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Cervicofacial Cellulitis in HIV-Positive Patients: Two Case Reports

Imen Zoghlami, Nadia Romdhane, Wejdan Mohamed Trabelsi*, Dorra Chiboub, Safa Nefzaoui, Emna Rejeb, Ines Hariga, Chiraz Mbarek

Habib Thameur Hospital, ENT Department, Tunis, Tunisia

***Corresponding Author:**
Wejdan Mohamed Trabelsi, Habib Thameur Hospital, ENT Department, Tunis, Tunisia

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1. Abstract

1.1. Introduction: Cervicofacial cellulitis is a life-threatening infectious emergency, most often of odontogenic origin. In immunocompromised patients, especially those living with HIV, clinical presentations may be atypical and disease progression more severe.

1.2. Case presentation: We report two HIV-positive patients with severe cervicofacial cellulitis. Both presented with extensive involvement of deep cervical spaces. One case was complicated by mediastinitis and septic shock. Both patients were managed with broad-spectrum intravenous antibiotics and surgical drainage. HIV infection was diagnosed during the course of hospitalization in both cases. Multidisciplinary management led to favorable outcomes.

1.3. Conclusion: These cases illustrate the need for early recognition, tailored management, and multidisciplinary collaboration in HIV-positive patients presenting with cervicofacial cellulitis.

2. Keywords

Cervicofacial cellulitis; HIV; Immunosuppression; Odontogenic infection; Necrotizing fasciitis; Tunisia

3. Introduction

Cervicofacial cellulitis (CCF) is a potentially life-threatening medical and surgical emergency, typically of odontogenic origin [1]. In HIV-positive patients, the clinical course can be aggressive, atypical, and resistant to standard treatment. To our knowledge, no previous Tunisian reports have described the association between HIV and cervicofacial cellulitis. We present two illustrative cases, emphasizing clinical presentation, imaging features, management, and outcomes, and discuss them in light of the literature.

4. Case 1

A 45-year-old man from sub-Saharan Africa presented to the emergency department with a painful cervical swelling and high-grade fever evolving for six days following dental pain self-treated with NSAIDs. He had no known medical history. On admission, the patient was confused. Clinical examination revealed an indurated, tender swelling extending from the right submandibular region to the anterior cervical area, spreading to the upper chest, with multiple fistulas discharging pus (Figure 1). No respiratory distress was observed. Oral examination revealed poor dental hygiene with multiple caries.

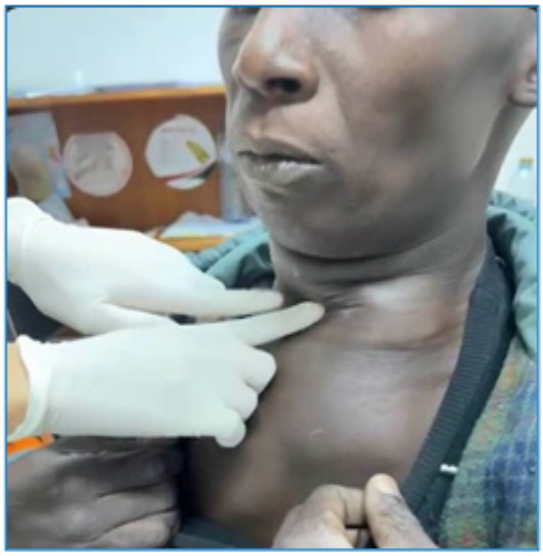

Figure 1: Rapidly progressive cervicofacial swelling extending from the cervical region to the upper thoracic area (Red arrow).

Laboratory tests showed lymphopenia (2,530/µL) and elevated CRP (214 mg/L). HIV testing, performed because of the severe infection and lymphopenia, was positive. Hepatitis B, C, and syphilis serologies were negative.

CT scan of the neck revealed a 6 × 3.5 cm abscess under the left mandible extending into the parapharyngeal and sublingual spaces, associated with cervicofacial cellulitis, fascial necrosis, air bubbles, and mediastinitis. Concomitant pneumonia was also detected (Figure 2).

The patient underwent emergency surgical drainage of cervical and mediastinal collections with debridement under general anesthesia, in collaboration with thoracic surgeons. Intravenous

amoxicillin-clavulanate and metronidazole were administered. The postoperative course was complicated by septic shock requiring mechanical ventilation and intensive care. Perioperative cultures isolated Klebsiella pneumoniae and α-hemolytic streptococci (sensitive strains). Histopathology confirmed necrotic tissue consistent with necrotizing fasciitis, without evidence of specific infection. The patient required 10 days of mechanical ventilation, 30 days of intravenous antibiotics, and was discharged to the Infectious Diseases Department for HIV management.

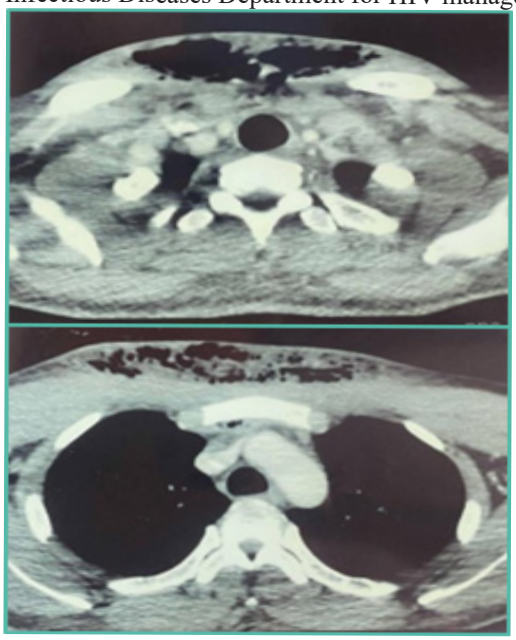

Figure 2 : Contrast-enhanced cervico-thoracic CT scan in axial view: cervicofacial cellulitis with mediastinitis (Red arrow).

5. Case 2

A 35-year-old woman with no past medical history was admitted for rapidly progressive right lateral cervical swelling associated with intense pain and torticollis. On examination, there was a large inflammatory cervical mass (8 cm) on the right side.

Biological tests revealed marked systemic inflammation. CT scan of the neck and chest revealed two adjacent 4-cm jugulocarotid collections with diffuse involvement of deep cervical spaces (Figure 3). HIV serology was positive.

Figure 3: Contrast-enhanced cervico-thoracic CT scan in coronal slices showing cervicofacial cellulitis with two contiguous collections (Red asterix)

The patient underwent urgent surgical drainage of both abscesses combined with intravenous broad-spectrum antibiotics, followed by daily local care. The clinical course was favorable, with marked improvement after 10 days of hospitalization. She was referred to Infectious Diseases for ongoing HIV management.

6. Discussion

Cervicofacial cellulitis (CCF) represents a potentially life-threatening deep neck infection that requires prompt diagnosis and aggressive management. Its clinical course may be particularly severe in immunocompromised individuals such as HIV-positive patients, in whom impaired immune defenses predispose to rapid bacterial dissemination and delayed healing [2,3].Multiple studies have reported a higher prevalence and severity of deep neck infections in this population, particularly in resource-limited settings where delayed presentation and restricted access to advanced imaging further worsen prognosis [4,5].The clinical presentation of CCF in HIV-positive patients is often atypical, with limited systemic symptoms despite extensive tissue involvement. This clinicoradiological dissociation underscores the crucial role of early cervicothoracic imaging. Contrast-enhanced computed tomography (CT) remains the cornerstone for diagnosis, as it enables precise mapping of the cervical spaces, identification of abscess cavities, fascial necrosis, gas collections, and mediastinal spread [6]. Doppler ultrasonography and CT angiography are essential in identifying vascular complications such as internal jugular vein thrombosis or septic emboli, which may occur in up to 20% of cases [7].

Magnetic resonance imaging (MRI), although less frequently employed, provides superior soft-tissue contrast and is valuable in cases with suspected neurovascular or intracranial extension, or when atypical pathogens such as Mycobacterium tuberculosis, Nocardia, or Histoplasma are suspected [8]. In regions endemic for tuberculosis, cervical tuberculous abscesses should always be considered in the differential diagnosis of chronic or recurrent cellulitis.

Management of CCF requires a multidisciplinary approach combining aggressive intravenous broad-spectrum antibiotic therapy with timely surgical drainage of purulent collections. The empiric regimen should cover Staphylococcus aureus (including MRSA), anaerobes, and Gram-negative organisms, with adjustments guided by microbiological cultures [9]. The emergence of resistant pathogens and opportunistic infections in immunosuppressed hosts mandates close microbiological surveillance. Early airway protection remains essential, as airway obstruction can occur rapidly due to massive edema or abscess expansion [10].

Prognosis largely depends on immune status. HIV-positive patients with CD4 counts below 200/mm³ experience higher rates of complications such as mediastinitis, sepsis, or death [1]. Boscolo-Rizzo and al. demonstrated that immunocompromised patients exhibit longer hospital stays, higher rates of airway compromise, and increased mortality compared to

immunocompetent individuals [4]. Nevertheless, advances in antiretroviral therapy and early imaging-guided intervention have significantly improved outcomes in recent years [4].

7. Conclusion

These two cases highlight the aggressive and atypical nature of cervicofacial cellulitis in HIV-positive patients. Early imaging, prompt multidisciplinary surgical and medical management, and referral for HIV care are essential to improve outcomes.

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