Inguinal Lymphadenitis Caused by *Entamoeba histolytica*: Case Report and Literature Review

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Liver abscesses are the most common manifestation of extraintestinal infection by *Entamoeba histolytica*. Involvement of other sites, including the peritoneum, pericardium, brain, or genitourinary tract, is unusual. We describe a case of inguinal necrotizing lymphadenitis caused by *E histolytica*. Our patient responded well to surgical drainage, metronidazole, and paramomycin therapy. A literature review of genitourinary and other uncommon sites of *E histolytica* infection is included.

**REPORT OF A CASE**

A 20-year-old man, previously in excellent health, presented to the hospital because of a 5-day history of fevers, chills, and pain and swelling in the left groin area. He had been living in the United States for 2 years but had recently traveled to Mexico. He denied having any exposure to animals or any trauma to the groin area. A review of systems was remarkable for the absence of penile discharge, dysuria, diarrhea, or abdominal pain. He was not sexually active and had no history of intravenous drug use. Pertinent physical findings at the time of admission included a temperature of 38.9°C and a tender erythematous 5-cm mass in the left groin area. Findings on abdominal, rectal, and genital examinations were normal.

Laboratory data on admission were notable for a leukocyte count of 15.6 x 10^9/L (72% polymorphonuclear leukocytes, 2% bands), normal electrolyte levels, and normal findings on urinalysis and liver function tests. A stool specimen was negative for leukocytes, ova, and parasites.

The patient was admitted to our hospital with a presumptive diagnosis of inguinal lymphadenitis. Cefazolin and doxycycline were instituted intravenously. The patient continued to have fevers, and the leukocyte count remained elevated despite antibiotic therapy. Results of evaluations, including syphilis serology (rapid plasma reagin), purified protein derivative, and cultures of blood, urine, and urethra (chlamydia and gonorrhea), were negative. The patient underwent surgical exploration on hospital day 3, and a copious amount of foul-smelling fluid was drained from the left groin area. Gram stain of the fluid showed heavy mononuclear cells, moderate polymorphonuclear cells, and no organisms. Aerobic and anaerobic cultures grew only rare *Staphylococcus epidermidis* and *Propionibacterium* species, which were considered skin contaminants. Pathologic examination of the superficial inguinal lymph nodes showed acute lymphadenitis characterized by large areas of necrosis. These areas of necrosis consisted of fibrinopurulent debris admixed with acute and chronic inflammatory cells. Pathologic examination at higher power, perturbation features were most consistent with those of the trophozoites associated with *E histolytica*. Confirmatory immunohistochemical staining was performed by using a mouse monoclonal antibody specific for the 29-kd thiol-specific antioxidant surface antigen of *E histolytica* (1:250) (Figure 1). Antigen retrieval was enhanced with microwaving, and staining was performed on an automated immunostainer (Ventana Nexes, Tucson, Arizona).
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Figure 1. Photomicrographs. A, Section of groin lymph node showing a large area of necrosis. Even at this magnification (original x25), organisms can be identified within the necrotic background (hematoxylin-eosin). B, Numerous trophozoites of *Entamoeba histolytica* are identified and are associated with mononuclear cells and necrotic material. All the organisms contain ingested erythrocytes, and some contain a central nucleus with small karyosome (hematoxylin-eosin, original magnification x50).

Ariz) with use of an avidin-biotin detection system with diaminobenzidine as the chromogen. All control sections reacted appropriately. Serum immunoglobulin titer for *E histolytica*, measured by an indirect hemagglutination assay, was positive at greater than 1:2048.

Once the diagnosis of *E histolytica* infection was established, cefazolin and doxycycline were discontinued, and oral metronidazole (750 mg every 8 hours) and paramomycin (500 mg every 8 hours) therapy was initiated. Paramomycin was used to eradicate asymptomatic colonization. Computed tomography of the abdomen demonstrated no liver abscess, lymphadenopathy, or fistulous tract between the groin and the bowel. No stool or serum samples were available for other diagnostic studies after the patient had been discharged. The patient did well with medical and surgical therapy and was discharged home on hospital day 9. At 2-week follow-up, the patient continued to do well after completing a 10-day course of antibiotics, and he denied having any further symptoms.

**DISCUSSION AND LITERATURE REVIEW**

The epidemiology of amebiasis, in which at least 10 to 100 patients are infected for every case of invasive amebiasis, has recently been clarified by the separation of *Entamoeba* into 2 morphologically identical species, *E histolytica*, which is capable of invasion, and *E dispar*, which is not. *E histolytica* has several potential virulence factors, including a galactose-inhibitable lectin for attachment to the mucosa, cysteine proteinases to degrade the extracellular matrix before invasion, phospholipases, membranolytic peptides, and the ability to resist complement-mediated lysis.

In underdeveloped countries, the prevalence of amebic infection is as high as 50% compared with 4% in the United States. Groups at high risk for amebiasis in developed countries include institutionalized patients, recent immigrants, promiscuous male homosexuals, and patients with the acquired immunodeficiency syndrome (AIDS). Invasive disease is seen more frequently in pregnant women, children, malnourished persons, and patients receiving corticosteroids. Invasive disease leads to a greater risk of extraintestinal spread.

The route of extraintestinal disease is thought to be due to hematogenous spread, lymphatogenous spread, or direct invasion by trophozoites. Hematogenous spread to the liver...
is suggested by the formation of abscesses in the distribution of the portal vein. Although uncommon, rupture of a liver abscess can occur, which may result in peritonitis, pleuropulmonary infection, or pericarditis. Hematogenous spread of trophozoites has also been implicated in the pathogenesis of amebic brain abscesses.

We searched the medical literature through the National Library of Medicine from 1966 to March 1999 for unusual sites of \textit{E. histolytica} infection, including the genitourinary tract, perianal region, and skin. Our search included reports published in languages other than English. Excluded from our search were liver abscess, its complications, and cerebral amebiasis, which have been well described in the literature.

To our knowledge, our case report is the first to describe \textit{E. histolytica} causing inguinal necrotizing lymphadenitis. Infiltration of mesenteric lymph nodes with trophozoites has been documented to occur in association with colitis; the patient had extensive necrotic lesions in the colon and several granulomas in the liver. In 1990, Kingston et al. observed trophozoites of \textit{E. histolytica} in the cortex of ileocecal lymph nodes in 12 of 17 fawns that had acute or chronic amebic colitis. They also noted lymphoid hyperplasia with focal areas of necrosis and acute and chronic inflammatory cells. In experimental models of amebiasis in gerbils, hyperplasia, T-cell depletion, and increased plasma cell activity were documented, but no ameba were isolated from these lymph nodes. Although some of the histological changes described in these cases are similar to those seen in our patient, our case is unique for 2 reasons. First, no primary colitis or liver abscess was documented. Second, our patient had involvement of the inguinal lymph nodes, which drain the genital area, in contrast to the mesenteric lymph nodes, which drain the colon.

Genital infection with \textit{E. histolytica} is rare in the United States and uncommon even in endemic areas. Most cases of penile or vaginal amebiasis present as an ulcerating mass typically misdiagnosed as squamous cell carcinoma. In 1987, Velith et al. described 2 cases of cervical amebiasis associated with squamous cell carcinoma, which is extremely rare. Since the genital region is an unusual site of infection for \textit{E. histolytica}, the route of transmission is of interest. In patients who have intestinal amebiasis, transmission is most likely to occur via direct inoculation of organisms from the rectum into the lower genital tract. Munguia et al. reported 24 cases of genital amebiasis in 100,000 women screened with Papnicolau smears over a 5-year period. The parasite was identified in stool specimens from 17 of these patients. Sexual transmission has also been described; the wife of a man with penile amebiasis was found to have a cervical infection with \textit{E. histolytica} when she presented with complaints of a foul-smelling vaginal discharge.

Sexual transmission also involves male homosexuals in the form of anorectal disease. In the late 1970s, the prevalence of amebic infection among male homosexuals was reported to be 30% to 40% in New York City. Most of these infections were asymptomatic and probably reflected infection with \textit{E. dispar} and \textit{E. histolytica}. The primary routes of transmission in this population include anal-oral (oral-anal sexual contact) and anal intercourse. With the institution of safer sexual practices, largely due to the AIDS epidemic, the prevalence of amebic infection among male homosexuals has now decreased. Anorectal disease is also seen in association with amebic colitis. Patients often present with features suggestive of rectal carcinoma with perianal ulceration, but on biopsy \textit{E. histolytica} infection is detected. A case of perianal skin gangrene due to amebic colitis in a diabetic patient was reported, with a 20-year lag between the patient's initial presentation with amebic dysentery and the related complication.

Perianal skin is not the only site for cutaneous manifestations of \textit{E. histolytica} infection. Invasion of the skin has been observed in association with liver abscesses, related to drainage with an indwelling catheter. Likewise, the skin surrounding operative sites in patients with amebiasis has become infected from direct inoculation during the surgical procedure. In 1985, Turner et al. described a case of amebiasis cutis after surgical drainage of a peritoneal abscess caused by \textit{E histolytica}.

The manner in which \textit{E. histolytica} infection occurred in our patient is unclear. Previous notations of lymph node involvement with \textit{E. histolytica} have documented active colitis. Our patient was asymptomatic, with normal findings on stool studies and computed tomography of the abdomen, but no endoscopy was performed. The superficial inguinal lymph nodes drain the anal canal, abdominal wall, and genital area; thus, our patient may have been an asymptomatic carrier of amebiasis with possible development of inguinal lymphadenitis via lymphatic drainage from the lower gastrointestinal tract. A genital route of infection is highly suggestive because of the involvement of inguinal lymph nodes, but the patient denied having any history of sexual activity, and he had no genital lesions. Finally, the skin surrounding the inguinal area may have been initially infected via external inoculation of \textit{E. histolytica}, with secondary seeding of the lymph nodes.

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REFERENCES


