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# A RARE CASE OF PRIMARY MUCORMYCOSIS OF ABDOMINAL WALL IN AN YOUNG IMMUNOCOMPETENT PATIENT

KEY WORDS:
Mucormycosis
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**ABSTRACT**

Mucormycosis of the anterior abdominal wall is an uncommon disease and very rarely found in immunocompetent, non-diabetic patients. We herein report a case of primary cutaneous mucormycosis in an immunocompetent and non-diabetic individual. Our patient was a 31year old young male, bike mechanic. He was diagnosed to have cutaneous mucormycosis of the anterior abdominal wall, and managed with serial wound debridement and intravenous amphotericin B therapy. A total of 7300 mg of liposomal amphotericin B was administered for 21days and antibiotics as per culture reports. After complete healing of the wound, split skin grafting was done. We would like to emphasize the importance of high index of suspicion and early start of therapy in this condition which has high rate of mortality.

## INTRODUCTION

Mucormycosis is a rare, aggressive, opportunistic infection caused by fungi in the class of Phycomycetes. The most common type is orbitorhinocerebral mucormycosis, generally occurring in conjunction with sinus or nasal involvement. We report an extremely rare case of primary mucormycosis infection of the anterior abdominal wall in a immunocompetent patient.

## CASE REPORT

A31 year-old male, came with large painful blackish ulcer over left anterior abdominal wall. He was admitted at an outside hospital 10 days ago for the same complaints and was managed with initial wound debridement. He gave a history of unknown insect bite over the left lumbar region. He initially developed a small pinpoint scab over bite site which developed into a swelling which was painful, gradually increasing, with tense overlying skin.Later it progressed to an ulcer with serous discharge initially followed by blackish discharge. There was no history of diabetes, drug abuse or weight loss. His fasting blood sugar (109 mg/dl) postprandial blood sugar (126 mg/dl) and glycosylated hemoglobin (HbA1c–5.6%) levels were normal. He was also investigated for HIV status by ELISA for HIV (1 and 2), HIV group O antibodies and HIV-1 Antigen (p24) which were negative. On clinical suspicion of necrotising soft tissue infection, immediate surgical debridement was done and tissue sent for histopathological examination. There were large areas of necrotic adipose tissue with purulent discharge. He was treated with antibiotics and daily dressings. The black necrotic margins were found to be spreading despite adequate debridement. On daily dressings, whitish cotton like growth was noted on the surface of previous debrided area with black base. The biopsy report revealed fungal inflammatory reaction of the subcutaneous tissue and based on growth characteristics, was diagnosed as mucormycosis. Fungal smears (KOH preparation) of the tissue showed few aseptate filamentous fungi while the fungal culture confirmed the presence of absidia sp. On confirmation, he was put on intravenous liposomal amphotericin-B and problems of anemia, hypokalemia, hypoalbuminemia and raised creatinine levels were managed accordingly. Dressings were continued with povidone-iodine and final debridement and split thickness skin grafting was done after 21 days of first debridement . Graft take up was adequate and amphotericin-B continued for 1 month and a total of 1.5 g was administered. He was discharged after 31 days and was found to be healthy on follow up. Photograph taken before the second debridement shows spreading black, necrotic margins. The patient under-went multiple debridements for the same. High power histopathological photomicrograph of the infected tissue will demonstrate few aseptate, branching, filamentous fungi with a background of inflammatory infiltrates in adipose tissue.

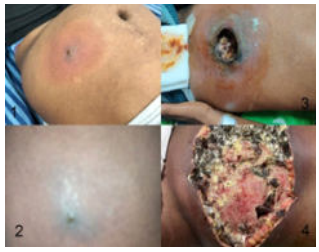


**Fig1: Serial images showing initial presentation in left anterior abdominal wall**

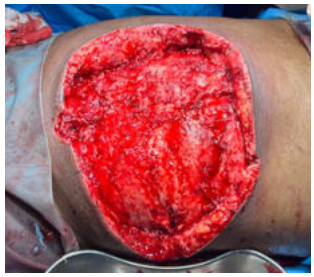


**Fig 2: Post-op picture of first debridement done at our hospital**

## DISCUSSION

Mucormycosis was first reported in humans by Paultauf(1885). The incidence of mucormycosis is reported from 0.005 to 1.7million population and global case fatality rate is 46%. Necrotizing lesions of the anterior abdominal wall are rare. Mucormycosis is an aggressive, rare, opportunistic infection caused by zygomycetes class of fungi, order mucorales. Genera most commonly responsible for mucormycosis usually are Mucor or Rhizopus. The most common type is orbitorhinocerebral mucormycosis, generally occurring in conjunction with sinus or nasal involvement. Primary subcutaneous mucormycosis in humans is limited, in most cases, to patients with severe immunocompromise, diabetes mellitus or trauma . Most are surgical emergencies, however, several cases of a more chronic, indolent form have been reported, with signs and symptoms developing over 4 weeks. The fungi invade the blood vessel lumina and cause thrombosis through inflammatory occlusion which is the pathognomic feature of this entity . Scattered case reports of invasive mucormycosis

have appeared but the disease in immunocompetent hosts still remains a rarity. There is often a mixed suppurative and necrotising inflammatory reaction in the dermis and subcutaneous tissue . Our patient a young, healthy, immunocompetent male with massive fungal infection of the anterior abdominal wall. Primary necrotising zygomycosis is usually caused by the traumatic implantation of fungal elements through the skin, especially in patients with extensive burns, diabetes or immunocompromised state. Cases have arisen at insulin injection sites, spider bites, entry sites of intravenous or peritoneal catheters or operative wounds. Necrotising cutaneous lesions have occurred in patients who have had contaminated surgical dressings or Elastoplast bandages applied to their skin . In the immunocompetent patient, infections usually remain localized around the site of the initial trauma and respond well to local debridement and antifungal therapy. Cutaneous and subcutaneous zygomycosis may also be the result of hematogenous spread or direct invasion from other organs, and usually indicates a very poor prognosis. The successful management of infections caused by mucoraceous zygomycetes requires an early diagnosis, control or reversal of any predisposing factors or underlying disease, antifungal therapy (amphotericin-B being the drug of choice), and aggressive surgical debridement which may have to be repeated until all infected necrotic tissue is removed. The recent past has seen the introduction of newer antifungals such as posaconazole which has emerged as an important antifungal agent since 2005. Combinations of antifungal agents such as amphotericin B, liposomal nystatin with granulocyte macrophage-colony stimulating factor and hyperbaric oxygen have been used in the management of rhinocerebral and disseminated mucormycosis . It was also now established that iron metabolism plays a central role and iron chelation using deferiprone is a promising novel therapeutic strategy for refractory mucormycosis.

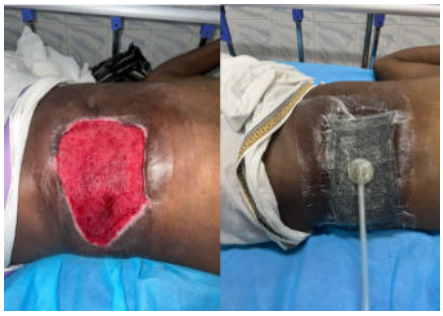
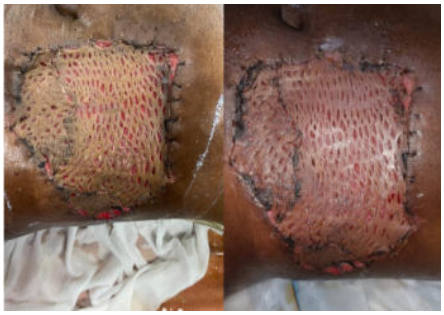


**Fig 3-Vaccum dressing followed by split skin grafting**



## CONCLUSION:

Mucormycosis of the abdominal wall is a relatively rare condition beginning as a innocuous swelling in the abdominal wall. Early diagnosis and early extensive debridement are needed for optimal wound outcome. Hence a high index of suspicious is necessary in all cases in which patient presents with blackish blebs on the skin and extensive surrounding induration. Debridement will reveal larger areas of necrosis and serial debridement may be necessary. Fungal cultures are a must in all such cases. Meticulous wound care gives miraculous results in these patients.

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