CASE REPORTS

Esophageal Candidiasis following Omeprazole Therapy:
A Report of Two Cases

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Abstract
Esophageal candidiasis was diagnosed at endoscopy in two patients receiving omeprazole therapy. There was no clinical evidence of immunosuppression or any obstructive lesion in the esophagus. There was prompt response to oral ketoconazole. These cases suggest that marked acid reduction may predispose to esophageal candida infection.


Key words: Candida, gastric hyposecretion

Introduction
Esophageal colonization by Candida results from a disturbance in the factors that govern the ecology of the gut, viz., colonization resistance by resident bacteria, intestinal motility, gastric acidity and the mucosal immune system. Medical conditions that predispose to fungal esophagitis include diabetes mellitus, hypoparathyroidism, adrenal insufficiency, malnutrition, old age and treatment with broad spectrum antibiotics and corticosteroids. The present case report highlights the possible association of marked hypochlorhydria with esophageal candida infection.

Case Report

Case 1
A 35-year-old policeman presented with hematemesis for one day. He was a chronic alcoholic for the past 10 years. There was no history of jaundice, ascites or altered sensorium. He had been having pain in abdomen for which he was taking omeprazole 20 mg/day. There was no history of ingestion of steroids, antibiotics or anti-inflammatory drugs. Liver was firm, smooth and nontender and palpable 4 cm below the right costal margin. There were no stigmata of chronic liver disease. Endoscopy showed extensive, confluent candidiasis in the middle and lower thirds of esophagus. Brush cytology was positive for Candida (pseudohyphae and budding yeast cells). Peripheral blood counts, liver function tests, blood glucose, calcium were normal. Anti-HIV antibodies were absent. He was treated with ketoconazole 200 mg daily and omeprazole was discontinued. Repeat endoscopy 7 days later showed no residual candida.

Case 2
A 14-year-old girl presented with severe abdominal pain for 5 days. Examination did not reveal any abnormality. Endoscopy had shown evidence of gastritis for which she was taking omeprazole. Six days later, she started complaining of anorexia and mild dysphagia. Repeat endoscopy revealed evidence of candidiasis in the distal third of the esophagus. This was confirmed on brush cytology. Peripheral total and differential white cell counts and blood glucose levels were normal. She was treated with ketoconazole 200 mg daily and omeprazole was discontinued. Repeat endoscopy one week later showed complete disappearance of infection.

Discussion
Candida albicans is part of the normal intestinal flora and Candida infection of the esophagus arises from these endogenous commensal organisms. There is first proliferation (colonization) in the oropharynx, esophagus and intestinal tract, followed by epithelial infection. Colonization results from a disturbance in the factors governing the ecology of the gut, like resident bacteria, intestinal motility, gastric acidity and the mucosal immune system.

Candida esophagitis is usually seen in immunosuppressed patients. Medical illnesses that predispose to fungal esophagitis include diabetes mellitus, hypoparathyroidism, adrenal insufficiency, malnutrition and old age. Hypochlorhydria is known to increase the risk of infection with enteropathogenic organisms like non-typhoidal salmonella, giardia, and Vibrio cholerae. Vagotomy, partial gastrectomy and drugs like H2 blockers and omeprazole have recently been associated with candida infection. Esophageal stasis of scleroderma, achalasia and obstructing malignancy are other causes at risk for candida esophagitis. AIDS is now the most frequent underlying cause of fungal esophagitis.

Sudden odynophagia and retrosternal pain are the common presentations in acute fungal infection. Melena and even hematemesis may result though severe bleeding is unusual. Fungal esophagitis may also be asymptomatic as shown by its high prevalence at autopsy in immunosuppressed patients and by chance discovery during routine endoscopy.
Candida are dimorphic fungi that form budding yeast, pseudohyphae, and occasionally true septate hyphae. Presence of hyphae and budding yeasts in a stained smear or biopsy suggests epithelial infection. Endoscopic brushings and biopsy specimens are the most accurate diagnostic methods. The gross appearance at endoscopy can be deceptive as adherent white plaques can be seen with cytomegalovirus, bacterial esophagitis, pill induced esophagitis and after ingestion of sucralfate. Brush cytology showing pseudohyphae, hyphae and large number of yeast is abnormal.

The treatment of choice for most patients with symptomatic infection is therapy with oral ketoconazole or fluconazole. Ketoconazole absorption is impaired in the presence of hypochlorhydria and the dose may have to be higher than 200 mg daily. Intravenous amphotericin B is recommended for granulocytopenic patients because of their high risk to disseminate fungal disease.

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