Transactions of the Royal Society of Tropical Medicine and Hygiene (2005) **99**, 798—800

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CASE REPORT

Fasciola hepatica in the human eye

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Received 15 September 2004; received in revised form 9 May 2005; accepted 9 May 2005

KEYWORDS
Fasciola hepatica;
Human eye;
Ectopic location;
Iran

Summary During intraocular surgery of a 44-year-old woman from Guilan Province in north Iran, a small flat parasite was removed from the anterior chamber angle of the left eye. According to morphological characterisation of the parasite, it was identified as *Fasciola hepatica*. The route of entry of the parasite was not identified. Meanwhile, stool and serology examinations of the patient for diagnosis of Fasciola infection were negative. In endemic areas of *F. hepatica* infection, ocular involvement should be considered in cases of uveitis, despite no other systemic involvement.

1. Introduction

Fasciola hepatica is a zoonotic helminth that is prevalent in most sheep-raising countries. Human infestation has been reported in many countries (Mas-Coma et al., 1999). Reports estimate that as many as 2.4 million (Rim et al., 1994) to over 17 million (Hopkins, 1992) people are infected with liver fluke worldwide. In 1989, an outbreak of human infestation of more than 10 000 cases living in Guilan Province, Iran (Caspian Sea Littoral) was reported (Massoud, 1990; WHO, 1995).

The biliary duct of the liver is the main site of establishment of the parasite. However, immature flukes may deviate during migration, entering other organs and causing an ectopic infestation (Mas-Coma et al., 1999). In humans, ectopic locations such as blood vessels, lung, subcutaneous tissue, ventricles of the brain (Chen and Mott, 1990; Garcia-Rodriguez et al., 1985; Mas-Coma et al., 1999; Neghme and Ossandon, 1943), and the orbit and eye (Arias et al., 1986; Cho et al., 1994) have been reported. In the present study, a case of unusual location of immature *F. hepatica* in the anterior chamber of the human eye is reported.

2. Case report

A 44-year-old woman from the Caspian Sea region (Anzali City) of north Iran presented with a red, painful left eye for 10 days. Visual acuity of the affected eye was perception of light with relative afferent pupillary defect. Slit lamp examination

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doi:10.1016/j.trstmh.2005.05.009

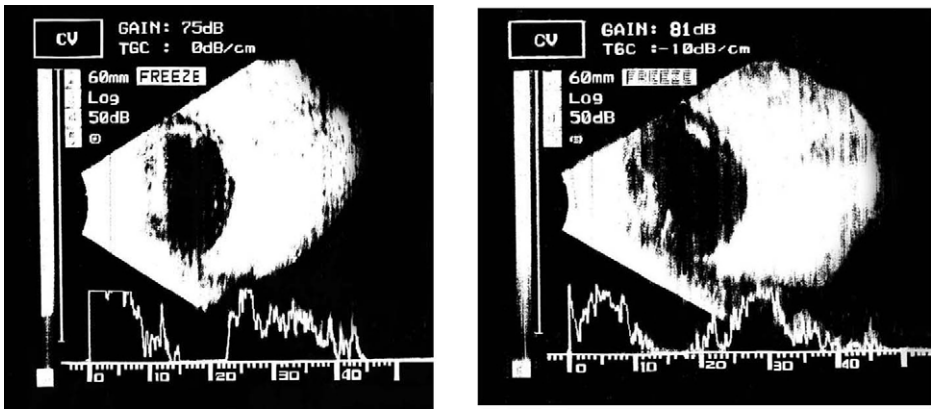

Figure 1 Ultrasound of the left eye of the patient.

showed left endophthalmitis. The anterior chamber was shallow with mixed hyphaema and inflammatory cells; there were 360° of posterior synaechiae and iris bombe. A small, flat, moving parasite was seen in the anterior chamber. Intraocular pressure in the left eye was 17 mmHg and in the right eye was 14 mmHg. There was some cataract but the fundal view was obscured by dense vitreitis and vitreous haemorrhage; however, ultrasound showed a flat retina (Figure 1). The right eye was normal with a vision of 6/6. At surgery, an anterior chamber maintainer was used and the hyphaema was washed out through paracentesis. The parasite was removed using forceps. A core vitrectomy and lensectomy were also performed, during which the retinal vasculature appeared abnormal, the retina showed patches of ischaemia but the optic disc appeared normal. Examination showed 3+ conjunctival hyperaemia, 2+ corneal oedema and deep anterior chamber with 2+ flare, and applanation intraocular pressure was 16 mmHg. On ophthalmoscopy, the retina was flat. At the end of surgery, subconjuctival injection of betamethasone 2 mg and gentamicin 40 mg was given. At the end of the third week, the eye was found to be quiet. Stool, blood and serum samples of the patient were taken for complementary examinations. The patient was followed up for 6 months. On the first day after surgery, slit lamp best corrected visual acuity (BCVA) was 6/60. After 6 months follow-up, the visual acuity decreased to 6/120 owing to corneal oedema and deep vascularisation.

Based on morphological examination of the parasite, an immature *F. hepatica* measuring 4.26 mm in length and 2.04 mm width was identified (Figure 2). Haematology and biochemistry analysis showed raised white blood cells to 14 300/μl (normal range, 5000—10 000/μl). However, there was no eosinophilia. Liver function tests were normal. On serology examination, *F. hepatica* antibody was negative using indirect fluorescent antibody test in which 1:20 serum titre was considered as positive. Examinations of stools using direct, formol-ether and modified Teleman methods were negative. Stool investigations were repeated five times. Ultrasound of the liver was also normal.

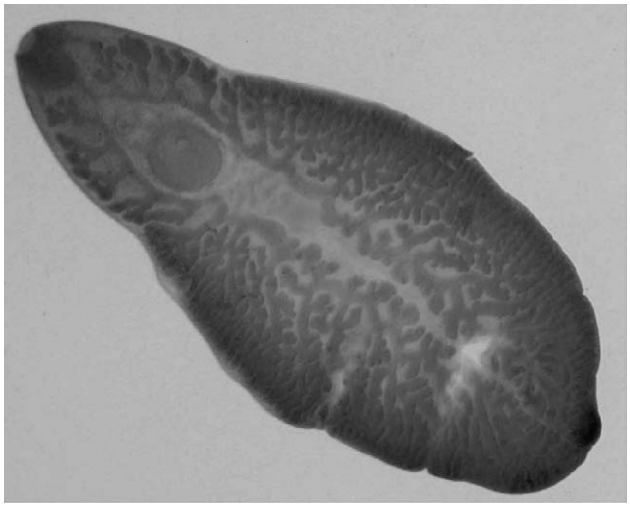

Figure 2 Immature *Fasciola hepatica* isolated from the left eye of the patient.

3. Discussion

The patient was living in Guilan Province (Caspian Sea Littoral), where human cases of fascioliasis were reported frequently. In 1989 an outbreak of more than 10 000 cases of human infestation was reported (Massoud, 1990; WHO, 1995). Although not all sources of the infection have yet been identified, an aromatic vegetable that is consumed uncooked, and locally called Khalvash, can be an important

source. Khalvash is a type of wild vegetable that grows in Anzali pool. Human infestation can be acquired by ingestion of contaminated vegetables or watercress. The metacercariae of *F. hepatica* excyst in the duodenum and migrate through the intestinal wall into the body cavity and through Glisson's capsule (the fibrous capsule of the liver), passing the liver parenchyma to the biliary ducts, where they establish and grow to maturity (Beaver et al., 1984). The migrating larvae may become lodged in ectopic foci. In humans, ectopic locations have been recorded in the blood vessels and other organs (Chen and Mott, 1990; Garcia-Rodriguez et al., 1985; Mas-Coma et al., 1999; Neghme and Ossandon, 1943), including the human eye (Arias et al., 1986; Cho et al., 1994). Cho et al. (1994) reported the case of a 28-year-old male whose right eye was infested with juvenile *Fasciola* sp. During slit lamp examination, the larva was recognised penetrating the iris, occupying the anterior chamber for a brief period, returning back behind the iris, and leaving mild corneal oedema with hyphaema (Cho et al., 1994). In a similar situation in our case, the parasite was seen in the anterior chamber of the left eye located in the canal near to the corneal limbus. Severe intraocular reaction, haemorrhage, diffuse vasculitis and retinal ischaemia of the patient may be caused as a result of the presence or irritation of the parasite in the vitreous body. Interestingly, despite the presence of retinal ischaemia, no retinal detachment was observed. Early vitrectomy and removal of the parasite resulted in a rapid response, with reasonable final visual acuity.

We were not able to identify the route of entry of the parasite larva into the anterior chamber of the eye. One possible route can be via the central retinal artery into the vitreous, causing vasculitis and endophthalmitis. In endemic areas of *F. hepatica* infection, ocular involvement should be considered in cases of uveitis. Patients may have no other systemic involvement, with only subacute infection and negative antibody.

Conflicts of interest statement

The authors have no conflicts of interest concerning the work reported in this paper.

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