompt diagnosis and management are mandatory to prevent gross morbidity and death. **Patient Concerns:** We present a case report of odontogenic origin-submandibular necrotising fasciitis and myositis in a lactating female. **Diagnosis:** Computed tomography scan revealed an ill-defined fluid collection with air foci within it in the left submandibular region with evidence of extension along the left sternocleidomastoid and along the strap muscles of the neck. Histopathology of the necrotic tissue confirmed necrotising fasciitis. **Treatment:** Extensive surgical debridement and tooth extraction of left mandibular second molar under antibiotic cover. **Outcomes:** Uneventful post-surgical wound healing and general medical condition of the mother and child were satisfactory at 13th-month follow-up. **Take-Away Lessons:** Prompt diagnosis and management of odontogenic fascial space infection in a lactating mother to prevent the spread of infection in both lactating mother and the child.

Keywords: Female submandibular fasciitis, lactating odontogenic infection, left submandibular myositis, necrotising myositis

INTRODUCTION

Submandibular necrotising fasciitis is one of the most common complications involving mandibular teeth. Breastfeeding infants are susceptible to transmission of infection from their mothers. Mothers with odontogenic space infections can continue breastfeeding after 24–48 h of interruption. During this time, pumping to maintain the milk supply should be supported. The mother and infant can ‘room-in’ together with standard and contact precautions. Culturing breast milk is not necessary. Empiric therapy may be chosen based on medical concerns for the infant and the known sensitivity testing of the Methicillin-resistant *Streptococcus aureus* (MRSA) isolate. Appropriate antibiotic choices include short-term use of azithromycin (<6 weeks of age), sulphamethoxazole, clindamycin and perhaps linezolid for mild-to-moderate infections.^[1]

CASE REPORT

A 21-year-old female patient presented with a history of foul odour-meatus swelling along with pus discharge from left submandibular orocutaneous communication for the past 10

days [Figures 1-3]. She has a past dental history of conservative management of pain in a left lower tooth from a local dental clinic about a month back. She was a lactating mother to a three-month-old baby. However, her swelling worsened with spread to the opposite side of the lower face and limited mouth opening.

She had a grossly swollen submental and submandibular region along with tenderness and raised local skin temperature. The skin was grossly erythematous with large areas of necrosis associated with draining abscess and pitting and blanching were also present on palpation. She also had restricted mouth opening. Clinical evidence of descending infection was present. There was no clinical evidence of airway or laryngeal obstruction. She had a carious left second mandibular molar. Thus, a provisional diagnosis of left submandibular necrotising fasciitis and descending neck infection was made.

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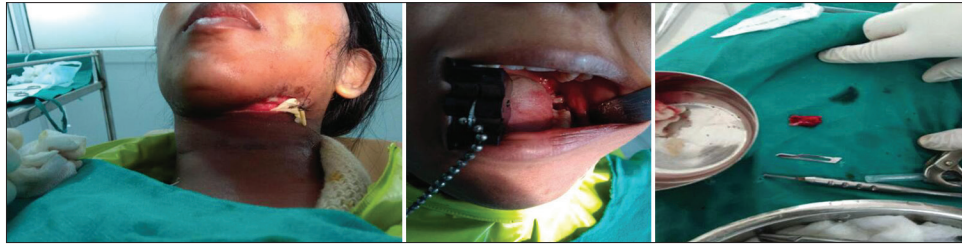


Figure 1: Perioperative pictures



Figure 2: (a) Histopathological view, (b) Pre-operative orthopantomogram, (c) 13th-month follow-up picture

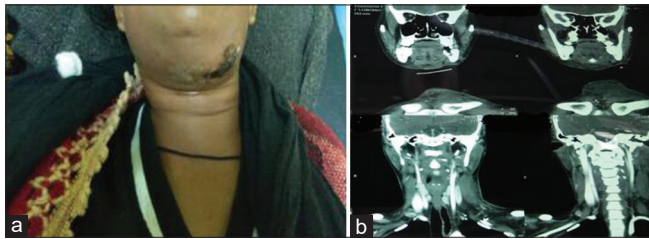


Figure 3: (a) Pre-operative picture, (b) Computed tomography scan images after tooth removal

Routine complete blood investigations showed haemoglobin (Hb) levels of 8.9 g/dL, HIV, hepatitis C virus (HCV) and hepatitis B virus surface antigen (HBsAG) were nonreactive. She also had a random blood glucose level of 104 mg/dL, Hb level of 8.9 g/dL and WBC count of $13.6 \times 10^3/\mu\text{L}$. Intravenous fluids and broad-spectrum antibiotics were immediately started. She was also advised to stop feeding her baby till her condition stabilised. Under strict aseptic conditions and local anaesthesia, surgical debridement of necrotising left submandibular space, as well as adjoining submental and opposite side abscess was drained. Her orthopantomogram revealed a carious left second mandibular molar, which was subsequently extracted [Figure 2b]. Pus and necrotic tissue samples were negative for tuberculosis and there was no microbial growth [Figure 1]. Histopathology of the necrotic tissue confirmed necrotising fasciitis [Figure 2a]. On the second perioperative day, her blood sugar level was 129 mg/dL and her total leucocyte count was reduced to 9600 cmm. She was continued with daily surgical debridement under intravenous (IV) infusion of linezolid 600 mg twice a day and infusion metrogyl 400 mg thrice a day. Skin necrosis and sloughing of left submandibular tissues occurred over the next two to five days following admission, which required frequent surgical debridement under local anaesthesia accompanied by copious irrigation with saline and betadine solutions. Surgical debridement was done for a period of seven days that was started from the day of admission. Post-operative computed

tomography (CT) scan showed ill-defined fluid collection with air foci within it in the subperiosteal location of the body and angle of the mandible, which was further seen extending into the left submandibular and sublingual regions with evidence of extension of the collection along left sternocleidomastoid and along with strap muscles of the neck [Figure 3b]. Five days following admission, the resultant submandibular wound started granulating well with signs of resolving abscess and necrosis. Her C-reactive protein levels were also negative on the fifth day. She was discharged on the fifth day and advised opinion from a higher centre for further rehabilitation and the need for grafting of the lost tissue. However, she was treated conservatively with medication and was discharged after seven days. Her post-surgical wound healing was uneventful, with minimal scarring at the 13th-month follow-up [Figure 2c].

DISCUSSION

Early signs and symptoms of necrotising fasciitis are usually non-specific.^[2,3] However, she presented at an advanced stage with expanding swelling involving bilateral submandibular spaces and necrotic pale brownish skin on the left submandibular region with crepitus on palpation. Despite her previous history and consultations for dental infection from a local dentist, her swelling worsened with spread to descending neck muscles and to the opposite side of her lower face, along with severely limited mouth opening.

In this case, a periodontal infection associated with a carious left mandibular second molar resulted in an extensive involvement of the submandibular region in a lactating female.^[2] Although it is commonly recognised that oral health may be compromised in lactating females, serious odontogenic infections are rarely discussed in the literature.^[3-5] Lactating women are regarded suitable patients for antibiotics and analgesics at the low end of the recommended dosage range.^[2-6] Effect of linezolid^[1] in lactating females is not much published in the literature.^[1-3] Breastfeeding is thought to be safe with the use of

paracetamol (acetaminophen).^[2-4] There are various strategies for minimising the exposure of infants to undesirable maternal antibiotic effects.^[7] In this case, the lactating mother was advised to feed her three-month-old baby immediately before routine antibiotic and analgesic therapy.^[7] There is no evidence to completely discontinue breastfeeding after tooth extraction while receiving the recommended medications.

CONCLUSION

The overall safety to be observed in designing the treatment protocol and choice of medication in lactating patients must be in view of the ultimate health of the mother and the child.

Therefore, the following clinical protocol was followed for the management of this patient.^[3,6-9]

- A complete history of the patient ruled out active pulmonary tuberculosis (TB) or a family history of TB, and a clinical examination revealed that the carious left mandibular second molar was the source of left submandibular necrotising fasciitis and descending neck infection.

On admission, her total leucocyte count was 13.8 g%; C-reactive protein was positive; her Hb count was 8.9 g%; HIV, HCV and HBsAg were non-reactive; random blood glucose level was 104 mg/dL; Hb level was 8.9 g/dL and WBC count was $13.6 \times 10^3/\mu\text{L}$. The chest radiograph was normal. Orthopantomogram confirmed the carious left mandibular second molar.

Treatment protocol

- Based on the clinical findings, pus aspirate was taken, prompt surgical exploration was done, the necrotic tissue sample obtained was assessed by histopathology and pus culture was negative for TB or any other microbial growth
- Extraoral surgical drainage, along with the extraction of the carious mandibular second molar was performed
- CT scan confirmed the spread of odontogenic infection to the left submandibular space and descending along the strap muscles of the neck on the left side
- Routine aggressive surgical debridement was performed while receiving IV infusions of linezolid^[6] 600 mg and metrogyl 400 mg with caution until the submandibular wound started granulating well with signs of resolving abscess and necrosis.^[10] She also received paracetamol 650 mg for analgesia and adequate fluid and nutritional support for both mother and child. C-reactive protein levels were negative, total leucocyte count was reduced and she was discharged on the fifth day.

She was managed conservatively at the higher referral centre. Uneventful healing was observed during her 13th-month follow-up period. Failure to do this could have resulted in further spread of infection in the neck, distress to the baby, obstruction of the airways or even death of the mother.^[4]

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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