

Peritonitis due to *Candida albicans* in a Patient with Chronic Hepatitis C Infection

Sir,

Candidiasis occurs in neutropenic patients or in those undergoing abdominal surgery. Independent predictive factors are multiple prior antibiotic treatment courses, the presence of intravascular devices, previous colonization by *Candida* as well as the rupture of skin or cutaneous anatomical barriers. *Candida albicans* is the predominant species causing candidiasis.^[1] The reservoir of *Candida albicans* is mainly the human digestive tract, and a colonization stage usually precedes an established infection. Peritonitis in patients with preexisting liver disease and ascites may be secondary to a local abdominal condition potentially requiring surgery for cure or alternatively, may be spontaneous in origin. For the latter, antimicrobials are therapeutic while surgery is contraindicated.^[2] The diagnostic clue may be found on examination of the ascitic fluid.

An 85-year-old male with chronic hepatitis C infection presented with 2 months of anorexia and abdominal distension. The patient had had swollen feet and jaundice since the past 15 days. There was no history of any surgical intervention or associated diabetes mellitus. On examination, the patient was found to be afebrile but had pallor, icterus, ascites, and altered sensorium. The investigations revealed a leucocyte count of 9800/cu. mm without accompanying neutrophilia and an alanine aminotransferase (ALT) of 980 IU/ml and aspartate transaminase (AST) of 1100 IU/ml. The ascitic fluid cytology smears stained with Papanicolaou stain were negative for any malignant cells but showed round-to-oval, 6-8 μ m cells along with neutrophils. The biochemistry of the ascitic fluid revealed a total protein content of 84 mg/dl and a sugar level of 15 mg/dl. The microscopic examination of the ascitic fluid revealed a cell count of 648 cells per cu. mm, with a differential count of polymorphs (85%), lymphocytes (05%), and degenerated cells (10%). The gram-stained smears of the ascitic fluid showed pus cells and gram-positive round-to-oval budding yeast cells with pseudohyphae suggestive of infection. The ascitic fluid cultured on Sabouraud's Dextrose agar (SDA) and the blood cultures showed the growth of yeast. The yeast was identified as *Candida albicans* by standard identification techniques. The patient succumbed despite the Amphotericin B treatment.

Diagnosis of disseminated candidiasis is difficult and sometimes delayed. It relies essentially on a high index of suspicion, on blood cultures and the analysis of other samples (biopsies) using a combination of microbiological

and anatomic-pathological procedures.^[1] An easily accessible and important clue for distinguishing peritonitis due to preexisting liver disease from spontaneous peritonitis may be found in the microbiology of the ascitic fluid. Visualization on gram stain smear or recovery of *Candida* sp. on culture of organisms favors the diagnosis of local abdominal disease over spontaneous peritonitis. The presence of *Candida species* in the ascitic fluid of such patients, although less common, is highly significant.^[2] In this case, the *Candida albicans* was isolated from the ascitic fluid as well as from the blood culture giving the diagnosis of disseminated candidiasis.

There have been previous reports of *Candida albicans* causing peritonitis. De Luis *et al.*^[3] have reported two cases of spontaneous ascitic fluid *Candida albicans* peritonitis in two patients with liver cirrhosis secondary to Hepatitis B virus (HBV). *Candida species* are associated with grave outcomes when associated with manifestations of peritonitis.^[4] In the present case, the outcome was fatal. A high index of suspicion with clinicomicrobiological correlation is necessary for the timely diagnosis and treatment of disseminated candidiasis infections to avoid fatal outcomes.

Urmi S. Chakravarty-Vartak, Shripad M. Taklikar¹,
Vasant P. Baradkar¹, Shailesh Vartak, Neha Bhatt

Departments of Pathology and ¹Microbiology, Lokmanya Tilak
Municipal Medical College, Sion, Mumbai - 400 022, India.
E-mail: drshripadt@rediffmail.com

REFERENCES

1. Bille J. Systemic mycotic infections: Epidemiology and diagnostic criteria. *Schweiz Med Wochenschr* 1995;125:1123-9.
2. Wormser GP, Leber G, Tatz J, Reiner M, Kurtz R. Peritonitis in patients with liver disease and ascites: Use of *Candida albicans* as a microbiological clue in differential diagnosis. *Am J Gastroenterol* 1980;73:305-9.
3. de Luis D, Aller R, Boixeda D, Meseguer M, Bermejo F, Martín de Argila C. Spontaneous peritonitis caused by ascitic fluid with *Candida albicans*. *Rev Clin Esp* 1997;197:500-1.
4. Blot SI, Vandewoude KH, De Waele J. *Candida* peritonitis. *Curr Opin Crit Care* 2007;13:195-9.