the diet was discontinued the abnormal changes disappeared. We report these changes so that clinicians using this diet may be aware of the abnormal abdominal ultrasound findings and their importance.

We would like to thank Dr WI Forsythe for permission to study the patients under his care.

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HIV infection in Zimbabwe

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SUMMARY A total of 188 children with positive serology for HIV were identified during an 18 month period. Two seronegative children with clinical features of AIDS had seropositive mothers. Ten children were asymptomatic on initial testing; one has since died with infection. The commonest presenting features were generalised lymphadenopathy, failure to thrive, chronic diarrhoea, and pneumonia. Thirty four children are known to have died.

AIDS is reported to be endemic in parts of Africa and is thought to be largely heterosexually transmitted.¹ The vertical transmission of this disease to the children of mothers who are seropositive is now well recognised.^{2,3} During 1985 patients began to present in Zimbabwe with illnesses suggestive of HIV infection. Young adults were presenting with severe herpes zoster, generalised lymphadenopathy, and severe respiratory infections. Children were seen who appeared to be suffering from malnutrition but whose socioeconomic histories were inconsistent with this, and they were failing to respond to standard nutritional and medical treatment. Other children were seen with recurrent infections or infections that were resistant to conventional treatment, suggesting an immunodeficiency state. Routine testing of donated blood began in August 1985 at the Harare Blood Transfu-

sion Service and HIV testing has been available to clinicians since then.

Patients and methods

The Harare Blood Transfusion Service serves the northern half of Zimbabwe, covering a population in excess of three million. HIV testing was performed using the ELISA test,⁴ and confirmation of all positive results was obtained using the Western blot technique.⁵ All HIV request forms on seropositive children between October 1985 and March 1987 were reviewed. This accounts for all positive HIV serology in children documented in the north and eastern part of the country as no other facility was testing at the time. Clinical data was obtained from a questionnaire incorporated into the request form and additional information, when available, was extracted from some case notes in the central hospitals. The questionnaire was introduced only in the second half of the period under review and the quantity and quality of the information supplied was quite variable. In view of this the data represent only minimal estimates of each feature.

Results

A total of 188 children were found to be seropositive and of these 145 were identified in the central hospitals in Harare. Two other children who had clinical features suggestive of AIDS but negative

serology and whose mothers were seropositive are included in the data.

CLINICAL FEATURES

The age distribution of the seropositive children at diagnosis is shown in the figure; 145 (77%) were identified before the age of 2 years. The commonest clinical features encountered are given in the table. Recurrent infections included respiratory and gastrointestinal infections and one child developed bacterial meningitis. Diffuse nodular shadowing on the chest radiograph was reported in 14 (7.7%) and thrombocytopenia, neutropenia, or lymphopenia in six (3.3%). Encephalopathy was noted in one child. The asymptomatic children were all tested because either a sibling or a parent had been found to be seropositive.

As virtually all Zimbabwean babies are breast fed it is unlikely that more than one or two children in this review would not have received breast milk.

Figure Age distribution of symptomatic and asymptomatic seropositive children at diagnosis and death.

Table Clinical features in 181 children with symptomatic HIV infection

	No (%) of children
Generalised lymphadenopathy	117 (64.6)
Failure to thrive	97 (53.6)
Abnormal chest radiograph	85 (46.9)
Pneumonia	75 (41.4)
Recurrent infections	74 (40.9)
Hepatosplenomegaly	57 (31.5)
Chronic diarrhoea	46 (25.4)
Oral candidiasis	33 (18.2)
Chronic parotid swelling	8 (4.4)
Kaposi's sarcoma	2 (1.1)

This would only occur as a result of the death of the mother or total failure of lactation, which is extremely unusual.

About 70% of Zimbabwean women deliver their children at home and therefore birth weight is often not recorded. All children who attend clinics or hospitals in Zimbabwe, however, receive a child health card on which is recorded successive weight measurements. Most of the children in this study had received at least one live vaccine as BCG is normally given at birth or at the first visit to a clinic and polio vaccine is given with diphtheria, tetanus, pertussis vaccine for the first time at 3 months. There was only one documented adverse live vaccine reaction: this was a measles like illness that developed a week after the measles vaccine had been given. The child died with upper airway obstruction due to laryngotracheobronchitis and bronchopneumonia.

SERONEGATIVE CHILDREN

One of the seronegative children died within an hour of admission with gross marasmus and dehydration and his mother was found to be seropositive. The other seronegative child was severely marasmic with chronic diarrhoea that was unresponsive to standard treatment. His mother was also found to be seropositive.

HIV STATUS OF PARENTS

Parents of seropositive children were tested where possible. Altogether 113 mothers were tested and 110 were seropositive. Three children with mothers who were seronegative had received blood products for sickle cell anaemia or haemophilia and this was presumed to be the source of the HIV infection. Thirty seven fathers were tested and 34 were seropositive. Two of the seropositive mothers with husbands who were seronegative had received blood transfusions which may have been the source of their HIV infection. Seropositivity in blood donors in 1985 was about 2%.

Twenty one of the parents were symptomatic with lymphadenopathy, herpes zoster, or weight loss. Three mothers died with clinical features of AIDS and positive serology and three fathers had died before presentation of the child, after prolonged illnesses associated with weight loss and chronic diarrhoea or lung disease.

DEATHS

Thirty four of the 190 children are known to have died in the central hospitals or soon after discharge. The age distribution at death of the 34 children is shown in the figure; the mean age at death was 10 months (range 1-36). Twelve children died during

their first admission and in all but one the diagnosis was made on that admission. The remaining child had been asymptomatic three months previously when her twin had died and both were found to be seropositive.

Discussion

The clinical manifestations of HIV infection in Zimbabwean children do not differ appreciably from those described elsewhere.^{2,3} The only way in which the findings of this report differ from reports from the West is the documentation of only one encephalopathic patient. This may, however, simply reflect failure to recognise the HIV infection in children with apparent primary encephalopathy. In the absence of specific tests of immune function it is possible that some of the children were asymptomatic HIV carriers, although most showed a characteristic feature such as generalised lymphadenopathy or severe, unresponsive infection. The asymptomatic children with positive serology under 1 year may have simply reflected passive maternal antibody transfer although one of these, the twin mentioned above, subsequently died with a severe respiratory infection.

AIDS in children is an increasing problem in Africa and elsewhere, and in the poorer countries the clinical manifestations can be easily mistaken for those of malnutrition and its associated immunodeficiency state. A large proportion of the children identified in this study were seen at the central hospitals in Harare where awareness of the disease was rapidly developing. It is likely, however, that many cases at rural hospitals were not diagnosed owing to lack of awareness of the growing epidemic.

The long incubation period of this condition is shown by the children who were identified only after the age of 5 years and raises the possibility that many school age children may yet develop symptoms. Seronegativity in children with advanced

AIDS has been noted by previous authors⁵ and draws attention to the importance of checking maternal serology in children who are immunologically impaired but have negative serology.

The spread of HIV infection has very serious implications in terms of human suffering, health expenditure, and the development of counselling services for affected families. A clarification of the part played by breast feeding in the transmission of the disease is important.⁶ While failure to breast feed in developing countries may lead to infant death from other causes, women who are asymptomatic HIV carriers need to know the measures which will increase the chance of survival of their children, particularly in societies where the stability of marriage depends on fertility and the survival of children.

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