CASE REPORT

Bowel obstruction in an infant with AIDS

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AIDS accounted for approximately one quarter of all deaths in South Africa in 2000 and has become the country's single biggest cause of death.¹ Paediatric HIV infection is now a common cause of admission to hospital and a major contributor to childhood mortality.² A recent study reported that 60% of admissions to an academic hospital in Durban (Kwa-Zulu Natal) were infected with HIV.³ We report a case of intestinal obstruction in an infant with HIV infection, the cause of which was only diagnosed at postmortem examination.

CASE REPORT

A 2 month old female presented with a three day history of constipation, anorexia, and progressive abdominal distension. The child had been a full term, normal vaginal delivery to an otherwise well mother. Examination revealed a mildly dehydrated baby with a grossly distended but soft abdomen; no masses were palpable. Abdominal x ray examination showed multiple distended loops of small bowel, ultrasound examination was non-diagnostic, and contrast enema revealed a normal colon but was unable to adequately define the ileocaecal region. Repeat plain abdominal films 24 hours later showed features consistent with distal small bowel obstruction.

At laparotomy, an inflammatory stricture of the terminal ileum was found extending into the ascending colon. The terminal ileum displayed numerous necrotic areas, one of which perforated during manipulation of the bowel; a right hemi-colectomy was undertaken. Macroscopically, there were multiple ulcers in the terminal ileum and ascending colon with yellow, fibrinopurulent material in the base of the ulcers. A provisional diagnosis of cytomegalovirus (CMV) enteritis was made.

On the second postoperative day, the child deteriorated and developed pancytopenia. Blood cultures and a single enzyme linked immunosorbent assay (ELISA) for cytomegalovirus

were negative, but HIV positivity was confirmed by ELISA and polymerase chain reaction (PCR) for viral DNA. The child developed hepatic, renal, and respiratory failure and died four days postoperatively.

Macroscopic examination confirmed the presence of multifocal areas of transmural necrosis (fig 1). Histopathological examination revealed no evidence of granulomatous inflammation or of cytomegalovirus inclusions. Numerous fungal spores and pseudohyphae were identified in the ulcer bases. The fungus was identified as a *Candida* species and staining showed angio-invasion by the fungal elements (figs 2 and 3).

Figure 1 Macroscopic appearance of terminal ileum and right colon.

Figure 2 Haemotoxylin and eosin stain showing angioinvasion by fungal elements within the wall of the necrotic bowel.

Figure 3 Grocott's stain confirms the presence of fungal elements (pseudohyphae and fungal spores) within the vascular lumen.

DISCUSSION

Mortality among children in South Africa with vertically acquired HIV infection is high in the first year of life,⁴ with 83% of children in one cohort from Durban dying before 10 months of age.⁴ This is in stark contrast with the 10% mortality rate by the age of 1 year reported by the European Collaborative Study.⁵ Malnutrition and perinatal coinfection such as tuberculosis, syphilis, and cytomegalovirus is associated with rapidly progressive HIV-1 and early death.^{2,6}

Gastrointestinal (GI) illness is the second most common presenting complaint in children with HIV infection (after respiratory illness) and diarrhoea, poor nutritional status, and failure to thrive are extremely common.^{4,7} The most frequent GI symptom is gastroenteritis,³ but odyphagia and dysphagia due to oesophagitis in the presence of *Candida albicans*, cytomegalovirus (CMV), or herpes simplex virus 1 is common.⁷ Overall, GI morbidity is mainly related to infection; although diarrhoea may be due to the more typical organisms such as *Salmonella*, *Shigella*, and *Campylobacter*, the commonest causes of AIDS related enteritis are the protozoa *Cryptosporidium* and *Isospora belli*.⁷

CMV can cause severe infection of the small bowel in AIDS patients, leading to mucosal ulceration, enterocolitis, severe haemorrhage, obstruction, or perforation.^{8,9} These complications represent the commonest gastrointestinal surgical manifestations of AIDS in infancy.⁷ Severe, multifocal CMV enterocolitis has been reported as the cause of small bowel obstruction (SBO) in an infant with AIDS. Infection with *Mycobacterium avium intracellulare* may also present with obstruction or abdominal pain, fever, weight loss, and diarrhoea.⁷

Although oesophageal candidiasis associated with oral thrush is very common in children with AIDS,⁷ morbidity due to candida elsewhere in the GI tract is rare. Lower GI bleeding due to extensive ileocolic candidiasis and isolated cases of necrotising candida enterocolitis have been reported, but to our knowledge this is the first report of SBO in an infant with AIDS to be recognised as resulting from invasive ileal candidiasis.

SBO is a rare complication in children with AIDS, and is usually due to intussusception; the lead point may be lymphoma, CMV colitis, Kaposi's sarcoma, or lymphoid hyperplasia due to HIV infection or *Mycobacterium avium intracellulare*.⁷

Candida is a saprophytic organism found in 50% of mouth washings and 90% of faeces in normal adults. In immunosuppressed patients, it can become invasive and affects the GI tract by forming ulcerative lesions, most commonly in the oesophagus but also in the ileum and colon.¹⁰

Yellow discoloration of intestinal ulcers, as seen in this case (fig 1) is said to be the typical macroscopic appearance. The histological features of invasive candidiasis are the presence of budding yeast, hyphae, and pseudohyphae; proliferation of hyphae in the viable tissues of the bowel wall and angio-invasion can be shown with special stains (figs 2 and 3).

Vertical transmission of HIV, particularly in the context of serious co-infections malnutrition and poor maternal health can lead to a profound immunosuppression in the neonatal period.^{2,6} This early presentation appears to carry a very poor prognosis. Paediatric practitioners must maintain a high index of suspicion for the protean presentations of various opportunistic pathogens, including *Candida*. Early recognition may allow for more effective treatment.

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