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Human fascioliasis

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ABSTRACT

Fasciola hepatica, a zoonotic liver fluke, can also cause disease in humans. Common symptoms are epigastric pain, upper abdominal pain and malaise. Fever and arthralgia are common in acute fascioliasis. Eosinophilia is the predominant laboratory finding, especially in patients with the acute form of the disease. Diagnosis and treatment is not easy, as physicians rarely encounter this disease, and effective drugs are not available in many countries. Human fascioliasis may be underestimated. Patients with eosinophilia and abdominal pain should be evaluated for *F. hepatica* infestation by parasitological, radiological and serological tests.

Keywords Diagnosis, fascioliasis, *Fasciola hepatica*, treatment

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Fascioliasis is a zoonotic disease caused by the trematode *Fasciola hepatica*. It can infect a wide variety of mammalian hosts, particularly sheep, goats and cattle. Humans become infected after eating aquatic plants on which encysted organisms are present or by drinking contaminated water. Over the period 1970–90, 2594 human cases were reported in 42 countries, and the World Health Organisation now recognises fascioliasis as an important disease in humans [1].

The definitive diagnosis of fascioliasis is based on the presence of *Fasciola* eggs in a stool or gallbladder sample, or on a positive serological test plus radiological findings indicating fascioliasis [2]. Patients are classified according to the duration of their symptoms and the ultrasonographic findings. If the duration of symptoms is <4 months and there are no motile echogenic images in the gallbladder on admission, it is classified as acute. If symptoms persist for >4 months or there are motile echogenic images in the gallbladder, it is classified as chronic. If fascioliasis is defined during investigation for eosinophilia detected in routine screening, or during investigation of a patient's family members, it is classified as latent.

Fifty-three cases of human fascioliasis were diagnosed at the Akdeniz University Hospital, Infectious Diseases Department in 1998–2003. This is a 640-bed hospital for patients requiring specialised medical care in Antalya, southern Turkey. The mean age of these patients was 42 years (range 9–75 years), with 21 males and 32 females. Thirty-two patients lived in the centre of Antalya, 14 in the surroundings, and seven both in Antalya and in the surroundings. Twenty-eight patients presented with the acute form, 19 with the chronic form, and six with latent infection. Of these six, one (with fascioliasis diagnosed by serological testing) was a relative of two other patients, two were diagnosed during investigations for eosinophilia detected in routine screening, and three had ultrasound examination because of other medical problems. The commonest symptoms were epigastric pain (29 patients; 55%), right upper abdominal pain (20 patients; 38%), and malaise (20 patients; 38%). Fever and arthralgia were statistically more common in the acute form than in the chronic form (p 0.02 and p 0.03, respectively). The main clinical characteristics of the 53 patients are summarised in Table 1. Significant laboratory and diagnostic data are summarised in Table 2.

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Table 1. Demographic and clinical symptoms of 53 patients with fascioliasis

	Acute (*n* = 28)	Latent (*n* = 6)	Chronic (*n* = 19)	p
Sex				
Male	16	2	3	
Female	12	4	16	
Age (years)				
Mean	42 ± 16	50 ± 17	50 ± 18	0.28
Clinical symptoms				
No		6		
Yes	28		19	
Fatigue	13 (54%)		7 (37%)	0.56
Epigastric pain	16 (57%)		13 (68%)	0.54
Right upper quadrant pain	10 (36%)		10 (53%)	0.36
Fever	12 (43%)		2 (11%)	0.02[a]
Nausea	8 (27%)		8 (42%)	0.36
Myalgia	3 (11%)		1 (5%)	0.13
Arthralgia	7 (25%)			0.03[a]
Weight loss	4 (14%)		2 (11%)	1
Sweating	3 (11%)		1 (5%)	0.13
Pruritis	5 (18%)		1 (5%)	0.37
Cough	4 (14%)		1 (5%)	0.63
Place				
Urban area	17 (61%)	5 (83%)	10 (53%)	0.15
Surroundings	5 (18%)	1 (17%)	8 (42%)	
Both urban and surroundings	6 (21%)		1 (5%)	

[a]$p < 0.05$.

Table 2. Laboratory findings and diagnostic methods used for patients with fascioliasis

	Acute (*n* = 28)	Latent (*n* = 6)	Chronic (*n* = 19)	p
Laboratory findings				
Eosinophilia	28	3	4	
Mean count/mm^3	5076 ± 3582	3371 ± 4147	404 ± 380	0
Elevated ALT level	13 (46%)	2 (33%)	3 (16%)	0.094
Elevated acute-phase reactant	15 (54%)	1 (17%)	7 (37%)	0.2
Diagnostic method				
Eggs in faeces	1		2	
Ultrasound-guided aspiration[a]	2		1	
Liver sonography	22	5	15	
Pathology[b]	3	1	2	
ELISA test for parasite antibody	28	6	18[c]	

[a]Four patients only.
[b]Six patients only.
[c]One patient not tested.
ALT, alanine aminotransferase.

Triclabendazole tablets (CGP 23030; Novartis, Basel, Switzerland) 10 mg/kg, one dose post-prandially, were given to 37 patients, and 20 mg/kg was given in two divided doses to 13 patients. Two patients refused to take the medication and went to another hospital, and one patient underwent surgery only. Before diagnosis and triclabendazole treatment, five patients underwent surgery, two patients were treated with praziquantel, and one patient underwent endoscopic retrograde cholangiography. Thirteen patients who were given triclabendazole did not return; treatment was successful in 30 patients. Seven patients did not respond to the first course; two of these had both symptoms and echogenic, non-shadowing motile particles in the gallbladder, three had symptoms only, and the remaining two had no symptoms, but non-shadowing motile particles were seen in the gallbladder. Four of the non-responders were treated successfully with a second course, and two of the non-responders were treated with three additional courses. One did not respond to triclabendazole, but was then treated successfully with albendazole. The remaining two patients were given additional triclabendazole, but did not attend for follow-up. The drugs were well-tolerated, and only moderate side-effects were seen. Most cases in Turkey documented previously were found coincidentally with cholecystectomy [3–6], but 47 of our 53 cases were diagnosed without surgery.

F. hepatica infestation has two distinct phases. The clinical symptoms vary considerably according to the phase of the disease [7–10]. The acute or hepatic phase of the illness occurs when the organism perforates the liver capsule and begins to migrate towards the biliary system. The symptoms during this phase are related to the destruction and inflammatory response caused by the migrating larvae, characterised by fever and pain in the right upper quadrant. Frequent complaints during the acute phase were epigastric pain (16 patients; 57%), fatigue (13 patients; 46%), fever (12 patients; 43%), and right upper quadrant abdominal pain (ten patients; 36%). Four patients had cough and five had pruritis (two of these had both pruritis and a cough, which made diagnosis difficult at presentation). This phase usually lasts for 3 months after ingestion of the metacercariae, after which, as the parasite enters the bile canaliculi, the symptoms may decline or disappear completely. This second phase is the biliary or chronic phase. Occasionally, some patients develop symptoms of biliary obstruction, frank cholangitis or pancreatitis. Seventeen of our 53 patients presented at the chronic stage of disease, but none had biliary obstruction. Their symptoms were mild; 13 (68%) had epigastric pain, ten (53%) had right upper abdominal quadrant pain, and eight (42%) had nausea. One patient had a cough and another patient had pruritis at presentation.

Only 13 (25%) patients had a history of ingestion of watercress. Fascioliasis should always be considered in patients from endemic areas with a

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history of ingestion of aquatic plants. However, lack of such a history does not rule out infection, because there is also evidence that infection can be acquired by drinking contaminated water [11,12].

Diagnosis may be problematical and delayed because physicians rarely encounter this disease and a long list of other diseases must be included in the differential diagnosis. During the acute phase, stool studies for ova are unhelpful, since the parasites cannot produce eggs before invasion of the biliary tree [7–9]. Negative stool examinations do not rule out fascioliasis. Serological tests for *F. hepatica* E-S antigens are useful in establishing an early diagnosis [12–14]. Radiological findings are also helpful [2,15–17]. As indicated above, the clinical spectrum of fascioliasis is variable, but eosinophilia is the most frequent laboratory abnormality in acute cases.

Triclabendazole, given as a single oral dose of 10 mg/kg or, in cases of severe infection, 20 mg/kg divided into two doses, is the drug of choice for the treatment of *F. hepatica* infestations [18]. A patient can respond to treatment even when there is obstruction of the biliary system [11]. The cure rate among our own patients was 78%, and the addition of another course(s) increased this to 90%. No significant side effects have been reported to date, but this drug may not be readily available in many countries, including Turkey.

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