FASCIOLIASIS IN SOUTH AFRICA

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Fascioliasis is the condition that results from infestation by the liver fluke, *Fasciola hepatica*. It is an uncommon cause of abdominal pain with recurrent bouts of fever, but the disease when diagnosed is often amenable to treatment. As far as we are aware, no previous case occurring in a White person in South Africa has been described, although ova of *F. hepatica* are occasionally found in the faeces of African children and mine workers. This case history seems to us to be of interest (1) because of the apparent rarity of the condition in Europeans in this country, (2) because 18 months elapsed between the onset of symptoms and the making of the correct diagnosis—probably because the disease was never suspected—and (3) because we believe the condition may be commoner here than is generally supposed, since farm animals in the neighbourhood are quite often infested by this parasite.

CASE HISTORY

A European woman, aged 51 years, first experienced what she described as a 'queasy feeling' in the epigastrium in March 1961. This sensation persisted for about 2 months, and in May 1961 she felt a pain in this region for the first time. The pain was severe, 'like a skewer being pushed into her', and attacks of pain recurred about every 11 days, usually in the daytime and very occasionally during the night. Among the actions that appeared to precipitate the attacks of pain were taking aperients such as magnesium sulphate, eating a meal, or even drinking tea. Besides the epigastric pain she often noticed an ache between the shoulder-blades when sitting and knitting. When an attack of pain started she often experienced a feeling of apprehension and emptiness. The pain did not radiate from the epigastrium. It was relieved by pethedine. In March 1962 she sought medical advice on account of the recurrent abdominal pain. Radiological examinations of her stomach, intestine and gallbladder were carried out. Apart from pylorospasm, no abnormality was reported.

During her illness she suffered no loss of weight, which remained constant at 153 lb. (70 kg.).

There was a family history of coronary-artery disease, but nothing else of significance was elicited.

On 8 June 1962 she consulted one of us (W.F.S.) for the first time. She was found to be tender in the epigastrium and her liver was tender and palpable (two finger-breadths below the costal margin). The blood pressure was 190/120 mm.Hg when lying down, and 160/110 mm.Hg on standing up. Further physical examination revealed no abnormality and the urine was found to be free of protein and sugar.

An electrocardiogram on 17 June 1962 was suggestive of a coronary-artery occlusion, which was of interest because of the family history and because, on account of it, a diagnosis of fascioliasis might have been missed.

Investigations leading to the Diagnosis

On 25 June 1962 very scanty ova of *Fasciola hepatica* were found in the patient's faeces. Several more specimens were examined and *F. hepatica* ova were again found on 30 June. The finding of ova on 2 occasions at an interval of 5 days excluded the possibility of this being a chance ingestion of ova from foodstuffs without actual infestation.

A blood count on 27 June revealed a haemoglobin concentration of 14·8 G. per 100 ml. with a definite eosinophilia (11% of 8,500 leukocytes per cu.mm.). The sedimentation rate was 9 mm. in one hour (Westergren)—normal range for women 4 - 7 mm. The bilharzial complement-fixation test was negative.

A diagnosis of fascioliasis was now established and, in view of the experience of Facey and Marsden,[1] it was of considerable significance to learn that our patient had eaten a large amount of watercress during the summer of 1960 - 61 as several of their patients had done; she had obtained it from a small river in one of the Johannesburg suburbs.

Treatment

On 1 July 1962, treatment was begun with 'aralen' tablets (250 mg.). The dose was varied between 2 and 3 tablets a day, and at the end of 6 weeks she had taken 24·5 G. During this period she remained relatively free from pain but, at the end of 6 weeks, she had 3 attacks of pain in quick succession, one of the attacks being as severe as any she had ever experienced. On 8 July, treatment was changed and emetine injections (1 gr. daily) were given for 10 days. On the 7th day of the treatment another electrocardiogram was taken, but there was no significant change as compared with one taken on 3 August before treatment with emetine was begun.

At the time of writing the patient has had no recurrence of pain and states that she is feeling well (23 October 1963).

DISCUSSION

A few hundred cases of human fascioliasis have been reported in the world literature. The disease is rare in Britain, although an outbreak of 6 cases in Hampshire was reported in 1960 by Facey and Marsden.[1] The incidence of the disease among farm animals in England is high and becomes more marked in wet summers.[3] As far as we have been able to ascertain, only one case of human fascioliasis has been reported in the USA, although about one-third of the Jack-rabbits in Texas have been found to be infested.[2] There has been a marked increase in the number of human cases in France in the last few years,

and sporadic cases have been reported from other countries, including Germany, Cuba, and South America.[2]

A history of having eaten watercress or uncooked vegetables is significant, especially in areas where farm animals are heavily infested with the parasite.[1,3] As mentioned above, our patient ate large quantities of watercress from September 1960 to February 1961.

Fasciola hepatica is a parasite of herbivora (Figs. 1 and 2). The flukes live in the host's bile ducts, their eggs being passed in the faeces. The eggs hatch in water and motile miracidia enter certain types of snails. After multiplying

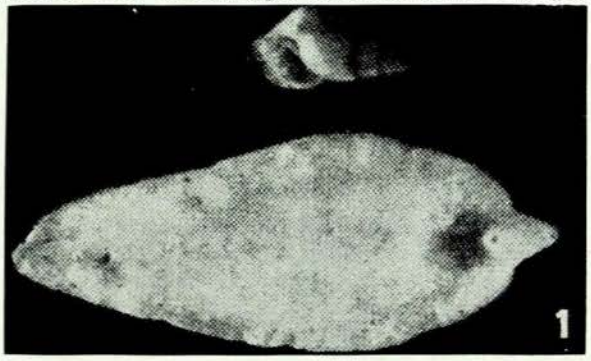

Fig. 1. Adult *Fasciolata hepatica* and its intermediate host, the snail *Limnaea truncatula,* both actual size. Fig. 1 and also Fig. 2 (photographs by R. H. Hunt) are from Facey and Marsden,[1] *British Medical Journal* (1960), **2**, 619, by kind permission.

in the snails they emerge as cercariae, which lose their tails and encyst on waterside vegetation. When this vegetation is ingested, the parasite excysts in the host's duodenum. It penetrates the gut wall, passes through the peritoneal cavity, and enters the dome of the liver through Glisson's capsule or occasionally by the portal vein. The larvae then traverse the liver substance to reach the bile ducts, where they mature and lay eggs. The time interval from the ingestion of the cysts to the laying of the eggs is about 3 - 4 months.

The invasive phase, with the larvae in the tissues, is usually characterized by symptoms of dyspepsia, abdominal pain, and possibly fever. The pain is very severe, often stabbing in character, and is usually situated in the right hypochondrium. Between attacks the persistence of indigestion may be the sole symptom. The liver is enlarged, often grossly so, for the parasite produces necrotic lesions when traversing the liver substance to the bile ducts. Other symptoms are urticaria, cough, wasting and asthenia. There may be latent periods during which the patient may have no symptoms for months or years. The presence of eosinophilia is characteristic. In the obstructive phase of the disease the adult flukes in the bile ducts irritate the biliary epithelium, causing thickening and fibrosis.

The snails that carry the parasite in South Africa are *Limnaea natalensis, Limnaea truncatula* and *Physopsis africanus*. They can be found in dams all the year round, and also in certain rivers.

In Johannesburg abattoirs in 1960, 4,245 (1·5%) of about 290,000 cattle slaughtered, and 3,721 (0·4%) of 940,000 sheep slaughtered, were infested with *Fasciola hepatica.*

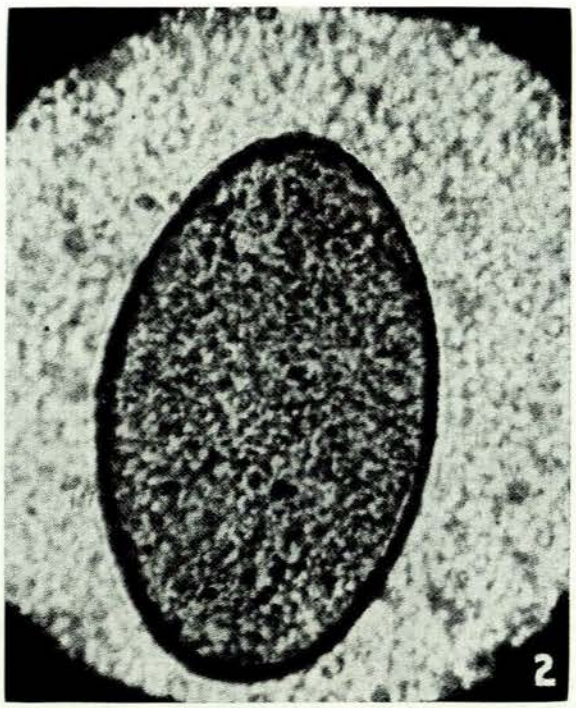

Fig. 2. Ovum of *Fasciola hepatica* (× 340).

The diagnosis of fascioliasis is not easy. Certain diagnosis depends on the finding of the ova in the faeces, which is not an easy matter and is best accomplished by the use of a formol-ether concentration technique, or on the discovery of flukes in the biliary apparatus at operation. The fascioliasis complement-fixation test is helpful, and most cases appear to have a definite and well-marked eosinophilia.

As regards the treatment of fascioliasis, the use of 'chloroquine' (aralen) usually produces symptomatic relief, but it is not curative. Kirk[4] described a case of an Egyptian physician who presented with a localized mass; an exploratory laparotomy was performed and a fluke was subsequently found in one of the bile ducts. Treatment of this case with chloroquine produced good results. Emetine treatment was first introduced in 1932, and is the treatment now commonly adopted. It is difficult to know how effective it is, especially as some cases of human fascioliasis have a fatal outcome.[5]

The apparent rarity of human fascioliasis in regions where farm animals are frequently infested may be due in some measure to incorrect diagnosis, and there is the possibility that some patients are symptomless carriers of the parasite.

SUMMARY

A case of fascioliasis occurring in a White woman in Johannesburg is discussed. As far as we are aware, no previous cases of this infestation in Europeans in South Africa have been reported. The literature on the subject is briefly reviewed and the diagnosis and treatment of the disease is discussed. A short survey of the incidence in animals at the Johannesburg abattoirs is given.

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