

A Rare Case of Pancreatic Abscess due to *Candida Tropicalis*

Simit Kumar, Manas Kumar Bandyopadhyay, Kumkum Bhattacharyya, Tapashi Ghosh, Maitreyi Bandyopadhyay, Reena Ray Ghosh

Department of Microbiology, R.G. Kar Medical College and Hospital, Kolkata, India

ABSTRACT

Candida albicans is found frequently as a commensal organism in the gastrointestinal tract. Despite this, it is rarely found in pancreatic abscesses, there being only a few cases in the literature and in most of these cases the significance of *Candida* spp. as a pathogen was not initially recognized at the time of diagnosis. In most of the earlier reported pancreatitis associated with *candida*, *C. albicans* was the commonest isolate. We report the case of a patient in whom computed tomography was used initially to diagnose a pancreatic abscess, aspiration of which showed growth of *Candida tropicalis* and *Escherichia coli* on culture. The patient was started on amphotericin B and imipenem, but the condition of the patient deteriorated, for which the patient underwent surgical necrosectomy and continued treatment with imipenem and amphotericin B led to the satisfactory recovery of the patient.

Key words: *Candida tropicalis*, *Candida*, Pancreatic abscess

INTRODUCTION

Candida species, which are normal commensal of the gastrointestinal tract, are expected to be isolated from intra-abdominal sources. Pancreatic infections are usually due to bacterial organisms and typically involve enteric flora. Less commonly, *Candida albicans* has been cultured from pancreatic infections, almost always as part of a polymicrobial infection. It is considered to be an important, albeit infrequent, secondary invader in patients with acute necrotizing pancreatitis.^[1-4] *Candida albicans* is the most frequent isolate in patients with candidal pancreatitis though occasionally *Candida tropicalis* and *Candida krusei* have been reported.^[1,2] However, most of the reported cases had factors like immunosuppression, malignancy, drug induced, diabetes, etc. as comorbidities. This case is uncommon because the patient did not have any of these associated comorbidities. The usual risk factors for invasive candidiasis in general include multiple and broad spectrum antibiotics, central venous lines, abdominal surgeries and total parenteral nutrition, which have also been found to be associated with candidal infections of the pancreas.

The effects of *Candida* spp. on mortality of such patients is still not clear but a few studies have found a significantly increased hospital stay and higher mortality.^[1-4]

Isolation of fungal elements from necrotic pancreatic tissue and treatment of local infection are vital. Guidance by CT is the method of choice in demonstrating a safe access route for drainage of such abscesses, which can be an important temporizing measure in moribund patients and may occasionally be curative. but lack of improvement or deterioration in the patient's condition is an indication for surgery.^[2] Systemic antifungal therapy should be started early in the course of the disease, but whether antifungal agents should be added to the prophylactic antibiotic regimens for patients with necrotizing pancreatitis remains questionable.^[2]

We report a case of pancreatic abscess diagnosed by CT scan and culture of the pancreatic pus showed growth of *C. tropicalis* and *Escherichia coli*. The patient was successfully treated by necrosectomy along with imipenem and amphotericin B.

CASE REPORT

A 45-year-old female patient presented with abdominal pain and respiratory distress for the last 3 days. On general examination, the patient had a blood pressure of 110/80 mmHg and pulse rate of 100/minute. The

Address for correspondence:

Dr. Simit Kumar, E-mail: simitkumar@yahoo.co.in

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patient was stable on the day of admission so the patient was empirically started on amikacin and ceftriaxone, managed conservatively and the investigations were sent for. The blood parameters were as follows: hemoglobin-10.8gm /dL, total leukocyte count- 23,700/mm³, platelet count-3,68,000/mm³. The biochemical investigations revealed the following: fasting blood sugar-129 mg/dL, urea-31 mg/dL, creatinine-0.89 mg/dL, bilirubin-1.3 mg/dL, conjugated bilirubin-0.8 mg/dL, alkaline phosphatase-541, AST-58 IU/mL, ALT-78 IU/mL, total protein-6.7 g/dL, albumin-2.8 g/dL, sodium-128meq/L, potassium-4.7meq/L, prothrombin time-20.8 seconds, INR:1.40, serum amylase-189 U/L, lipase-120 U/L. The patient was nonreactive for HIV and anti-HCV antibodies and was also hepatitis B surface antigen-negative.

On the second day of admission, the ultrasound of the abdomen showed an enlarged spleen, mild ascites and right-sided pleural effusion and features suggestive of pancreatitis. The plain and contrast CT scan of the whole abdomen performed on the second day of admission, showed that the pancreas were enlarged, with minimal area of necrosis seen in the tail region. Severe inflammatory changes were seen at peripancreatic fat extending into the lesser sac. There was inflammation extending into the paracolic gutters with thickening of the adjacent colonic walls, along Morrison's pouch, along both anterior pararenal spaces causing thickening of fascia of Gerota and lateroconal fascia. Inflammatory changes were also observed in the mesentery especially in the omentum [Figure 1]. Based on the CT scan findings of pancreatic necrosis, the patient was started on imipenem.

The pus from the pancreatic abscess was aspirated under CT guidance and sent for culture and sensitivity. The pus was

inoculated on Blood agar, MacConkey agar, Sabouraud's dextrose agar (SDA) with and without antibiotics and thioglycollate broth. The culture of the pus yielded growth of *E. coli* and *C. tropicalis*. The bacterial isolate was found to be susceptible to piperacillin+ tazobactam and imipenem. The candidal isolate was identified to be *C. tropicalis* by growth on cornmeal Tween 80 agar [Figure 2]. The *Candida* isolate was found to be susceptible to amphotericin B. The initial culture report was conveyed to the clinician on the third day of admission.

Based on the preliminary culture findings the patient was continued on imipenem, and amphotericin B was added to the treatment regime, but the condition of the patient deteriorated on the fourth day of admission, for which the patient had to undergo necrosectomy of the infected pancreatic tissue. During the operation dense calcification was noted in the parieties and dense adhesion of the omentum was noted with the colon and stomach parieties and thick pus was drained from the lesser sac. The drained pus and the necrosectomy tissue sent for culture showed similar findings as that of the earlier aspirated pancreatic pus.

After the operation the patient was continued on imipenem and amphotericin B to which the patient showed a marked improvement with the subsidence of fever. The patient was discharged after 6 weeks of antifungal therapy. The patient was doing well at the time of discharge and later on follow-up.

DISCUSSION

Deep *Candida* infections rarely occur in the intact host, but their incidence has increased greatly in immunosuppressed

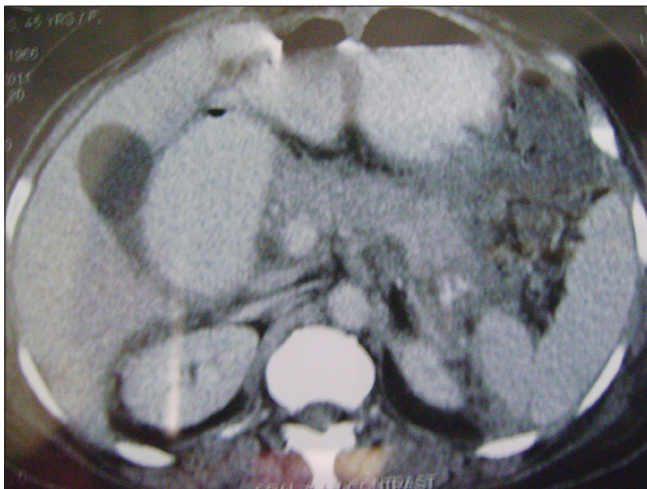


Figure 1: CT scan of the abdomen showing area of necrosis seen in the tail region

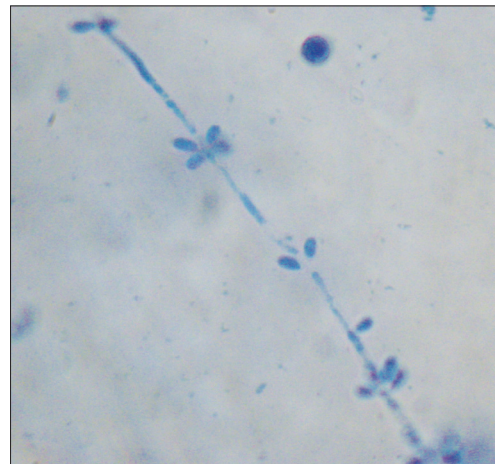


Figure 2: Lactophenol cotton blue mount preparation (400x magnification) from cornmeal Tween 80 agar showing long true hyphae and pseudohyphae with clusters of blastoconidia

patients, especially those who have been treated with cytotoxic drugs. The incidence of such infection is also increased in patients who are debilitated or following surgery or treatment with broad-spectrum antibiotics. The small number of cases of candidal pancreatic abscesses reported in the literature suggests that this organ is protected from invasion by fungus. The presumed or documented occurrence of prior pancreatic injury in all the previous reported cases, suggests that damage to the pancreas may compromise its protective barrier. Once injury has occurred, direct extension through the gastrointestinal tract, surgical wounds, or abdominal drains most likely was the route of infection, although hematogenous seeding of an injured pancreas is also probable.^[1-5]

The organisms involved in infected pancreatic abscesses are generally enteric, although the mechanism by which they reach the pancreas is unclear in most instances. *Candida* is known to penetrate the normal gastrointestinal tract and this may be the route of infection in our patient. Transvenous infections also occur, but there was no evidence of *Candida* contamination in any of our patient's intravenous lines, and multiple blood cultures were sterile.^[1,6,7]

If infection is found after aspiration, the abscess can be treated by percutaneous catheter drainage. Guidance by CT is the method of choice in demonstrating a safe access route for drainage of such abscesses, which can be an important temporizing measure in moribund patients and may occasionally be curative. It is important to follow the progress of drainage closely, measuring the amount drained and supplemented by sinography,^[1,5-7] CT or ultrasound at approximately weekly intervals. Lack of improvement or deterioration in the patient's condition is an indication for surgery,^[2] as was done in the case of our patient.

In a few cases cultures yielded pure growth of *C. albicans*, but all of these patients were receiving broad-spectrum antibiotics, which can inhibit the growth of coinfecting bacteria. Coinfecting bacteria may provide a favorable milieu for growth of *Candida* organisms and may further injure the organ, thus increasing the risk of candidal infection.^[1,5] Cultures of abscess specimens from other patients were mixed, yielding *Candida* species and bacteria such as *E. coli*, *Staphylococcus aureus*, and *P. aeruginosa* and

Enterobacter species were cultured in. In our case the pus culture showed growth of *C. tropicalis* and *E. coli*.

C. albicans was not immediately recognized as a pathogen in most of the previous reported cases. Recognition of *Candida* species as pathogens is important because survival of patients with candidal pancreatic abscess seems to be linked to drainage of the abscess and to the use of antifungal therapy.^[1,5-7]

Amphotericin B has been the standard choice for therapy. Addition of other drugs such as flucytosine and ketoconazole to the treatment regimen did not appear to change the outcome. Amphotericin B remains the agent of choice for treatment of candidal pancreatic abscess.^[1,2] In addition to antifungal therapy, drainage of all fluid collections is crucial to recovery. Debridement of infected tissue may also be necessary in some cases,^[1,2,5,7] as in this case when the patient required debridement of the infected tissue along with amphotericin B.

Systemic antifungal therapy should be started early in the course of the disease to prevent increasing the morbidity and mortality associated with pancreatic abscesses due to *Candida*.

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