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Brief Report

Shigellosis and AIDS. Report of a case and brief review of the literature

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This report describes the fatal outcome of an infection with *Shigella flexneri* in a 39-yr-old man with the acquired immunodeficiency syndrome (AIDS). The pertinent literature is reviewed. Neth J Med 1989;34:93-97.

Key words: AIDS; *Shigella flexneri*; Cryptosporidium

Introduction

Shigellosis can be diagnosed in approximately 2% of male homosexuals evaluated for diarrhoea [1,2], and is regarded as a sexually transmitted disease in these individuals. Infections caused by *Shigella flexneri* predominate in these patients.

Although most pathogens responsible for chronic diarrhoea in homosexual men have been reported to cause infections in patients with the acquired immunodeficiency syndrome (AIDS), only a few reports mention infections with *Shigella*. We report the case of a patient with AIDS, in whom the combination of atypically severe and protracted shigellosis together with cryptosporidiosis and unwarranted treatment with prednisone led to his early demise.

Case History

A 39-yr-old bank employee was admitted to a hospital because of persisting fever and diarrhoea after a holiday in the Himalaya region. Trophozoite amoebae had been reported in a stool specimen examined during the trip, and several unspecified drugs had failed to relieve the symptoms.

On admission the patient was found to be malnourished and obtunded. Fever

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and hepatomegaly were noted. Sigmoidoscopy with biopsy revealed nonspecific haemorrhagic ulcerating colitis. Repeated examinations of stool, urine and blood failed to identify a causative organism. Serological testing revealed the presence of antibodies against hepatitis B "c" and "e" antigen. On a presumptive diagnosis of infectious colitis the patient was sequentially treated with ampicillin, chloramphenicol and metronidazole over a period of 2 wk without clinical improvement. Inflammatory bowel disease was suspected and prednisone (initial dose 60 mg/day) and sulphasalazine were then administered. Unfortunately, this led to a toxic megacolon 20 days after the initiation of corticosteroid therapy, and massive rectal bleeding necessitated emergency right hemicolectomy and ileostomy.

A multiresistant strain of *Shigella flexneri*, type III was isolated from the resected colon specimen. Postoperative complications included *Staphylococcus aureus* and *Candida albicans* bacteraemia. Subsequent stool and ileal fluid specimens grew *Shigella* during a period of 4 wk despite adequate antibiotic therapy.

Ten weeks after admission all medications had been stopped. Profuse watery diarrhoea persisted, and bilateral pulmonary alveolo-interstitial infiltrates developed. Anaemia, hypovolaemia and azotaemia were followed by shock and cardiac arrest. After resuscitation the patient was transferred to the Leiden University Hospital.

On admission the patient was severely ill, cachectic and anuric. Ileal fluid production amounted to 300 ml/h. Laboratory results included a low normal lymphocyte count with an almost complete absence of T-helper cells. Several species of *Candida*, but no other microorganisms were cultured from specimens of sputum, bronchial lavage fluid, urine and stool; cultures of blood and bone marrow remained sterile.

The patient improved temporarily after ventilatory support, rehydration, parenteral nutrition and blood transfusions. However, diarrhoea and fever persisted and pulmonary infiltration worsened. The patient died of intractable respiratory failure, approximately 5 months after the start of symptoms. On the day of his death, his relatives finally disclosed his homosexual lifestyle.

Test results received after death revealed the presence of anti-HIV antibodies by enzyme linked immunosorbent assay, confirmed by Western blotting. Solid phase immunoassay [3] revealed the presence of HIV antigen. At autopsy, massive interstitial pneumonitis was found. Only *Cytomegalovirus* grew from lung tissue. In the colon and ileum, extensive infection with *Cryptosporidium* was noted. In retrospect, these organisms were also visible in the earlier sigmoid biopsy and colectomy specimens. No *Shigella* or other microorganisms were isolated from the intestinal tract. Other autopsy findings included mesenteric adenopathy with lymphocyte depletion, and granulomatous hepatitis and nephritis with microscopic and bacteriological evidence of *Candida* infection.

Discussion

This patient presented with intractable diarrhoea of unknown cause during a holiday in the Himalayas. Once corticosteroid therapy had led to the development

TABLE 1

Reported cases of shigellosis in patients with AIDS *

Source	No. of patients	Organism	Cultured from		Recurrence/ persistence during therapy	Other intestinal infections	Remarks
			blood	stool			
Bell et al. [7]	5	4 flex 1 sonn	1/5	5/5	3/5 **	CMV colitis in all 5	
Prummel et al. [8]	1	flex	-	+	+ **	Adenovirus colitis	Kaposi sarcoma in stomach and small bowel
Reiss et al. [9]	1	flex	-	+	-	HSV proctitis	Contact of patient described by Prummel, acute HIV infec- tion; AIDS-related complex; lost to follow-up
Turk et al. [10]	1	?	-	+	-	<i>Giardia, C. difficile,</i> <i>Cryptosporidium</i>	Small bowel Kaposi sarcoma
Whimbey et al. [11]	1	sonn	+	+	-		1 of 38 bacteraemias in 336 patients with AIDS
Glaser et al. [5]	1	flex	-	+	?		1 of 8 patients with <i>S. typhimurium</i> bacteraemia
Glupczynski et al. [4]	1	flex	+	-	-		female Zaire national; persistent diarrhoea with negative cultures after treatment
Mandell et al. [12]	1	flex	+	+	-		

* Fever and diarrhoea reported in all cases. ** Maximum duration of persistence: 4 wk.

of a toxic megacolon, *S. flexneri* was finally cultured from the resected specimen. It then proved difficult to eradicate. The *Shigella* was most probably acquired in Nepal; the initial therapy may have hampered a microbiological diagnosis. In retrospect the bowel was also infected with *Cryptosporidium* and heavily colonized with *Candida*. The diagnosis AIDS was made on the basis of his homosexuality, multiple opportunistic infections and virtual absence of T-helper cells, and confirmed by the presence of anti-HIV antibodies and circulating HIV antigen.

In most reviews *Shigella* species are not mentioned as pathogens for AIDS patients. A computerised literature search revealed 12 other *Shigella* infections associated with AIDS or AIDS-related complex (Table 1). *S. flexneri* was the predominant organism, with positive stool cultures in 11 and positive blood cultures in 4 cases. Watery diarrhoea, sometimes with an admixture of blood and mucus was the most frequent presenting symptom. In one patient, only the blood culture was positive [4], and the negative stool culture, as in our patient, suggests an enteritis with low numbers of bacteria or an extra-intestinal primary focus. Details concerning therapy were available in 9 cases; in 4 of these patients recurrent or persistent episodes of infection (lasting for up to 4 wk) were noted in spite of adequate therapy, as in our patient.

The rarity of shigellosis in AIDS suggests that T-cell mediated immunity is less important in host defense against *Shigellae* than against other intestinal pathogens, e.g. *Salmonellae* [5,6]. This may be the reason that shigellosis is an infrequent finding in patients with AIDS. In this setting, it is tempting to speculate that a second intestinal infection is necessary to trigger overt shigellosis in an AIDS patient who is a carrier of this organism. In our patient, extensive intestinal infestation with *Cryptosporidium* was noted, and systemic and enteric candidiasis was present. Bell et al. reported 5 patients with coexistent *Shigella* and CMV colitis [7]. In our patient CMV was cultured only from the lung, but CMV colitis cannot be completely ruled out.

In conclusion, shigellosis seems to be a relatively infrequent finding in patients with AIDS. Presentation may be atypical, and response to adequate therapy may be poor. The available literature and the present case report suggest that concomitant intestinal infections may play a role in the persistence of the *Shigella*. Finally, the case illustrates that persistent diarrhoea without a specific cause, or without improvement on adequate therapy should prompt a careful search for opportunistic enteric pathogens, e.g. *Cryptosporidium*.

Acknowledgement

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