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Case Report

Candida and *Enterobacter* co-infection in a case of periampullary carcinoma with obstructive jaundice

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ABSTRACT

Pancreatic infection remains a significant clinical problem, with substantial morbidity and mortality. We report a case of periampullary carcinoma and culture of the pancreatic pus and bile showed growth of *Candida albicans* and *Enterobacter* species. Amphotericin B therapy is effective in clearing *Candida* infection, but affected patients have a high associated mortality.

Keywords: *Candida albicans*, *Enterobacter* species, Pancreatic fungal infection

INTRODUCTION

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 polymicrobial infections.[1] Most of the reported cases had factors like immunosuppression, malignancy, drug induced, diabetes, etc. as comorbidities.[2] In addition, abdominal surgical intervention is a known risk factor for *Candida* infections,[3] and can obviously uphold and provoke symptoms years after the operation. Here we report a case of pancreatic carcinoma with culture showing growth of *Candida albicans* and *Enterobacter* species.

CASE REPORT

A 50 year old female patient presented with painless progressive jaundice, anorexia and weight loss since 2 months. She had undergone hysterectomy 3 years back.

Abdominal sonography, upper GI endoscopy and MRCP were performed. Sonography revealed a periampullary mass with pancreatic and biliary ducts dilatation. Endoscopy findings were prominent ampulla with ulceration suggestive of periampullary carcinoma. MRCP impression was periampullary mass lesion with dilatation of pancreatic duct, common bile duct and moderate IHBRD. (intra hepatic biliary radicals dilatation)

Based on these clinical findings Whipple's pancreaticoduodenectomy was performed on the patient. Bile from the gall bladder and common bile duct and pus like material from the pancreatic duct were sent for culture and sensitivity. Bile samples showed growth of *Enterobacter* species, while pus from the PD grew *Enterobacter* and *Candida albicans* (Figure 1 & Figure 2). Based on the culture findings the patient was continued on higher antibiotics and amphotericin B was added to the treatment regime. Subsequently we received a wound swab for culture and sensitivity from the surgical site which also yielded both the organisms. But within a few days, she presented with signs of sepsis & died due to cardiac arrest due to refractory hypotension due to sepsis.

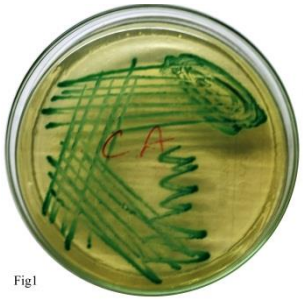

Figure 1: *Candida albicans* on chromagar.

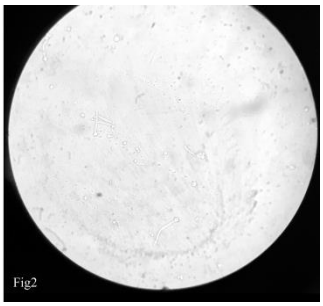

Figure 2: Germ tube test.

DISCUSSION

Concomitant bacterial and *Candida* microorganisms in surgical samples have frequently been reported.[4] Fungal, especially *Candida* infections of the pancreas are rare, but their incidence is increased in immunosuppressed patients or in those who have had surgical intervention.[5] Coinfecting bacteria may provide a favourable milieu for growth of *Candida* organisms and may further injure the organ, thus increasing the risk of *Candidal* infections.[6] Cultures of specimens from other patients were mixed, yielding *Candida* species and bacteria such as *E. coli*, *Staphylococcus aureus* and *P. aeruginosa*. In our case the pus culture showed growth of *C. albicans* and *Enterobacter* species.

The rare occurrence of fungal infections in healthy pancreas suggests that this organ is protected from fungal infections, but pancreatic injury can damage this protective barrier. The most likely route of infection is a direct infection from the gastro intestinal tract by penetration through the normal duodenal wall (transmural seeding), but nosocomial infections by surgical intervention and abdominal drainage also appear plausible sources of fungal ingress. Furthermore, the role of biliary duodenopancreatic reflux is also discussed.[3] Finally, the haematogenous spread of fungi to pancreatic tissue in immunocompromised patients is also probable.[7] However, almost all of the reported cases of *Candida* species infection are proved to have developed after a pancreas injury.[5]

Recognition of *Candida* infection is vital because the antifungal therapy after surgery is mandatory for the recovery of the patients. However, no clinical study has ever assessed the efficacy of an anti-fungal agent in the course of pancreatitis. The pharmacokinetic characteristics of antifungal drugs in necrotic pancreatic tissues are practically unknown. The dose of antifungal agents, duration of treatment, and endpoints to assess clinical efficacy have never been published or even discussed.

CONCLUSION

Fungal infections, though being very rare, should be added to differential diagnosis in case of pancreatic diseases and especially after abdominal trauma or surgical interventions.

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