



Correspondence

Necrotizing myositis – Case report



KEYWORDS

Necrotizing myositis;
Necrotizing soft tissue
infection;
Face;
Cellulitis

Necrotizing soft tissue infection is a rare but potentially fatal disease with the mortality rate of 25–30% in the past thirty years.^{1–4} According to the depth of tissue infection and necrosis, necrotizing soft tissue infection can be classified into three forms which involve the dermis and subcutaneous tissue for necrotizing cellulitis, the fascia for necrotizing fasciitis, and the muscle layer with the intact overlying skin for necrotizing myositis.² Here, we reported a case of necrotizing myositis in the facial area of a 49-year-old male patient.

This 49-year-old male patient complained of the left facial swelling for more than one month. He was treated with oral antibiotics for one week in a local dental clinic but the symptoms did not improve. Thus, he visited the Department of Oral and Maxillofacial Surgery of our hospital for further treatment. The patient had the past medical histories of diabetes mellitus, hyperthyroidism, stage IV chronic kidney disease, thalassemia, mental retardation, and cerebral palsy. The oral and facial examination revealed multiple retained dental roots over the left mandibular alveolar ridge, some pus and necrotic tissues around the lingual aspect of retained roots with bad odor, and extensive facial swelling over left buccal and submandibular spaces. Crepitus on palpation, which implicated the presence of air bubbles beneath the skin, was found. The patient also had fever (38.2 °C) and mild local heat but no redness and skin color change were noted (Fig. 1A). The computed tomography showed substantial soft tissue swelling, edema, and retention of air pockets in the left buccal, submasseteric, submandibular, parapharyngeal, pterygomandibular, and superficial temporal

spaces (Fig. 1B, C and D). Odontogenic infection from the infected dental roots was possible. Necrotizing myositis was highly suspected due to the intraoral tissue necrosis, bad smell, and large amount of air accumulation within the involved tissue spaces. Laboratory blood examination illustrated raised white blood cell count (9.44 k/ μ L) and plasma C-reactive protein level (5.35 mg/L).

After admission to the dental ward, two times of incision and drainage with extensive surgical debridement of necrotic tissues were performed under general anesthesia. The liquefying and degenerated medial pterygoid and masseter muscles were noted and removed during the operation (Fig. 1E). Two penrose drains were inserted into the involved spaces, one in the inner aspect of the mandible and the other in the outer aspect of mandible. The initial bacterial culture from the surgical wound revealed the presence of *Streptococcus constellatus* and *Eikenella corrodens* which were sensitive to sultamicillin and piperacillin-tazobactam. The subsequent culture after 6-day treatment showed *Enterobacter cloacae* complex which was sensitive to carbapenem. After 16 days of hospitalization with daily irrigation of penrose drains and intravenous injection of antibiotics including sultamicillin for 6 days, piperacillin-tazobactam for 3 days, and imipenem for 7 days, his left facial swelling subsided and body temperature, white blood cell count, and plasma C-reactive protein level returned to normal. His vital sign and general condition were stable. Therefore, he was discharged. The pathological examination of the removed tissue specimens showed necrotic debris, granulation tissues, and a severe mixed neutrophil and lymphoplasm cell

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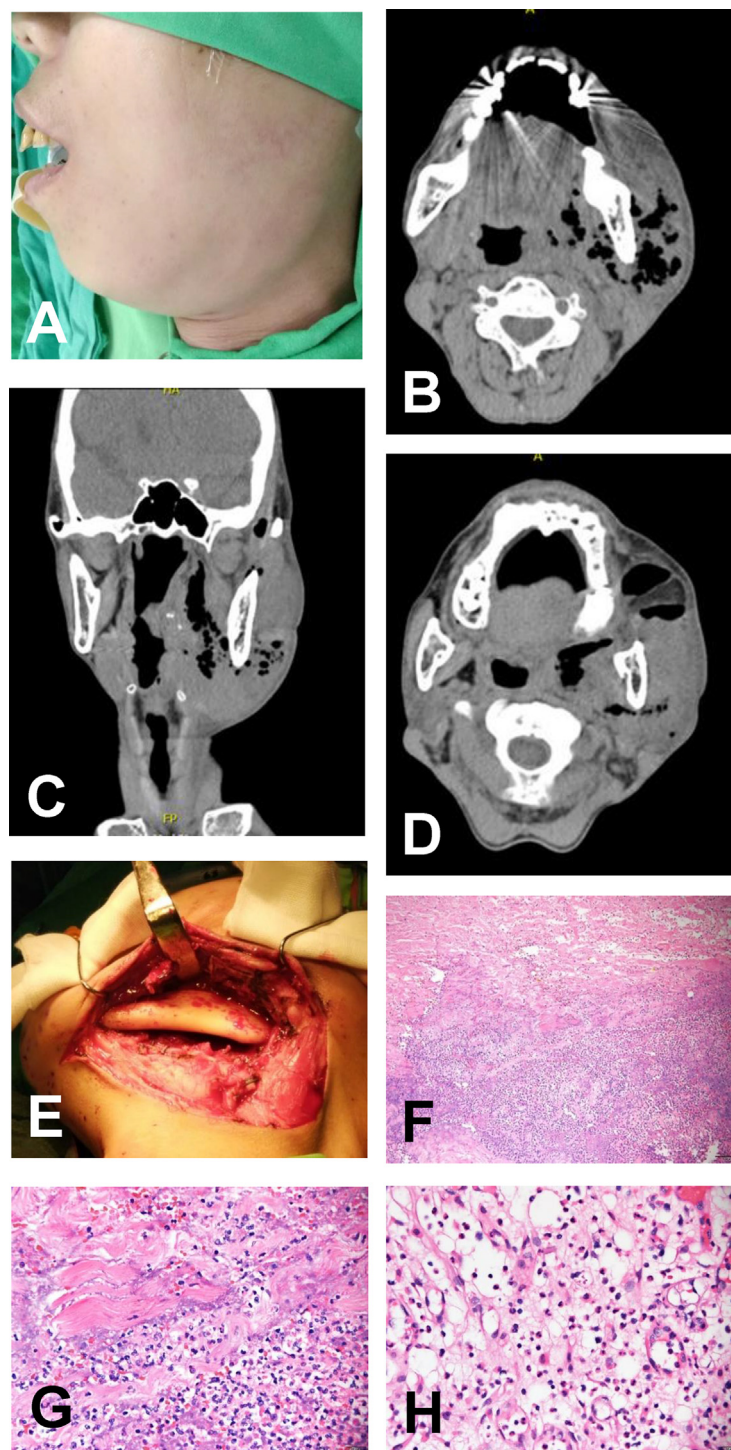


Figure 1 Clinical and histological photographs and computed tomography (CT) images of our case of necrotizing myositis. (A) Initial preoperative clinical photograph of the left face with a diffuse swelling but normal skin color. (B) Axial CT image showing soft tissue swelling with air bubbles over the left submasseteric, submandibular, and pterygomandibular spaces and airway deviation to the right side. (C) Coronal CT image exhibiting infection over parapharyngeal space, temporalis muscle, and masseter muscle. (D) Axial CT image revealing large air bubbles in the buccal and parapharyngeal spaces. (E) Liquefaction of masseter muscle and medial pterygoid muscle was found in the extensive surgical debridement. (F, G and H) Histological examination of the tissue specimens showed necrotic debris, granulation tissues, and a severe mixed neutrophil and lymphoplasmacytic cell infiltrate in the necrotic and edematous muscle tissues (hematoxylin and eosin stain; original magnification; F, 10 \times ; G, 40 \times ; H, 40 \times).

infiltrate in the necrotic and edematous muscle tissues, compatible with the diagnosis of necrotizing myositis (Fig. 1F, G and H).

Early diagnosis and early extensive surgical intervention had a major impact on the prognosis of necrotizing soft tissue infection. Because the necrotizing myositis may present minimal skin change, clinical diagnosis is often delayed.⁵ However, palpable crepitus, small or large air spaces on computed tomography images, and infection with necrotic tissues but little pus can help us make a differential diagnosis of necrotizing myositis from cellulitis and thus guide us to give the patient the appropriate medical and surgical treatments for achieving a better clinical outcome.

Declaration of Competing Interest

The authors have no conflicts of interest relevant to this article.

References

1. Stevens DL, Bryant AE. Necrotizing soft-tissue infections. *N Engl J Med* 2017;377:2253–65.
2. Bonne SL, Kadri SS. Evaluation and management of necrotizing soft tissue infections. *Infect Dis Clin North Am* 2017;31:497–511.
3. Yilmazlar T, Ozturk E, Alsoy A, Ozguc H. Necrotizing soft tissue infections: Apache II score, dissemination, and survival. *World J Surg* 2007;31:1858–62.
4. Miller AT, Saadai P, Greenstein A, Divino CM. Postprocedural necrotizing fasciitis: a 10-year retrospective review. *Am Surg* 2008;74:405–9.
5. Smith GH, Huntley JS, Keenan GF. Necrotising myositis: a surgical emergency that may have minimal changes in the skin. *Emerg Med J* 2007;24:e8.

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