CASE REPORT

Candida tropicalis isolated from a case of peritonitis

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ABSTRACT

Candida species are components of the normal flora of human beings. They are commonly found in skin, gastrointestinal tract and female genital tract during pregnancy and causes endogenous infection. Although *Candida albicans* remains the most common cause of superficial and deep fungal infections, now other species are also commonly isolated. Here we report a case of acute peritonitis from which *Candida tropicalis* was isolated.

Key words: Acute peritonitis, *Candida tropicalis, Candida albicans*

INTRODUCTION

Candida tropicalis is now one of the most common non-albicans species which cause infections. It is an important pathogen in neutropenic patients. The increase in incidence of *Candida* species over the last two decades is significant and non-albicans *Candida* species continue to replace *Candida albicans* at most of the clinical sites especially blood stream infections.

CASE REPORT

An 11-year-old male child was admitted in the Pediatric surgery department as a case of acute abdomen. He had a history of fall from his bicycle 2 days ago. He had no history of any surgeries and was not on any regular treatment.

On admission he was febrile and tachypnoeic. On examination, there was abdominal distension, local rise of temperature and tenderness. He was diagnosed as a case of acute peritonitis following blunt injury and was immediately posted for surgery.

Investigations done

Blood: Haemoglobin-11.5g%, Total count-136000/mm^3, Polymorphs-87%, Lymphocyte-10%, Eosinophil-3%, Platelet count-27000/mm^3

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Random Blood Sugar (RBS)-76 mg%, Renal and liver function tests, ECG and Chest X-ray were normal.

Ultrasonogram abdomen — showed air fluid level in the bowel.

Intraoperative findings — Perforation of 2nd and 3rd part of duodenum and pus in the peritoneal cavity. Perforation was corrected by omental patching.

After surgery on the 2nd post-operative day, pus was oozing from the site of closure. A sample of pus was sent for culture and sensitivity and he was started empirically on intravenous Ceftriaxone, Metronidazole and Gentamicin.

Microbiological investigations — A pus swab was received in the Microbiology laboratory on 19/10/2013.

Gram staining showed pus cells, 2 to 6 per oil immersion field and Gram-positive budding yeast cells.

Culture

Pus was inoculated on Blood agar, Chocolate agar, Mac Conkey agar and Sabouraud's Dextrose agar.

After 24 hrs, the blood agar plate showed growth of small 1-2-mm diameter creamy white convex colonies with a smooth glistening surface with entire edges. On chocolate agar also creamy white colonies were seen. On Mac Conkey agar dry lactose fermenting colonies were seen.

On SDA tubes after 24 hours smooth creamy white colonies were seen at both room temperature and 25°C. Lactophenol cotton blue mount showed blastoconidiae

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occurring singly at the junctions in pseudohyphae. Culture smear showed Gram-positive budding yeast cells. Germ tube test was negative.

Isolation of *Candida* species was reported and a repeat sample was advised for confirmation.

The patient developed abdominal pain and oozing again on post op day 5.

X-ray abdomen showed multiple air fluid levels. Hence, the patient was posted for re-laparotomy on the fifth post-operative day. Intra-operative findings showed peritoneal fluid with minimal pus. We received a pus sample for culture from which Candida species was again isolated.

On Candida chrome agar (HiMedia), blue-coloured colonies were formed and were thus identified as *Candida tropicalis* [Figure 1].

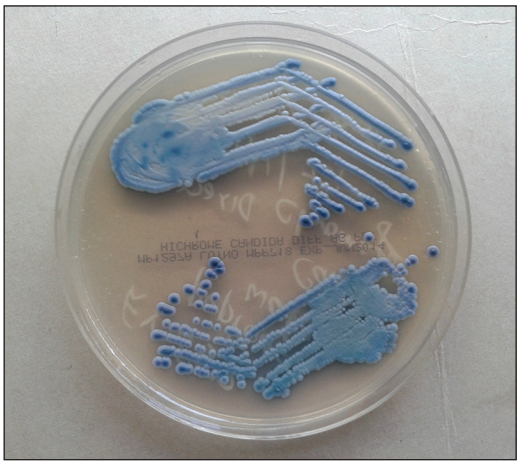

Figure 1: Candida tropicalis in Candida Chrom agar (HiMedia)

After re-laparotomy the patient was started parenterallyon Fluconazole in addition to other antibiotics. He became asymptomatic after 5 days and was discharged.

DISCUSSION

Incidence of candidiasis has been increasing during the past few years. These are a significant part of normal flora of humans, particularly skin and mucous membranes. Most infections are endogenous, usually seen in persons who are immunocompromised.[1] One step in proving Candida as a pathogen is by repeatedly isolating it from multiple specimens from the same body site.[2]

Any Candida isolated from blood, cerebrospinal fluid, closed lesions and surgical specimens or any specimen that is normally sterile should be completely identified. In addition to the oral mucosa, the gastrointestinal tract seems to be a favourable site for penetration of *Candida* species through the gastric mucosal layers leading to disseminated candidiasis in immunocompromised patients.

Candida tropicalis found in patients with risk factors like sepsis, chronic liver disease probably reflects gastrointestinal carriage leading to candidaemia in such patients.

In a study done at Dukes medical centre, USA, adults, neonates and children displayed different species distribution profiles. *Candida tropicalis* is common in adults and neonates, whilst in children *Candida albicans* was the predominant isolate. In neonates, 6% of the isolates were *Candida glabrata*.[3]

Candida tropicalis cannot be differentiated from *Candida albicans* by *morphology* or growth rate. On Cornmeal agar, it forms blastomeres singly or in small groups. It can be differentiated from *Candida albicans* by the absence of germ tube formation and chlamydospores and biochemically by its ability to ferment sucrose and inability to assimilate lactose.

On tetrazolium reduction medium it forms maroon colonies in contrast to pale pink colonies of *Candida albicans*.

Other tests like CHROMagar and typing can be used for differentiation.

In India, *Candida tropicalis* is the most common cause of nosocomial candidaemia. Epidemiological data from the Indian subcontinent showed that 67-90% of nosocomial candidaemia cases were due to Candida non-albicans species of which *C. tropicalis* was the most predominant.

Earlier azole creams locally and intravenous Amphotericin B were used for systemic candidiasis. As drug resistance in *Candida* species is now common, antifungal susceptibility should be determined by CLSI guidelines. E-test provides simple method for antifungal susceptibility testing.

Flucanazole-resistant strains are more commonly recovered from blood which are non-albicans Candida species especially *Candida tropicalis*.[4] In postoperative patients, new antifungal agents such as azoles (Voriconazole) and echinocandins are less toxic therapeutic options for prevention and treatment of Candida infections.[5]

In invasive candidiasis (paediatric intensive care patients), quick removal of lines (e.g., parenteral nutrition, arterial lines, central venous catheter lines) and treatment with novel antifungal agents such as second-generation triazole and echinocandins may be preferred.

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