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Case Report

Cutaneous mucormycosis or black fungus of right shoulder region- rare case report

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ABSTRACT

Cutaneous mucormycosis or black fungus is a fungal infection which is caused by fungi of class zygomycetes and having high morbidity and mortality. It is an opportunistic infection, which is prevalent in immunocompromised patients. Risk factors associated with mucormycosis are diabetes mellitus, organ transplant, trauma, burn and long-term steroid use. Here author reports a case of mucormycosis of right shoulder complicated with necrotizing fasciitis in a diabetic patient. Patient underwent multiple sittings of radical debridement along with empirical therapy of liposomal Amphotericin B followed by skin grafting.

Keywords: Mucormycosis, Black fungus, Zygomycetes, Opportunistic infection, Amphotericin B, Skin grafting

INTRODUCTION

Cutaneous mucormycosis or black fungus is a fungal infection which is caused by fungi of class zygomycetes and having high morbidity and mortality.[1,2] Mucormycosis infection is the third most common invasive fungal infection after candidiasis and aspergilosis.[3] Mucormycosis most commonly involves rhino cerebral, pulmonary followed by cutaneous infections.[4] It is an opportunistic infection, which is prevalent in immunocompromised patients. Risk factors associated with mucormycosis are diabetes mellitus, organ transplant, trauma, burn and long-term steroid use.[5] Mode of transmission in cutaneous mucormycosis is direct inoculation of spores from the contaminated soil into the wound. Spores of mucormycosis are phagocytosed by the polymorphonuclear cells inside the body. Iron metabolisms play a critical role in the pathogenesis of mucormycosis infection. Iron overload can facilitate the spread of infection in the body. Mucormycosis invasion causes cutaneous arteriole thrombosis leads to widespread necrotizing soft tissue infection. It requires high suspicion for making early diagnosis and timely appropriate treatment in the form of radical debridement and use of liposomal amphotericin B. Overall mortality is up to 40% in mucormycosis infection.[6] Here author reports a case of mucormycosis of right shoulder complicated with necrotizing fasciitis in a diabetic patient. Patient underwent multiple sittings of radical debridement along with liposomal amphotericin B followed by skin grafting.

CASE REPORT

A 33 years old male patient, smoker with history of type 2 diabetes mellitus came to department of plastic surgery. Patient presented with chief complaints of pain, swelling and skin discoloration of right shoulder, neck and upper chest region. There was history of road traffic accident 11 days back and sustained soft tissue injury of right shoulder, neck and upper chest region without any other significant injury. Initially patient was treated with broad

spectrum antibiotics at primary health care centre, patient did not respond to those antibiotics, and referred to us for further management. There was history of very fast spreading of necrotic patch in surrounding normal tissues. At the time of presentation patient was conscious, oriented to time, place and person. His vitals were stable except mild tachycardia (pulse rate 112/minute) and had history of multiple spikes of fever in the past. At local examination patient had necrotic patch with eschar formation size 12x10 cm with oozing pus from underneath the eschar (Figure1). Between the margins of necrotic patch and normal skin there was suspicious fungal areas seen. KOH smear was sent which came positive for fungal growth. Intravenous liposomal amphotericin B started and patient was taken up for surgery with emergency OT clearance. Extensive debridement of necrotic patches with 2 cm normal skin margins and few fibres of pectoralis major muscle were excised (Figure 2). Tissue sent for HPE Figure 3). Meanwhile patient's dressing was done with gauge piece soaked in diluted Amphotericin B solution. After few days wound margins, discoloration was again noticed (Figure 4). Patient was again taken up for surgery and extensive debridement of wound was done up to the healthy bleeding edges (Figure 5). HPE reports shown non-septate branching hyphae accompanied with angioinvasion and tissue necrosis. Patient responded well to antifungal treatment and few days later once wound was well granulated, skin grafting was done over the right shoulder raw areas (Figure 6). Patient was discharged from the hospital in stable condition later on.

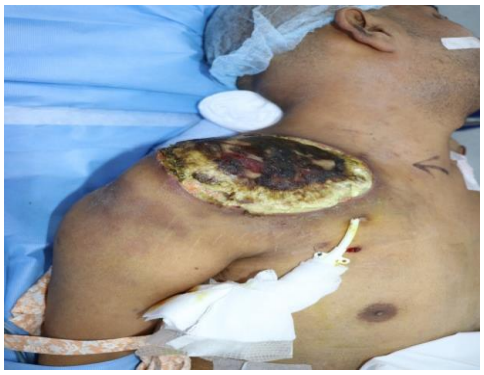

Figure 1: Post RTA mucormycosis or black fungus of right shoulder.

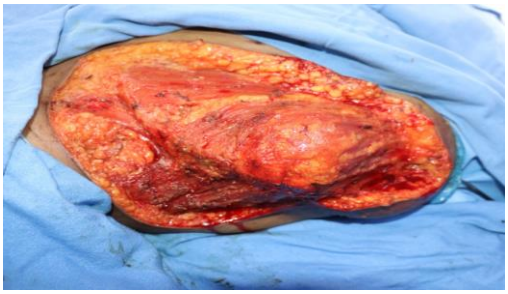

Figure 2: Post first radical debridement of right shoulder region.

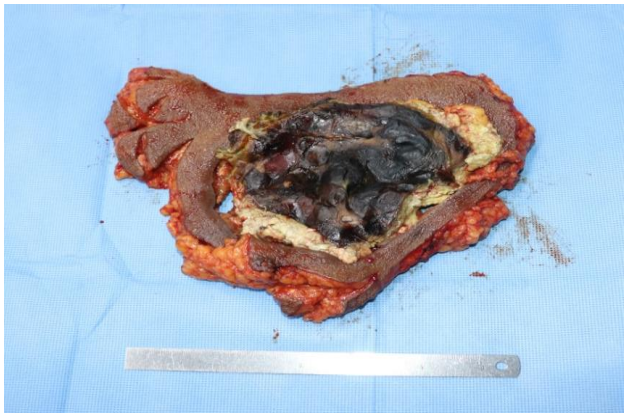

Figure 3: Excised tissue specimen for HPE.

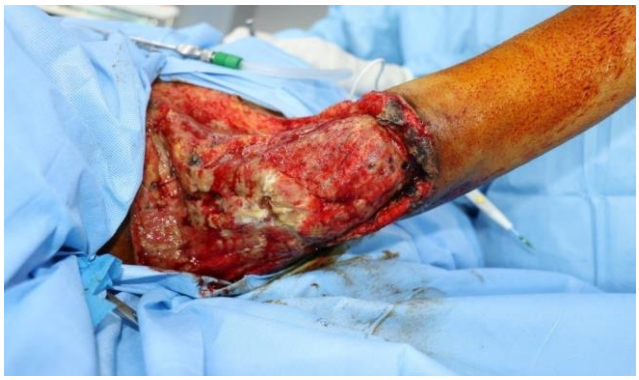

Figure 4: Post debridement recurrence of fungal growth and skin margins necrosis.

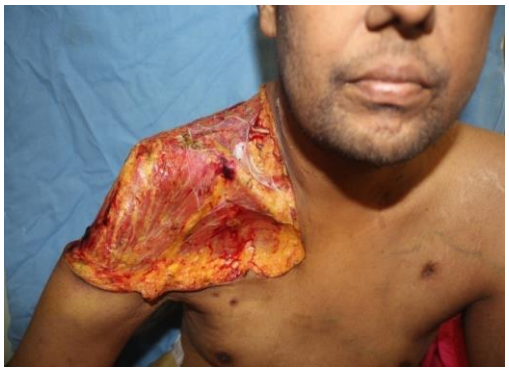

Figure 5: Post second debridement of right shoulder region.

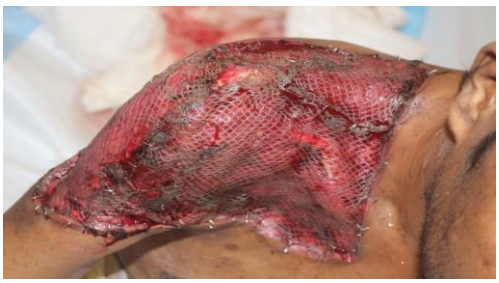

Figure 6: Post meshed split thickness skin graft cover for right shoulder region.

DISCUSSION

Primary cutaneous mucormycosis infection is necrotizing fungal infection and having angioinvasion and vascular thrombosis formation leads to widespread soft tissue necrosis.[7] Initial presentation of primary cutaneous mucormycosis can confuse with necrotizing fasciitis. It requires high degree of suspicion to make a diagnosis of mucormycosis. Most commonly involved region is upper extremity followed by head and neck region, chest, flanks and genitalia.[8,9] In this case affected site is upper extremity and shoulder region. In our case report patient had multiple major risk factors -first history of road traffic accident second patient had diabetes mellitus; third patient was not responding to broad spectrum antibiotics. All these arises the high suspicion of necrotizing fungal infection. Initially screening with KOH smear and then histopathological examination confirmed the diagnosis of mucormycosis, which is the gold standard method for diagnosing mucormycosis.[10] Early diagnosis, appropriate antifungal treatment along with radical surgical procedures are the key to manage the primary cutaneous mucormycosis.

CONCLUSION

Our case demonstrates the usefulness of making early diagnosis and emergent surgical treatment along with amphotericin B. It can reduce morbidity and mortality in cutaneous mucormycosis, although early presentation of cutaneous mucormycosis can be confused with bacterial necrotizing fasciitis. The multidisciplinary team is required for the management of complicated cases of primary cutaneous mucormycosis or black fungus.

The most affected areas of the skin are the arms and legs. Other locations include the scalp, face, thorax, back, abdomen, perineum, breast, neck and gluteal area.

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Ethical approval: Not required

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