

Cervical Necrotizing Fasciitis Due to Klebsiella

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Summary

Necrotizing fasciitis is an aggressive infection involving fascia and subcutaneous tissue thus causing infectious thrombosis of the nutrient vessels to the overlying skin ultimately leading to extensive necrosis. Although necrotizing fasciitis is common in the perineum, abdominal wall and extremities it is relatively uncommon in the head and neck region. This is a case report of a 65 year old female visiting from India who presented with diabetic ketoacidosis precipitated by cervical necrotizing fasciitis. Computed tomography imaging showed involvement of the left parapharyngeal space and there was soft tissue gas present. This patient subsequently underwent an emergency neck exploration and debridement. Repeated pus culture studies isolated Klebsiella species as the sole pathogen. Our case illustrates that prompt diagnosis and treatment of cervical necrotizing fasciitis can ensure a good outcome.

Key Words: Necrotizing fasciitis, Klebsiella

Introduction

Necrotizing fasciitis is relatively uncommon in the head and neck region. To date there has been just over 100 cases reported in the literature. However, an astute clinical suspicion leading to early diagnosis and treatment is essential to better patient outcome. It has been thought that the common pathogens are staphylococcus or streptococcus and that polymicrobial culture is common. We describe a case report of a 65 year old female who presented with diabetic ketoacidosis precipitated by necrotizing fasciitis secondary to Klebsiella infection.

Case Report

A 65 year old Indian female visitor complained of one month history of increased anterior neck swelling which was associated with pain and dysphagia. There was no history of trauma or insect bite. She also complained of polyuria, polydipsia, poor appetite and

vomiting. She had no prior medical illness and was a chronic smoker.

On admission she was drowsy with her GCS 11/15. She was afebrile but tachycardic. There was an area of necrotic skin over the anterior neck with surrounding inflamed skin (Figure 1). There was fluctuance without crepitus. Intraorally dental hygiene was poor and examination of the oropharynx revealed that the left lateral pharyngeal wall was medialised.

Arterial blood gases showed that she had uncompensated metabolic acidosis with pH 7.138 with blood sugar level of 25.2 and positive urine ketones. She had leucocytosis and was hyponatraemic (122 mmol/l).

The patient was admitted into our high dependency ward and the attending physician promptly treated her diabetic ketoacidosis. Pus was aspirated and sent for culture. Empirical intravenous antibiotics was started

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and later tailored according to the culture and sensitivity results.

An urgent CT scan was requested which showed a hypodense collection in the left parapharyngeal space with air present within the collection. No retrosternal extension was seen (Figure 2). Once the patient's medical condition was stabilised she underwent an emergency neck exploration and desloughing. Intraoperatively, extensive necrotized tissue was removed exposing the contents of the carotid sheath.

Pus culture studies aspirated earlier and sent intraoperatively grew *Klebsiella* species solely. Histopathological examination of the tissue was consistent with necrotizing fasciitis. Postoperatively the wound was cleaned aggressively in the ward and was left to heal by secondary intention. The patient was finally discharged after three weeks.

Discussion

Necrotizing fasciitis is an overwhelming infection common to the perineum, abdominal wall and extremities. It occurs uncommonly in the head and

neck area. Unless treated promptly it is associated with a high mortality rate. The severity of this soft tissue infection is influenced by the host's underlying medical condition and its microbiology. It is thought that polymicrobial culture is common and this bacterial synergism results in increased virulence. In single pathogen infection *Klebsiella* has been reported as the main culprit¹.

Predisposing medical conditions include old age and an immunocompromised state such as diabetes mellitus and malnutrition results in increased tendency to develop necrotizing fasciitis. There is a positive statistical correlation with significance ($p < 0.5$) between disease severity and patient with underlying disease such as diabetes mellitus, cancer and uraemia². Cervical necrotizing fasciitis tends to involve deep tissue and spread caudally to the chest and mediastinum resulting in catastrophic complications. Delay in time between onset of symptoms and medical therapy results in increased disease severity².

Therefore these patients should be treated with a high index of suspicion. Patients commonly present with marked swelling and erythematous skin with associated pain. Crepitus is not so common. Fever and leukocytosis is also observed. Cervical necrotizing fasciitis can be associated with shortness of breath, dysphagia and odynophagia. Patient may also present in septic state.



Fig. 1



Fig. 2

Computed tomographic scans typically shows gas bubbles, air fluid levels and subcutaneous and fascial plane thickening. Imaging is essential as it delineates the involvement of deeper structures and thoracic extension of the disease can also be detected and addressed appropriately. Contrasted CT pattern of necrotizing fasciitis usually does not show ring enhancing areas differentiating it from deep neck abscesses³.

It is universally agreed that successful management of necrotizing fasciitis is early clinical suspicion,

aggressive surgical intervention, intravenous broad spectrum antibiotics later tailored to culture and sensitivity results coupled with supportive therapy. Unless that is achieved cervical necrotizing fasciitis will be associated with a high morbidity and mortality rate. Early surgical intervention could minimize the skin loss and result in better cosmetic result. A multidisciplinary team approach should be advocated to treat any underlying medical condition which is common in patients with necrotizing fasciitis. This is to ensure that the patient's condition is quickly optimized for early wound debridement.

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