

Postraumatic Zygomycotic Necrotizing Abdominal Wall Fasciitis With Intraabdominal Invasion In A Non Immunosuppressed Patient

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Citation

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Abstract

Background: Mucormycosis is a rare invasive fungal infection seen most often in immunosuppressed patients. We report a case of postoperative abdominal wound mucormycosis with intraabdominal expansion.

Case presentation: A 68-year-old male patient who underwent multiple abdominal explorations (damage control surgery for intraabdominal bleeding) presented postoperative necrotizing inflammation of his abdominal surgical wound by zygomycetes mucor. Though the patient was treated with surgical debridement and systematic administration of amphotericin-B, he finally died 52 days after his admission in the ICU.

Conclusion: Mucormycosis, even if a non frequent complication of trauma, can turn out to be lethal. A high index of suspicion, prompt histopathological confirmation, repeated surgical debridements and amphotericin-B are the cornerstones in the management of this disease.

BACKGROUND

The term mucormycosis (zygomycosis) is used to refer to infections due to the moulds belonging to the Order Mucorales of the Class Zygomycetes. Most cases in humans are caused by the genera *Absidia*, *Mucor*, *Rhizomucor* and *Rhizopus* [1]. Mucormycosis is a rare invasive fungal infection seen most often in immunosuppressed patients but has also been reported in healthy patients, as in the present case [2,3]. It is the third most common cause of fungal infection after candidiasis and aspergillosis [2,3,4]. The diagnosis of zygomycosis is rarely suspected and ante mortem diagnosis is made in only 23-50% of cases [5]. Zygomycosis has a high mortality of 70-100%, but some patients may be cured by surgical excision and amphotericin [2,3,4,5,6].

We present a case of postraumatic mucormycosis of an abdominal surgical wound with intraabdominal invasion in a 68-year-old male patient with fatal outcome.

CASE REPORT

A 68-year-old male patient, non diabetic, non immunosuppressed, who underwent rhinal polyp excision in a provincial hospital, after an accidental fall in his hospital bathroom, on the 2nd postoperative day, probably due to a fainting episode, suffered from spleen, liver and tail of pancreas rupture. The patient underwent splenectomy, suturing of liver rupture, subhepatic packing and packing in the tail of pancreas and was transferred to our ICU with an APACHE II Score of 35. On the same day, he presented hypotension, tachycardia, low urine output and fresh blood exit from his abdominal surgical wound. He underwent emergency exploration in the operating theater where a new subhepatic packing was performed. On the 5th day of his stay in the ICU, he underwent re-laparotomy, this time on schedule, and the packing was removed.

On the 12th day of his stay in the ICU, he expressed necrotizing inflammation of the surgical wound with accompanying cellulitis and a bedside surgical debridement was performed. Due to mould presence on the surgical

wound (Figure 1) the patient was referred for surgical exploration on day 14.

Figure 1

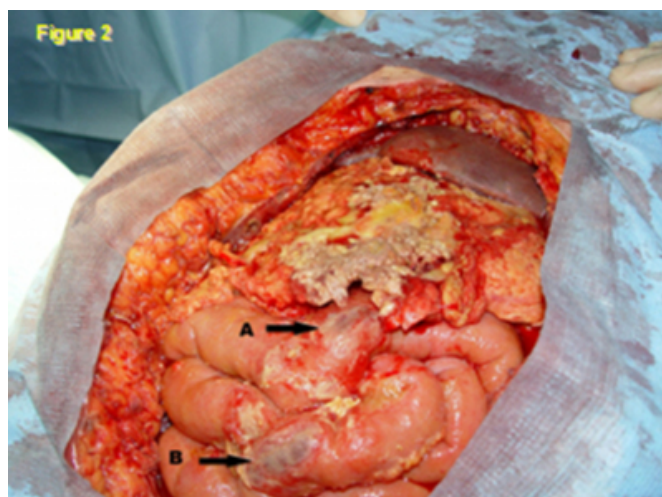
Figure 1: Necrosis of the surgical wound with presence of mould and accompanying cellulitis



On exploration, necrosis of all the layers of the abdominal wall with intraabdominal infiltration of the major omentum and of two loops of the small intestine was discovered. An extensive surgical debridement was carried out as well as partial removal of the major omentum while the abdominal cavity was covered with a Bogota sac. From the cultures taken from the surgical wound, the diagnosis “possible aspergillosis” was made by the laboratory department and administration of voriconazole was started in a dose of 6mg/kg/12h for the first 24h and then 4mg/kg/12h. However, on the 17th day, zygomycetes mucor was isolated at the laboratory department and voriconazole was immediately replaced with the lipid form of amphotericin-B in a dose of 5mg/kg daily. On the 20th day of his stay (six days after the surgical debridement) the patient presented perforation of a small intestine loop (Figure 2, arrow B).

Figure 2

Figure 2: Infiltration of the major omentum and two loops of the small intestine by mucormycosis (arrow A and B). The loop marked with the B arrow was perforated six days after the surgical debridement.



With daily dressings and parallel continuing of the systematic administration of amphotericin for the next 30 days, the wound was almost totally covered with neoplastic connective tissue. While a decision was made for covering the wound with myodermatic flaps, the patient presented hemodynamic instability and need for inotropic support due to sepsis on day 43. He finally passed away after 52 days in the ICU.

DISCUSSION

Mucormycosis is the most acute, fulminant and fatal of all fungal infections in humans. It presents most frequently in immunosuppressed hosts, but can occur in healthy patients in the presence of insignificant trauma [7]. Predisposing factors like diabetes mellitus, neutropenia, corticosteroid therapy, malnutrition, trauma and burns make the host more susceptible to this infection [8].

Although inhalation is the usual route of infection in patients with mucormucosis, traumatic inoculation of spores can lead to extensive necrotic cutaneous infections. This form of disease has also been reported in patients who have had contaminated dressings or splints applied to their skin [9]. We believe that this was the route of infection in our patient, during his stay in the ICU. So far only three cases of post surgical abdominal wall mucormycosis have been published [10,11,12].

The recommended treatment has been extensive surgical debridement and systemic administration of amphotericin.

Aggressive treatment needs to be instituted immediately without waiting for culture results, as the final outcome depends upon the time period between recognition of necrotic lesion and institution of therapy. The debrided wound should be monitored for resolution of surrounding erythema and induration before definitive reconstruction [13]. The clinical experience with adjunctive treatments like colony-stimulating factors, interferon-gamma, and hyperbaric oxygen therapy is still limited [14].

CONCLUSION

In summary, we report an extremely rare form of mucormycosis that failed to respond to combined surgical and pharmacological treatment. In our opinion, this failure was due partly to a delay in the initial diagnosis and subsequent treatment. We have a low experience in diagnosing and managing mucormycosis, as this case of fungal infection is extremely rare, especially in Greece. A high index of suspicion, prompt histopathological confirmation, repeated surgical debridements and amphotericin-B are the cornerstones in the management of this disease.

COMPETING INTERESTS

The authors declare that they have no competing interests.

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Informed consent has been obtained by the patients' relatives.

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