Saccharomyces cerevisiae as a cause of oral thrush & diarrhoea in an HIV/AIDS patient

Introduction

Saccharomyces cerevisiae is a commensal inhabiting the gastrointestinal tract of humans, considered important to maintain the normal homeostasis of the lower gastrointestinal tract. A vast majority of patients with AIDS and low CD4 counts present with manifestations involving the gastrointestinal tract in the form of oral thrush, oesophagitis, duodenitis, jejunitis, colitis, and protracted diarrhoea. Saccharomyces cerevisiae though considered a commensal, has been seen to cause infections in immunocompromised patients. Here, we present a case of an HIV positive patient who presented with hitherto unreported pangastrointestinal involvement due to Saccharomyces cerevisiae.

Case Report

A 15 year old HIV positive female patient presented to the internist with complaints of recurrent oral thrush, abdominal pain and protracted diarrhoea. The HIV status of the patient was known for the last 10 years and her CD4 count at the time of presentation was 100 cells/ml and absolute lymphocyte count was 1800 cells/µl. She acquired HIV infection from her parents via mother to child transmission and both her parents who had HIV, died few years back.

She had a history of oral ulcers of 1 year, associated with painful swallowing, dry mouth and burning sensation. The patient had significant weight loss and loss of appetite. The patient also complained of diarrhoea which was recurrent and intractable with abdominal pain since 3 weeks. On examination, the oropharynx showed white patches and ulcers (numerous and of varying size) and cervical lymphadenopathy, the abdomen was rigid and guarded with exacerbated bowel sounds. Endoscopy showed oesophagitis and duodenitis and mucosal biopsy revealed focal villous abnormalities. The patient was not on antiretroviral therapy or any systemic antifungal therapy at the time of presentation. Patient was taking nystatin gargles and symptomatic treatment before presenting to the hospital but showed no improvement on the current therapy, instead the ulcers increased in size and diarrhoea...
Persisted. There was no history of any probiotic intake in the past year by the patient.

Swabs were obtained from the lesions in the mouth and subjected to a direct gram’s staining and culture on Sabouraud’s dextrose agar (SDA) and SDA with chloramphenicol. Three stool samples were collected and processed separately on three consecutive days. The stools were watery and mucoid with no blood on gross examination. Saline and iodine wet mount preparation was prepared, a modified acid fast staining done using 0.5% H$_2$SO$_4$, and the cultured on SDA and SDA with chloramphenicol in duplicate. Bacteriological culture was done after enrichment in selenite F broth on xylose lysine deoxycholate agar, bile salt agar & MacConkeys agar. A blood culture was also done in brainheart infusion broth and subcultured on blood agar, chocolate agar, and brain heart infusion agar.

Direct gram stain from the swab showed predominance of gram positive budding yeast cells though no pseudohyphae were seen and the culture revealed creamy white yeast like growth on both the agar medium. The grams from the colony showed budding yeast cells without any capsule, the organism was identified using corn meal agar and carbohydrate assimilation test, as Saccharomyces cerevisiae. Wet mount preparation and modified acid fast staining did not show any parasitic ova or cyst in the stool sample. Bacterial culture revealed no pathogenic organism, but on each occasion Saccharomyces was isolated in the fungal culture. Blood culture was also sterile. The patient was started on Amphotericin B and there was a dramatic response in symptoms.

**Discussion**

There have been many reports of Saccharomyces sp. causing systemic infections in immunocompromised hosts. There have been several reports of fungemia caused by Saccharomyces in debilitated patients previously but none have reported a local mucosal involvement with Saccharomyces which became so extensive that it involved the whole of the GI tract as seen in this case.\(^1\)\(^-\)\(^4\) Also there have been reports of cases developing fungemia following probiotic preparations containing this organism.\(^5\)\(^,\)\(^6\)

In this patient Saccharomyces seems to be the pathogenic organism involving the whole GIT of the patient. The symptoms, signs and the endoscopic findings of the patient suggested a pan GI involvement. The patient was highly immunocompromised having a CD4 count of 100 cells/µl, and an absolute lymphocyte count of 1800 cells/µl and there was no history of any long term antibiotic intake. Repeated isolation, along with patient’s dramatic response to Amphotericin B confirmed our diagnosis of Saccharomyces as the causative agent of this patient’s condition retrospectively.

To the best of our knowledge, pangastrointestinal mucosal involvement caused by S. cerevisiae in AIDS or immunocompromised patients has not been reported. High degree of suspicion, continuous study and identification of atypical presentations such as these is necessary, especially in those not responding to conventional treatment to formulate new strategies to combat morbidity and mortality in patients suffering from HIV/AIDS.

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**References**


