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An Unusual Case of Tuberculous Peritonitis in a Man With AIDS

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PATIENTS with the acquired immunodeficiency syndrome (AIDS) are known to be susceptible to mycobacterial infections because of their defective cell-mediated immunity. When tuberculosis occurs in these patients, it is often extrapulmonary.¹ We describe a case of a patient with Kaposi's sarcoma in whom an intra-abdominal tuberculous abscess de-

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veloped. To our knowledge, this complication has not been previously reported in patients with AIDS.

Report of a Case

The patient, a 37-year-old homosexual man, presented to a physician with a one-day history of severe abdominal cramps, constipation and a temperature of 40°C (104°F). He had had fever, fatigue and weight loss for five weeks. The physician noted purplish papules over his chest and abdomen. He was admitted to another hospital, where a biopsy of the skin lesions revealed Kaposi's sarcoma. A plain film of the abdomen showed splenomegaly and a poorly defined left lower quadrant mass. A contrast enema examination showed no abnormalities and a gallium scan disclosed a focal area of increased activity at the level of the iliac crest to the left of the midline. Computed tomography (CT) showed a 7-cm diameter heterogeneous mesenteric mass in the left lower quadrant, with a low-density central area (Figure 1). Mesenteric and retroperitoneal lymph nodes were slightly enlarged. Splenomegaly and thickening of the mesentery were also noted. The patient was transferred to our hospital for further evaluation.

On examination, the patient was noted to be thin but apparently was in no acute distress. His temperature was 40.1°C (104.2°F), blood pressure 119/62 mm of mercury, pulse 90 and respirations 16 per minute. Several purplish papules less than 1 cm in diameter were noted over his chest, abdomen and lateral neck. There was shotty cervical, axillary and inguinal adenopathy. The spleen tip was palpable and tender. No masses were palpable and there was no evidence of ascites. The rectal tone was diminished.

A radiograph of the chest was normal. The hemoglobin was 11.6 grams per dl, with a mean corpuscular volume of 78.2 cu microns. There were 6,100 leukocytes per μ l, with 71% segmented neutrophils, 3% band forms, 15% lymphocytes and 11% monocytes. Results of a urinalysis, serum electrolyte levels, creatinine level and results of liver function tests were all normal except for the total protein and albumin levels, which were 6.7 and 3.5 grams per dl, respectively. Blood, sputum, urine and stool cultures yielded no pathogens

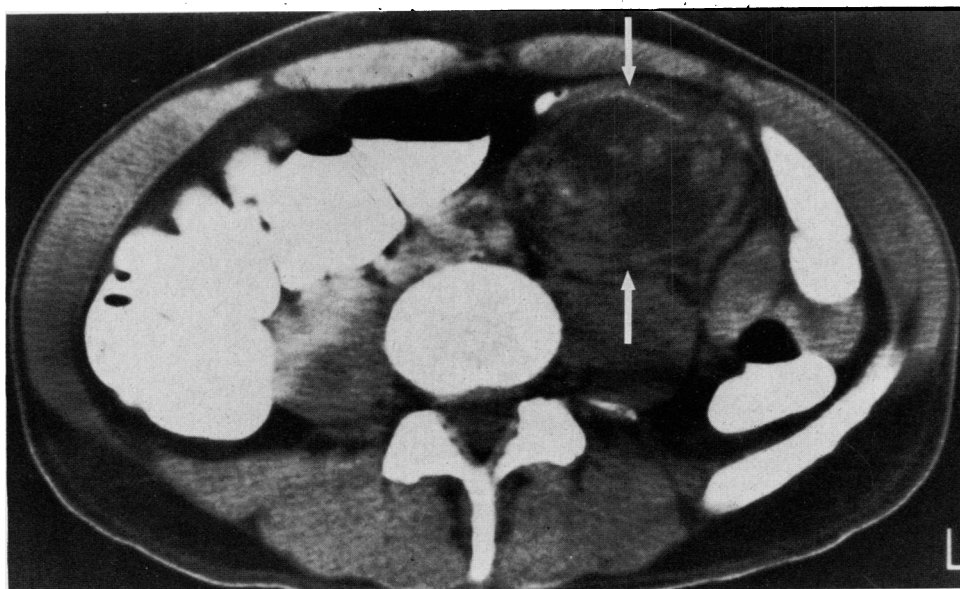


Figure 1.—A computed tomographic scan shows a mesenteric mass (arrows) containing areas of soft tissue and water density. There is a surrounding rim of soft tissue.

ABBREVIATIONS USED IN TEXT

AIDS = acquired immunodeficiency syndrome
 CT = computed tomography

and no ova or parasites were seen on examination of the stool. Several sputum smears were negative for acid-fast bacilli.

The patient's daily maximum temperature remained as high as 40°C (104°F). An upper gastrointestinal series with small bowel follow-through showed a mesenteric mass in the midabdomen displacing loops of jejunum. No ileocecal lesions were seen. Ultrasonography disclosed a mass with solid and cystic components. Needle aspiration yielded a few drops of purulent fluid. The Gram's stain showed many polymorphonuclear leukocytes and no organisms. Cytology of the aspirate showed acute inflammatory cells without any specific features. Administration of ampicillin, gentamicin and clindamycin was started intravenously, but aerobic and anaerobic cultures yielded no organisms.

The patient was thought to have an intra-abdominal lym-

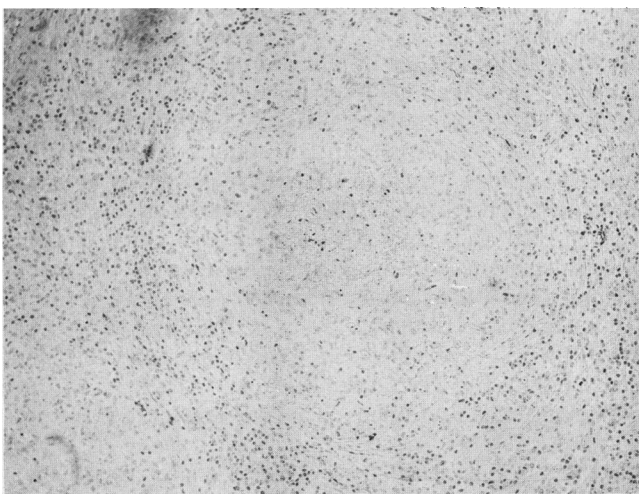


Figure 2.—Caseating epithelioid cell granuloma in the mesenteric mass. (Hematoxylin and eosin stain, magnification $\times 132$.)

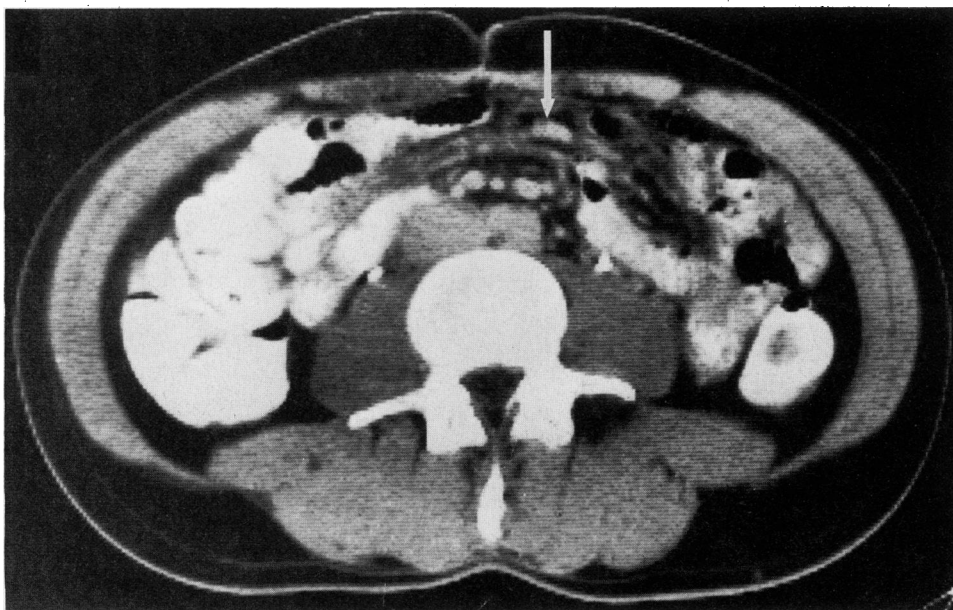


Figure 3.—A follow-up computed tomographic scan shows resolution of the mesenteric mass. Residual mesenteric thickening is seen (arrow).

phoma with secondary bacterial infection and was taken to laparotomy on the 15th hospital day. At operation, a mass was found to involve the entire root of the small bowel mesentery. The gross appearance suggested a large necrotic tumor, and diffuse studding of the intestinal serosa with "tumor" was noted. A biopsy of the mass showed areas of suppuration admixed with caseating granulomatous inflammation in the omentum and mesenteric lymph nodes. Pronounced fibrosis was also present (Figure 2). An acid-fast stain showed large numbers of bacilli, which on culture proved to be *Mycobacterium tuberculosis*. Sputum cultures also subsequently revealed this organism. No blood or stool specimens were sent for mycobacterial culture.

A regimen of isoniazid, rifampin and pyrazinamide was started and the patient was discharged after an uncomplicated postoperative course. His fever and malaise rapidly resolved, though he continued to have poorly characterized abdominal pain and weight loss. Results of an upper gastrointestinal series with small bowel follow-through three months after discharge were normal. A CT scan of the abdomen after five months of therapy showed no sign of the previously observed mesenteric mass (Figure 3). There were minimal adenopathy and residual thickening of the mesentery. Endoscopy showed a purplish papule on the greater curvature of the stomach, and a biopsy disclosed Kaposi's sarcoma. The patient has presently completed nine months of antituberculous chemotherapy with good results. No opportunistic infections have developed during this time.

Comments

Our patient presented with an intra-abdominal mass as an unusual manifestation of tuberculous peritonitis. Classically, tuberculous peritonitis has been separated into three types. In the exudative variety, ascites is the dominant clinical manifestation, whereas in the fibrotic type, widespread intraperitoneal adhesions are present, with little or no ascites. In the third form, an abdominal mass is palpable, consisting of inflamed and fibrotic mesentery, rolled-up omentum and matted loops of bowel.²⁻⁴

A palpable mass is unusual in patients with tuberculous peritonitis when there is no accompanying gastrointestinal involvement. This finding has been noted in 0% to 4% of cases in several American series,^{3,5-7} though two reports from third world nations describe a 30% incidence of palpable masses.^{4,8} Perhaps this reflects the later stage at which tuberculous peritonitis first comes to medical attention in countries where health care resources are scarce.

The diagnosis of tuberculous peritonitis is problematic when it presents as an abdominal mass. Many patients have no clinical evidence of tuberculosis elsewhere, and peritoneoscopy is hazardous because of the extensive adhesions.⁹ Needle aspiration or biopsy under CT guidance may yield the diagnosis, but laparotomy is sometimes necessary, as in the case described above.

Epstein and Mann recently described the CT findings in eight South African patients with intra-abdominal tuberculous masses.¹⁰ Four patients had irregular soft-tissue densities in the omentum, three had low-density masses surrounded by thick, solid rims and two had low-density lymph nodes with rim enhancement. These hypodense areas probably represent foci of caseous necrosis.¹⁰ Dahlene and co-workers reported the cases of three patients with tuberculous peritonitis in whom the CT scan showed irregular thickening and nodularity of the mesentery, but no masses.¹¹ The radiographic findings in our case are similar to those described above, and the combination of an abdominal mass with a low-density center and mesenteric adenopathy should suggest the possibility of mycobacterial infection. It should be kept in mind that this CT appearance may be mimicked by two other processes: one is bacterial mesenteric adenitis with abscess formation, and the second is lymphoma with extensive central necrosis as a result of chemotherapy or radiation treatment. Percutaneous aspiration of an abdominal mass is usually possible under CT guidance, and appropriate stains of the aspirated material for mycobacteria should always be done so that laparotomy may be avoided.

Mycobacterial infection is a common complication of AIDS. The high prevalence of atypical mycobacterial disease has been frequently emphasized in the literature, though in our experience, tuberculosis is more common than atypical mycobacteriosis in these patients (Peter Barnes, MD, unpublished data, June 1984 to April 1985). This is probably a result of the high prevalence of tuberculosis in the population served by our hospital.

When tuberculosis occurs in patients with AIDS, extrapulmonary involvement is seen in 70% of cases.¹ Though our patient had subclinical pulmonary tuberculosis manifest only by positive sputum cultures, the most clinically significant problem was peritoneal infection. This predilection for extrapulmonary disease is probably due to widespread hematogenous dissemination of mycobacteria in patients with deficient cell-mediated immunity. Despite their immunodeficiency, patients with AIDS respond very well to antituberculous drugs. It is a crucial diagnosis to make, therefore, because many other infections and tumors in these patients are not as readily treatable.

There is preliminary evidence to suggest that tuberculosis often precedes the development of Kaposi's sarcoma or opportunistic infections, whereas atypical mycobacteria cause disease after the full-blown manifestations of immunodeficiency

have developed.¹ Presumably, this is due to the fact that *M tuberculosis* is intrinsically more virulent than the atypical forms and therefore results in infection at an earlier stage of immunodeficiency. It is interesting that our patient has had no opportunistic infections to date, and his case may be an example of this phenomenon. The large number of acid-fast bacilli seen in his peritoneal tissue is unusual in tuberculosis and probably reflects his defective cell-mediated immunity.

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The Acquired Immunodeficiency Syndrome and Hypercalcemia

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THE acquired immunodeficiency syndrome (AIDS) is characterized by severe immunologic dysfunction (cell-mediated more than humoral) and manifested by a multitude of opportunistic infections, unusual neoplasms and autoimmune phenomena.¹ Using a combination of an enzyme-linked immunosorbent assay (ELISA) and the electrophoretic (Western blot) technique, antibodies to a type C retrovirus (usually human T-cell leukemia/lymphoma virus III, or HTLV-III) can be shown in almost all such cases.^{2,3} Although hypercalcemia is a common complication in patients with a T-cell lymphoproliferative syndrome associated with a different type C retrovirus (HTLV-I),⁴ this metabolic abnormality has only recently been reported to occur in patients with AIDS.⁵ An additional case showing this association is herein presented and the possible underlying pathophysiology discussed.

Report of a Case

The patient, a 31-year-old sexually active homosexual man, had a five-month illness characterized by an 18-kg (40-lb) weight loss, low-grade fevers, night sweats and pro-

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