

Huge carbuncle leading to necrotizing fasciitis in the COVID-19 pandemic era

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Abstract

The patients' discouragement from presentation due to the COVID-19 pandemic resulted in the progression of many manageable diseases to a critical condition. we report a case of carbuncle promotion to the necrotizing fasciitis in the context of undiagnosed diabetes mellitus and delay in visiting physicians due to fear of COVID-19.

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KEY CLINICAL MESSAGE

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ABSTRACT

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Keywords: Necrotizing fasciitis, Carbuncle, COVID-19, Diabetes mellitus

INTRODUCTION

After the outburst of the COVID-19 pandemic, enforcing of lockdowns and social distancing in many countries considerably impressed many aspects of healthcare including the routine and emergency care of non-COVID patients [1]. The patient's discouragement from visiting the hospital resulted in the clinical progression of many manageable diseases to an end-stage, critical condition requiring radical medical and surgical measures [2].

Herein we report a case of necrotizing fasciitis (NF) that was formed from a carbuncle in the context of undiagnosed diabetes mellitus (DM) and delay in visiting physicians due to fear of COVID-19.

CASE REPORT

A 51-year old male presented to our clinic with severe neck pain and massive swelling which was started as a furuncle-like lesion 14 days ago on the nape of the neck with rapid progression. He had refused to seek medical help due to the COVID-19 pandemic. He denied a history of DM and any trauma or bite in this location; however, there was a long history of occipital folliculitis. Besides, he had a history of hyperlipidemia and coronary artery bypass grafting surgery 1 year ago.

On clinical examination, there was a huge carbuncle with purplish color and multiple purulent sinus tracts (figure 1) with a limited range of motion due to extreme pain. Also, there were patches of cicatricial alopecia and tufted folliculitis on his occiput.

Laboratory exam revealed a blood glucose level of 537 g/dL and glycated hemoglobin A1c (HbA1c) of 13%. White blood cell count (WBC) was 14.60 (normal 4.00-11.00 x10³/ul), erythrocyte sedimentation rate (ESR) 67 mm/hour, and C-reactive protein (CRP) 37.1 mg/L.

A preliminary diagnosis of carbuncle in the setting of uncontrolled DM was made. The differential diagnoses included actinomycosis, bite reaction, gas gangrene, and cutaneous anthrax. The patient developed rapid extension of erythema, warmth, and tenderness to the interscapular area and shoulders, along with confusion, fever, and tachypnea during the first hours of admission. So, NF was considered.

Soft tissue ultrasonography and neck computed tomography showed significant soft tissue thickening and increased echogenicity with fat lobulation. Some superficial foci of gas were noticed and interpreted as sinus tracts. No obvious abscess or collection was detected.

Tazocin® (piperacillin/tazobactam) plus vancomycin was started immediately after taking discharge samples for smear and culture and the patient was sent to the operation room for surgical debridement.

Intraoperatively a wide horizontal incision was made throughout the posterior neck. Extensive necrosis and pus formation extending deep into the muscles were observed spreading wide beyond the visible erythematous margin; therefore, a vertical incision was added to the interscapular area allowing complete evacuation of pus and necrotic tissues. Histopathologic examination revealed fibro adipose tissue with extensive abscess formation and necrosis. Cultures demonstrated the growth of staphylococcus aureus susceptible to methicillin, so the previous antibiotics were continued. Skin biopsy was obtained from the occiput that was compatible with folliculitis decalvans. Consecutive surgical debridement sessions for the next 7 days removed the

whole necrotic tissues (figure 2). After ensuring that the necrosis spreading came to a halt, vacuum therapy was administrated for 12 days till granulation tissue filled the wound. After a total of 23 days of hospital admission, he was discharged with a shallow ulcer without any complications. The antibiotic regimen was changed to oral cotrimoxazole and clindamycin. Also, routine wound care and insulin therapy was continued, and weekly follow up for wound assessment was scheduled (figure 3). In 1 month follow up the wound was completely repaired.

DISCUSSION

A carbuncle manifests as the coalescence of several furuncles ensuing in a single inflammatory mass with multiple draining sinus tracts. It usually starts as a furuncle that affects areas with thick skin e.g. nape of the neck and back. *Staphylococcus aureus* is the most common cause and DM stands among predisposing conditions as in our patient. Although the infection may extend deep into the subcutaneous tissues [3], evolution to the NF rarely occurs.

Necrotizing fasciitis is characterized by rapidly progressive infection of subcutaneous tissue and fascial planes leading to widespread necrosis and systemic toxicity [4]. It could be life-threatening with a mortality rate ranging from 20 to 60% [5]. The most common sites of involvement are the extremities and the perineum (Fournier gangrene) [6]. Early signs of NF include cellulitis, and fever; although, it can progress at a frightening rate. The subcutaneous tissues may become hard and “woody” on palpation with discharge of a thin, malodorous fluid resulting from fat tissue and fascial necrosis. Patients can become extremely toxic ending in sepsis and shock. Saving the patient life needs prompt diagnosis, immediate and aggressive surgical debridement, and broad-spectrum antibiotic therapy. Subsequent surgeries are necessary to remove all necrotic tissues [6,7].

Delayed presentation of NF due to the COVID-19 has been described [2,6]. To our knowledge, the evolution of NF from the carbuncle has not been reported yet in the COVID-19 pandemic.

Although undiagnosed DM promotes the progression of carbuncle to the NF, delay in presentation due to the COVID-19 social distancing plans also can pave the way for this progression.

In conclusion, this case highlights the importance of early diagnosis and management in preventing the progression of a clinically simple to treat condition to a critical potentially lethal illness. Radical surgery and antibiotic therapy along with diabetes control saved the patient in the last hours.

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The patient in this manuscript gave written informed consent for the publication of his case details.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Mehdi Gheisari: Data gathering, clinical evaluation and management of the patient, writing the manuscript, and supervision of the project.

Raziyeh Ganji: Data gathering, writing the manuscript in consultation with Mehdi Gheisari, submission and correspondence in the journal of Clinical Case Reports.

Moein Baghani: Data gathering, writing the manuscript, taking photos, and preparing for submission in consultation with Mehdi Gheisari.

Mohammad-Mehdi Forouzanfar: Clinical evaluation and management of the patient, editing of the final draft of the manuscript.

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FIGURE LEGEND:

Figure 1: A huge carbuncle with multiple sinus tracts discharging a dishwater fluid.

Figure 2: Several sessions of debridement resulted in complete removal of necrotic tissue.

Figure 3 : Nearly complete wound repair in weekly follow-ups.





