INTRODUCTION

Acquired immunodeficiency syndrome (AIDS) is a complex multisystem disorder with major gastrointestinal tract manifestations. Some studies have reported that 50 to 90% of patients with AIDS have significant gastrointestinal complications, although not all are symptomatic. Problems include diarrhea, weight loss, and malabsorption, primarily caused by opportunistic infections, malignancies, and a possible HIV-induced enteropathy. Perhaps 40% of patients with HIV infection develop esophageal symptoms such as odynophagia, dysphagia, and retrosternal pain, and 50-100% of these patients have Candida esophagitis [1]. It was assessed that up to 20% may have a negative endoscopic evaluation and most of the remainder have esophageal ulcers and erosions suggesting idiopathic disease, or viral disease due to Cytomegalovirus, or Herpes simplex [1]. Other less common esophageal pathology includes Mycobacterium tuberculosis, Mycobacterium avium complex, drug-induced ulcers due to AZT, or ddc, Kaposi’s sarcoma, lymphoma, histoplasmosis, and possibly HIV-induced ulcers that are more often reported during acute primary HIV infection [1].

Upper endoscopy with histologic and microbiologic evaluation is the gold standard for esophageal disease in HIV-positive patients, because specific symptoms are not helpful in determining the etiology of esophageal disease. We performed a retrospective study to describe the clinical features, endoscopic findings, and outcome of bacterial esophagitis in three patients with AIDS.

RESULTS

The study population consisted of three patients with AIDS who presented with odynophagia or dysphagia of solid food or both, and/or retrosternal pain. The patients experienced esophageal symptoms for 7-21 days. All patients were males, were intravenous drug-abusers, 27-36 years old. The CD4+ lymphocyte cells count was below 50 cells/mmc in all cases. The diagnosis of AIDS had been made a mean of 6 months before the diagnosis of bacterial esophagitis.

All patients underwent endoscopy with esophageal biopsies and cultures for fungal, viral, bacterial and mycobacterial agents. Endoscopic lesions were in the distal third of the esophagus in all cases, and included nonulcerated erythematous esophagitis in two patients, and isolated pseudomembranous esophagitis with concomitant esophageal candidiasis in one patient. Esophageal cultures and immuno-histochemistry were both negative for virological, fungal, and mycobacterial studies. Cultures of biopsy specimens were positive for colonies of Proteus mirabilis in two cases, and for a mixed flora in the third case (including Xanthomonas maltophilia, Serratia species, and Staphylococcus aureus). A complete response was obtained in all cases within 14 days with antibiotic therapy in patients with AIDS. We reviewed the cases of all patients with HIV disease and with esophageal symptoms who were evaluated with upper endoscopy. Bacterial esophagitis was diagnosed by the presence of abnormal esophageal mucosa plus histologic identification of characteristic bacterial microorganisms (using a Gram stain) in subepithelial tissues. A culture positive for bacteria from the esophageal area involved by inflammatory changes confirmed the diagnosis.
alone (intravenous imipenem in two cases, and intravenous cotrimoxazole in one case). No relapse of the bacterial esophagitis was detected over time.

**DISCUSSION**

Gastrointestinal involvement is increasingly recognized as a major cause of morbidity in immunocompromised hosts including patients with cancer, transplant recipients, patients on cytotoxic chemotherapy, radiation therapy, or steroid treatment, and patients with AIDS. The esophagus represents one of the most common target organs for both opportunistic infections and neoplasms in these patients. As a matter of fact, in recent years esophagitis has become a commonly recognized problem in the immunocompromised patient, producing pain and impairment of oral alimentation and occasionally leading to significant hemorrhage and potential esophageal perforation [2]. The most frequent etiology for esophagitis in immunocompromised persons include cytotoxic chemotherapy, radiation therapy, gastroesophageal reflux, and opportunistic infections. In fact, the esophagus is a frequent site of infection by opportunistic pathogens in immunocompromised individuals. In HIV-seronegative immunosuppressed patients *Candida* species and *Herpes simplex* virus have been the most commonly reported pathogens causing esophagitis, although *Cytomegalovirus* also seems to be common in bone marrow transplant recipients [2].

Less common infectious agents include *Aspergillus*, the *Zygomycetes*, Gram-negative bacteria, and *varicella-zoster* virus [2]. As with other immunocompromised patients, a variety of esophageal diseases have been reported in patients with HIV infection [1]. Opportunistic infections represent the most common etiology of symptomatic esophageal disease in patients with HIV infection or AIDS. These patients are susceptible to a variety of opportunistic infections, however *Candida albicans* is the major pathogen causing esophagitis [1]. *Torulopsis glabrata* [3], *C. glabrata* [4], *Histoplasma capsulatum* [5], and *Cryptococcus neoformans* [6] are other fungal organisms founded to be less common cause of symptomatic esophagitis. Opportunistic esophagitis may also be caused by *Cytomegalovirus* which is considered the next common cause of esophageal disease in AIDS patients [1]. *Herpes simplex* virus, a well-known infectious agent of esophagitis in other types of immunocompromised patients, has been considered to be relatively uncommon and less frequently than *Cytomegalovirus*, however in HIV-infected patients this virus may be the cause of 4%-16% of esophageal symptoms [7]. *Epstein Barr* virus [8] have also been reported to determine ulcerative esophagitis with regard to HIV-positive patients. Infectious esophagitis is uncommonly caused by protozoa such as *Cryptosporidium* [9], *Leishmania donovani* [10], and *Pneumocystis carinii* [11]. *Mycobacterium tuberculosis* and *Mycobacterium avium* complex have also been reported as causative organisms of infectious esophagitis in patients with HIV disease [12]. Although the differentiation among these potential agents remains difficult, in these immunocompromised hosts with presumed infectious esophagitis esophagoscopy often results in a rapid and specific infectious diagnosis in most episodes of esophagitis. Bacterial organisms have been recognized less uncommon agents of infectious esophagitis in compromised hosts. In immunosuppressed patients, invasive bacterial esophagitis may be observed in as many as 11 to 16% of cases of infectious esophagitis [13-14].

Little is known about the relative incidence of bacterial esophagitis among patients with HIV infection. As a matter of fact, up till now only sporadic cases of bacterial esophagitis in HIV-positive individuals have been described in the current literature [15-17]. Bacterial organisms part of the normal oropharyngeal flora, such as *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Streptococcus viridans*, *Lactobacillus acidophilus*, *Bacillus* species, and *Corynebacteria* species, have been recognized as the most common causative agents involved in the developing of bacterial esophagitis [12, 14-15, 18]. A polymicrobial etiology may also be observed in some cases [12]. In patients with AIDS other uncommon microorganisms causes of bacterial esophagitis include actinomycosis [17] and *Nocardia* species [16]. In addition to neutropenia and gastroesophageal reflux, diabetes and strictures from *Candida*, or viral esophagitis are considered other important risk factors for these infections. Bacterial esophagitis is usually associated with symptoms of dysphagia and retrosternal pain; fever is less commonly associated with this esophageal disorder. The endoscopic appearance of bacterial esophagitis results in nonspecific inflammatory changes of the esophageal mucosa, such as mu-
cosal friability, plaques, pseudomembranes, and ulcerations [12, 14].

Bacterial culture of esophageal tissue specimens may be performed to diagnose bacterial esophageal disease, although this method is not uniformly available in all institutions. Walsh et al. [13] have documented 4 cases of bacteremia among 23 cases of bacterial esophagitis. Thus, these authors have suggested that cultures of blood performed concomitantly with cultures of esophageal tissue may prove that the primary source of bacterial infections is the esophagus. It has been also suggested that the only identification of bacterial organisms in subepithelial tissues or in deeper layers of the esophagus with absence of any other microorganism or neoplastic infiltration may be considered diagnostic for bacterial esophagitis [2, 13].

Previous reports and our experience have documented that an appropriate antibiotic therapy with a broad-spectrum agent that covers the potential bacterial organisms involved is usually effective.

In conclusion, because of the significant morbidity associated with this underreported esophageal disorder in HIV-positive and AIDS patients, we suggest that clinicians should maintain a high index of clinical suspicion for this treatable complication.

**Key words:** bacterial esophagitis, AIDS, HIV infection

---

**REFERENCES**