Fatal Strongyloidiasis Following Corticosteroid Therapy

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Two fatal Strongyloides stercoralis infections found at autopsy in patients who had received corticosteroid therapy are presented. A successfully treated case of strongyloidiasis with pulmonary infiltration is also reported. Difficulties in diagnosis, usefulness of upper jejunal intubation, and the importance of ruling out strongyloidiasis prior to administration of corticosteroids to patients with eosinophilia, particularly Vietnam veterans, are discussed.

RETURNEES FROM VIETNAM have been found to be infected with Strongyloides stercoralis, a parasite which is prevalent throughout Southeast Asia. The problem of returning troops suffering from strongyloidiasis was first recognized in 1876 when Normand identified this organism as a cause of uncontrolled diarrhea in French colonial troops returning from Vietnam (French Cochin-China). While strongyloidiasis is primarily a disease of tropical areas, the widespread dispersion of returning military personnel demands that we all be alert to the hazards of infection with this organism. Moreover, autochthonous cases have occurred in temperate and cold areas as far north in this hemisphere as Canada. One of the patients presented in this report was an inmate of a mental institution who had never left the Boston area. The infection is more common in adults than in children, and it is aggravated by living conditions in both mental and penal institutions.

The administration of corticosteroids is particularly hazardous in patients harboring S. stercoralis. Cruz et al reported 5 cases of fatal strongyloidiasis in patients receiving steroid therapy. These Brazilian patients received steroid therapy for the nephrotic syndrome or for eczema. In each case the clinical picture was characterized by diarrhea, vomiting, abdominal pain and distention, severe hypokalemia, hypoproteinemia, and shock. The authors suggested the possible relationship between the use of corticosteroids and the development of fatal strongyloidiasis.

The present report concerns 2 cases in the United States in which a fatal S. stercoralis infection followed the administration of corticosteroids. The difficulties in making the diagnosis of strongyloidiasis due to the suppression...
of eosinophilia by corticosteroid therapy and the frequent necessity of upper jejunal intubation to find the parasite will be discussed.

A third case, that of a returning veteran from Vietnam who was treated successfully for strongyloidiasis, is included.

CASE REPORTS

Case 1

The patient was a 56-year-old white, Mongoloid female who had been an inmate of a mental institution in Belmont, Mass, since the age of 15. In September 1965 she developed diarrhea and anorexia and showed weight loss. Blood count on Sept 14, 1965, revealed hematocrit 45%, WBCs 6600/cu mm, and the differential count showed 63% polys, 6% eosinophils, 27% lymphocytes, and 4% monocytes. Because of increased severity of the diarrhea and weight loss, an upper gastrointestinal series was done, the results of which were negative. The patient was administered a barium enema (Fig 1) which was interpreted as ulcerative colitis. Prednisone 5 mg qid was started on October 20 and continued until her death. After initiation of corticosteroid therapy, no changes were noted in the differential count of the white blood cells except for disappearance of eosinophilia. She improved transiently, but later became progressively less responsive. The temperature rose to 103°, the diarrhea increased, and the blood pressure decreased. Diffuse rales appeared over both lung fields, and the patient expired on Nov 26, 1965.

Autopsy Findings. There was prominence of the mucosal folds and edema in the duodenum. Sections from the duodenum and jejunum contained numerous adult S. stercoralis in the mucosa (Fig 2). These were surrounded by lymphocytes, plasma cells, and a few foreign-body giant cells. Eosinophils were conspicuously absent. The mucosa of the entire colon was edematous and discolored by melanosis. There were no ulcerations or polyps. Sections of the colon at all levels showed an edematous mucosa with lymphocytic, plasma cell, and occasional foreign-body giant-cell infiltrate around numerous larvae, which were smaller than the adult nematodes seen in the small bowel. There was thickening and fibrosis of the mucosa. Larvae surrounded by granulomatous reaction were identified in the mesenteric lymph nodes (Fig 3). The right lung weighed 550 g, the left weighed 450 g. Consolidated areas were present over the posterior aspect of both lungs. Microscopically, bilateral, acute bronchopneumonia was seen. One bronchus contained a large amount of cellular debris in which nematode larvae, measuring 20-30 μ in diameter were found. Foreign-body giant cells were present in the inflammatory reaction around these larvae. The right kidney weighed 100 g, and the left 105 g. A few abscesses, 2-3 mm in diameter, were present over the surface of the left kidney. Acute pyelonephritis was prominent microscopically. Nematode larvae surrounded by foreign-body giant cells, lymphocytes, and plasma cells were seen in the renal parenchyma. There was hydropic, vacuolar nephropathy in the proximal tubules suggestive of terminal hypokalemic changes consistent with the clinical course of persistent diarrhea. The liver showed scattered areas of focal collections of plasma cells, lymphocytes, and polymorphonuclear leukocytic infiltration with multinucleated giant cells, mainly around portal areas in which occasional coiled nematode larvae were found.

Case 2

A 74-year-old Puerto Rican female was admitted to a hospital in New York City on March 9, 1965, because of severe pruritic rash of 1 week's duration. The patient had a 25-year history of diabetes controlled by insulin. One week prior to admission she developed an erythematous, pruritic, generalized body rash for which she was treated with steroids as an outpatient. On admission, blood pressure was 160/80 mm Hg; pulse 110; respiration 16. The patient had numerous red papules, macules, bullae, and pruritus. The initial white