Primary disseminated fusarial infection

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Summary: Among the fungal pathogens the species Fusarium solani causing systemic infection is very rare and generally causes systemic infection only in an immuno-compromised host. We report a systemic infection caused by F. solani in a non-immunocompromised adult male, to our knowledge the first such case report.

Introduction

Fusarial infection in man can result in local, focally invasive and disseminated diseases.¹ Local diseases such as keratitis,² onychomycosis³ and skin infections⁴ can occur in a normal person where there is a break in surface barriers.

Locally invasive diseases such as endophthalmitis,⁵⁻⁷ osteomyelitis,⁸⁻¹⁰ arthritis,¹¹ peritonitis¹² and brain abscess¹³ occur in immunocompromised hosts or during invasive surgical procedures or trauma. Disseminated infection occurs mostly in the immunocompromised host, especially in haematological malignancy¹⁴⁻¹⁵ and occasionally in severe burns.¹⁶

To our knowledge this is the first published case report of disseminated fusarial infection involving the liver and lung in a non-immunocompromised adult male who presented with obstructive jaundice.

Case report

A 38 year old male farmer was admitted with increasing obstructive jaundice for 8 months. Examination showed an afebrile deeply icteric man. The liver was palpable and firm with a smooth surface 4 cm below the costal margin.

Investigations showed haemoglobin 15.5 g/dl, total leucocyte count 14.1 × 10⁹/l with a neutrophil leucocytosis. Serum bilirubin 256 μmol/l, aspartate aminotransferase 38 IU/l and alkaline phosphatase 184 IU/l, protein 65 g/l, albumin 32 g/l. Blood urea and glucose were normal. The chest X-ray showed a possible opacity at the left apex and the sputum grew F. solani.

Laparotomy, done under general anaesthesia, revealed nodules and pus pockets over the surface of the liver. The gall bladder, bile duct, pancreas and other organs were normal. The pus pockets were biopsied and sent for culture study also. After a course of ampicillin, the jaundice decreased, although 18 months later he was still mildly jaundiced.

Liver biopsy (Figure 1) showed focal haemorrhagic necrosis and a large number of fungal hyphae both on the surface and within its substance. The morphological features of the fungus were suggestive of aspergillosis.

Sputum and liver tissue were cultured on Sabouraud's dextrose agar with chloramphenicol and actidione and incubated at 37°C and room temperature. Slide culture and lactophenol mount of the fungal colonies of both specimens showed hyaline septate hyphae with sickle shape macroconidia and many unicellular microconidic chlamydospores were also seen (Figure 2). Based on these morphological findings the fungus was identified as Fusarium solani.¹⁸ The stool and blood culture were negative.

Figure 1 Liver biopsy showing necrosis with fungal hyphae (H & E × 400).

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In disseminated infections, the commonest site involved is the skin. Heart, lungs and spleen are also frequently affected. There were 2 reported cases of liver involvement. In our case the liver was the major component and the patient presented with obstructive jaundice. The only other organ which appeared involved was the lung on the basis of the chest X-ray findings and a positive sputum culture for the fungus. Almost all the reported cases with disseminated infection died in spite of anti-fungal treatment. This may be due to the immunocompromised state and the underlying disorders in those cases. However, our patient was alive 18 months after the initial diagnosis.

The route of fusarial infection is not precisely known. Some authors had indicated that the colon might be the portal of entry with ingestion of food contaminated with the fungus. Since our patient is an agricultural labourer and this fungus is a common soil organism and plant pathogen, this portal of entry is more likely. Moreover, this would also explain the primary liver involvement. Histologically, the hyphae of F. solani are indistinguishable from aspergillus, Pseudallescheria boydii and acremonium and the culture studies should be carried out for correct diagnosis. On doing so, many more unsuspected fusarial infections in non-immunocompromised patients will come to light.
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