

Short reports

Giardiasis in infancy diarrhoea

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SUMMARY Of 435 infants with diarrhoea aged under one year, 6% were found to have *Giardia lamblia*; the incidence ranged from 3% in housed infants to 12% in itinerant infants. All infants had duodenal fluid and faeces examined. Infants under 12 weeks may experience severe diarrhoea in association with infection by this parasite, but seem more likely to respond to metronidazole than older infants.

Prevalence of giardiasis varying from 1.1 to 12.5% in different countries has been cited by Petersen,¹ who reported an incidence of 5% in a survey in Norway, rising to 15% in patients with diarrhoea. In a recent study² giardial cysts were found in 6% of 10932 faecal specimens from 4753 children and adults in Holland; none was found in 18 infants under 1 year, and the highest incidence (21%) was in 165 children aged between 5 and 9 years. Burke³ described giardiasis in 7 children; 2 of them were under one year and the youngest was just 2 weeks. We could not find a report of combined duodenal and faecal screening for giardiasis in infancy diarrhoea.

Patients and methods

Of 527 infants under 1 year from a mixed urban and rural population admitted consecutively to a gastroenteritis unit during a 3-year period, duodenal intubation was judged to be successful in 435, as shown by a flow of clear yellow fluid of pH 7 or over. Each infant (218 boys and 217 girls) had duodenal fluid and the initial faecal specimen examined for *Giardia lamblia*, and routine bacteriological culture of duodenal fluid and faeces. 147 infants came from itinerant (tinker) families. Faeces were examined microscopically after preparing a suspension in Lugol's iodine. 25 infants who had terminal duodenal biopsies had mucosal smears examined for trophozoites using Giemsa's stain. X-ray examination for confirmation of the site of the duodenal tube

was not considered justifiable in this study. Weights were plotted on centile charts of Tanner and Whitehouse.⁴

Results

G. lamblia was found in 26 (6%) infants (Table); cysts were found in faeces in 15 infants, trophozoites in duodenal fluid in 12, and in mucosal smears in 2; in 3 infants the parasite was found both in duodenal fluid and faeces. Infants of itinerant families were 34% of those successfully intubated, and the incidence of giardiasis among them was 12% compared with 3% in housed infants. The earliest isolations were at 18 and 26 days of age respectively (in housed infants) and the diarrhoea in these infants was severe but appeared to respond quickly to metronidazole. Diarrhoea ceased within 7 days of starting metronidazole in 9 of 10 infants aged less than 12 weeks compared with 5 of 13 over this age, a significant difference ($P < 0.05$, χ^2 test). Specific bacterial pathogens were isolated in faeces of 30 (6.8%) infants, 15 salmonellae, 9 shigellae, and 6 enteropathogenic *Escherichia coli*, but in only one of these was *G. lamblia* also found (in faeces). Of infants with giardiasis, 31% were below the 10th centile for weight compared with 27% of those without, and 11% required intravenous rehydration compared with 16% of those without giardiasis; neither of these differences was significant. No infant with giardiasis had been breast fed.

Table Age, sex, and site of isolation of *Giardia lamblia* in 26 infants

Age (weeks)	Boys	Girls	Faeces	Duodenal fluid	Duodenal smear
<4 (n=70)	2		1	1	
4-12 (n=154)	5	3	5	5	
13-52 (n=211)	3	13	9	6	2
Totals (n=435)	10	16	15	12	2

Discussion

The incidence of giardiasis in housed infants with diarrhoea (3%) was low; the higher incidence in itinerant infants (12%) was probably due to overcrowding and low standards of sanitation. Infants may become infected soon after birth and may suffer severe diarrhoea. The apparent better response to metronidazole in younger infants may indicate a greater likelihood of the diarrhoea in them being caused by the parasite than in the older infants; even so in no infant could one be sure of the relationship of the parasite to the diarrhoea, particularly in the absence of viral studies. Since a smaller proportion of infants with giardiasis required intravenous rehydration compared with those in whom the parasite was not found, diarrhoea

associated with this parasite tended to be less severe.

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References

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Muscular changes in Engelmann's disease

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SUMMARY In a case of Engelmann's disease in an 11-year-old Japanese boy the muscular changes were studied in detail. Muscle weakness was maximal about the pelvic girdle. Muscle biopsy showed the selective atrophy of type II fibres, and no degenerative change could be seen histologically, histochemically, or electron-microscopically. Although the distribution of muscular weakness in Engelmann's disease is similar to that of a progressive muscular dystrophy, the disease does not seem to be a myopathy.

Engelmann's disease (progressive diaphyseal dysplasia) is a bizarre disorder, characterised by symmetrical cortical thickening and sclerosis of the diaphyses of long bones; its aetiology is still unknown. The principal clinical manifestations are malnutrition, muscular weakness, a waddling gait, and leg pains. No specific laboratory finding has been identified.

Most studies have been directed towards the bony changes, and little is known of the systemic ones. Muscular changes have received little attention, although they are often present,¹ and the disease has sometimes been confused with muscular dys-

trophy.²⁻³ We describe an additional case, and report the muscular changes in detail.

Case report

This Japanese boy was 11 years when he first visited our clinic. Family history was not remarkable. He had been the product of a term, uncomplicated pregnancy and had weighed 2.9 kg at birth. Labour and delivery had been normal. He had attained all the early motor milestones at the appropriate ages and walked at 15 months. At 3 years it was noticed that his gait was waddling and wide-based; he could not run or jump as other children. He was admitted to a hospital with suspected muscular dystrophy. At 4 years bilateral inguinal hernias were repaired. At 10 years he began to complain of pains in the legs. At 11 he was admitted to hospital because of muscular weakness and wasting, and because he tired easily; he had difficulty in climbing stairs and could not lift heavy objects above his head.

He was then a slender boy with an excessive lumbar lordosis; height was 133.3 cm (-1 SD) and weight 20.1 kg (-2.5 SD). Blood pressure was 100/46 mmHg, pulse rate 102/minute. Neurological examination was normal. His skeletal muscles were