Case Series and Case Reports

Cutaneous mucormycosis with necrotising fasciitis in a young immunocompetent individual

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TROPICAL DOCTOR 2011; **41**: 183–184
DOI: 10.1258/td.2011.100420

SUMMARY Primary cutaneous mucormycosis is uncommon and is extremely rare in immunocompetent young individuals. Here we report a case of necrotising fasciitis due to mucormycosis in an immunocompetent young individual following minor trauma. Mucormycosis must be suspected in any wound that is worsening despite appropriate treatment even in immunocompetent individuals.

Introduction

Mucorales fungi cause deep-seated infections in immunocompromised individuals,[1] leading to sinusitis, rhinocerebral mucormycosis or pulmonary infections. Primary cutaneous mucormycosis is uncommon and is extremely rare in young immunocompetent individuals. We report a case of necrotising fasciitis due to mucormycosis in an immunocompetent young man following minor trauma.

Case history

A 25-year-old healthy man sustained minor bruises over the lateral aspect of his right knee following a road traffic accident. The wound was cleaned and dressed in the outpatient department. Baseline blood counts, blood sugar and serum creatinine were normal. Ten days later he was admitted with an infected wound with spreading cellulitis and necrotising fasciitis. He was toxic and had erythematous skin rash. On inspection obvious fungal elements were found on the floor of the ulcer. The ulcer was aggressively debrided and tissue was sent for histopathology and culture. The necrotising fasciitis was spreading rapidly and could be seen close to the joint capsule.

Once the fungal diagnosis was confirmed by culture and histopathology as *Rhizomucor*, he was started on amphotericin B, which was changed to liposomal amphotericin B because of rising serum creatinine. The initial dose was 5 mg/kg/day which was subsequently reduced to 2 mg/kg/day because of worsening renal parameters. The ulcer was debrided on a daily basis under general anaesthesia for several days. After two weeks of aggressive debridement and antifungal treatment, the lesion started granulating. After five weeks the wound was covered with a skin graft as the wound had granulated well and was free of fungi and bacteria. The resultant 100% uptake was satisfying.

Discussion

Although mucormycosis is an opportunistic infection, an increasing trend of mucormycosis in immunocompetent patients has been seen and reported recently.[2] Cutaneous infections can occur in patients with disrupted cutaneous barriers – for example, as a result of a motor vehicle accident[3] as in our patient. In patients with open wounds, mucormycosis has a cottony 'bread mould' appearance.[1] Secondary

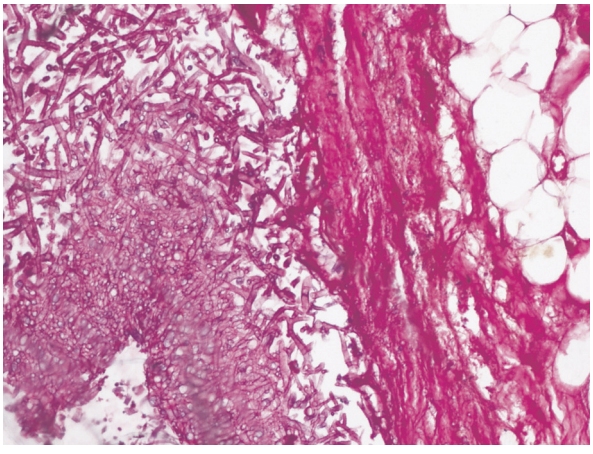

Figure 1 Photomicrograph showing fibrocollageneous tissue with numerous spores and branching hyphae (PAS × 100)

vascular invasion may cause tissue necrosis and lead to phycomycotic gangrenous cellulitis and necrotising fasciitis.[1] A diagnosis of mucormycosis requires histopathologic evidence of fungal invasion of the tissues. Culturing organisms from an infected site is rarely sufficient to establish the diagnosis because the causative agent is ubiquitous. Histologically, Mucorales exhibit broad, thin-walled, hyaline, often aseptate or pauciseptate hyphae (Figure 1) with frequent angioinvasion.[2] Mucormycosis is often rapidly progressive. Surgical debridement of infected and necrotic tissue should be performed in addition to antifungal therapy on an urgent basis. Mucoralle are usually sensitive to amphotericin B and posaconazole and are resistant to ketoconazole, itraconazole and voriconazole.[4]

Conclusion

Mucormycosis must be suspected in any wound that is worsening, despite appropriate treatment, even in immunocompetent individuals. Aggressive and repeated debridement and antifungal therapy are essential for recovery from this condition.

References

1 El Deeb Y, Al Soub H, Almaslamani M, Al Khuwaiter J, Taj-Aldeen SJ. Post-traumatic cutaneous mucormycosis in an immunocompetent patient. *Ann Saudi Med* 2005;**25**:343–5

2 Jain D, Kumar Y, Vasishta RK, Rajesh L, Pattari SK, Chakrabarti A. Zygomycotic necrotizing fasciitis in immunocompetent patients: a series of 18 cases. *Mod Pathol* 2006;**19**:1221–6

3 Spellberg B, Edwards J Jr, Ibrahim A. Novel perspectives on mucormycosis: pathophysiology, presentation, and management. *Clin Microbiol Rev* 2005;**18**:556–69

4 Trotter DJ, Gonis G, Cottrill E, Coombs C. Disseminated *Saksenaea vasiformis* in an immunocompetent host. *Med J Aust* 2008;**189**:519–20