Hepatobiliary fascioliasis: A neglected tropical disease

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ABSTRACT

Human fascioliasis is a zoonotic disease caused by two parasites of class Trematoda, namely *Fasciola hepatica* and *F. gigantica*. It is prevalent, particularly in regions with farming communities having sheep or cattle. In India, cases are not frequently reported despite being one of the dominant countries in livestock production. Usually, humans are incidental hosts that acquire infection by ingesting contaminated aquatic vegetation or water. If not diagnosed timely, it can lead to fatal complications.The authors report a case of hepatobiliary fascioliasis in a female presented with non-specific complaints. A thorough investigation including parasitological evaluation helped to reach the diagnosis. This case highlights the importance of awareness, diagnosis and appropriate treatment of fascioliasis with Triclabendazole for complete cure.

Keywords: *Fascioliasis, Hepatobiliary, Triclabendazole.*

Human fascioliasis is a global disease and reported from more than 75 countries worldwide. Since no reported deaths are associated with fascioliasis, it is ranked as a neglected tropical disease (NTD) [1]. Patients usually complaints of irregular fever, eosinophilia, and abdominal pain but the clinical presentation can vary from mild to severe in nature [2]. Even asymptomatic cases are relatively frequentin endemic rural areas. This infection is treatable with a single dose of Triclabendazole as recommended by the World Health Organization (WHO) because failures are noted with drugs like Praziquantel or Nitazoxanide. Preventive measures should be considered which include education on the mode of transmission and boiling or drying fresh watercress before eating [3]. In a country like India, where availability of advanced diagnostic modality is a limitation, diagnosis is always based on microscopic examination of stool or duodenal content or bile.

Few case reports and incidental findings have been reported from India but epidemiological data on the prevalence is not available because of difficulty in the identification of cases and lack of awareness. We report a case of hepatobiliary fascioliasis in a female patient with an uncommon presentation. A high index of suspicion along with diagnostic workup is warranted forthe successful outcome of the patient.

CASE REPORT

A 54-year-old female presented with complaints of multiple episodes of non-bilious, intractable vomiting associated with vertigo for six days. Pain in upper right quadrant which was intermittent and extreme in nature, generalised myalgia and fever on & off low-grade for eight days. History of headache, icterus or hematemesis was ruled out. The patient had a past history of the liver abscess five years ago which was treated and resolved. The patient gave a history of travelling to Rajasthan a few months back.

At the time of admission, there were no significant findingson systemic examination. On physical examination, the patient was febrile with pulse rate 88/min and 18 breaths /min respiratory rate.

The patient had raised liver function tests: bilirubin 4.2 mg/dl, serum glutamic oxaloacetic transaminase (SGOT) 101 U/L

Figure 1: Macroscopic image of the specimen submitted for examination.

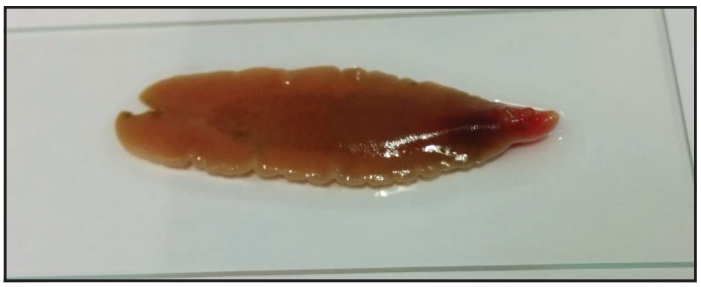

Figure 2: Parasite with two suckers: extreme anterior and ventral sucker.

and serum glutamic pyruvic transaminase (SGPT) 229 U/L. Hemogram showed 78% neutrophils, 12% lymphocytes and 0 eosinophils. Ultrasonogram (USG) of the abdomen revealed dilated common bile duct along with a thin linear irregular structure within gall bladder and distal common bile duct which suggested further investigation. Later on, magnetic resonance cholangiopancreatography (MRCP) was done that showed dilated biliary tract with irregular filling defects. In view of that, endoscopic retrograde cholangiopancreatography (ERCP) was advised for sphincterotomy. During the procedure, flat leaf-like moving structure was observed accidentally in the common bile duct, which was removed and sent to the microbiology laboratory for further identification.

On macroscopic examination, the specimen was flat, leaf-like with an approximate size of 28 mm X 13 mm and brown to brick red in colour (Fig. 1). The anterior end had cone-shaped projection while the posterior end was broadly pointed. Two suckers were present: one at the extreme anterior end and ventral sucker immediately posterior to the darkly pigmented structure of the organism (Fig. 2). Based on the characteristic morphological appearance, an adult worm of *F. hepatica* was suspected. The captured images of the worm were sent to Centre for Disease Control and prevention (CDC), Atlanta, USA for the identification and it was confirmed as an adult worm of *F. hepatica*. The patient's stool specimen was asked for microscopic examination but the wet mount didn't show ova.

The patient was started on Albendazole (10mg/kg/day) and Ivermectin (200µg/kg/day) for 7 days. Soon after the diagnosis, a single dose of Triclabendazole was advised and the drugs were changed. Prednisolone at a dose of 10-20mg/day was given to prevent an immunological reaction against toxic products released by dead worms in the body. The patient was discharged after 5 days of observation and lost for follow-up.

DISCUSSION

Fascioliasis is one of the significant parasitic infections known to cause biliary tract inflammation and obstruction. Symptoms may vary but commonest are fever, biliary colic with vomiting, malaise, persistent diarrhoea, anorexia, weight loss and peripheral eosinophilia [4]. Till date, a few case reports and incidental findings were reported on the basis of imaging or endoscopy from India [5,6,7]. The low prevalence may be due to the lack of basic knowledge and practices of such parasitic infections.

Humans are incidental hosts that acquire infection by ingestion of aquatic vegetations like watercress or by drinking water. This parasite completes its life cycle in two different hosts. The definitive hosts are sheep, goat, cattle or man and intermediate hosts are snails. Adult worms that reside in biliary passage pass eggs in feces which in water develop into a ciliated miracidium. The miracidium passes through different stages of sporocyst in the intermediate host. The mature cercariae are released from the snails after aperiod of 30-60 days and get settled in water or over vegetation. This encysted cercariae gets access to definitive hosts through ingestion. In the duodenum, excystation occurs and motile parasitic form migratesfrom the intestinal wall, traverse through the peritoneal cavity and get settle in the biliary passage. Within a month, cercariae transform into adult forms and start releasing eggs. The eggs are passed in the feces through the bile in about 3–4 months after infection and the cycle is then repeated [8].

During the migration of the mature cercariae, they cause extensive damage to the liver tissue by mechanical irritation as well as by their toxic secretion. Based onthe pathological changes in the biliary tract, hepatobiliary infection is divided into two distinct phases: an acute hepatic phasewhich is clinically manifested by the upper abdominal pain, fever, hepatomegaly, intense eosinophilia and the chronic biliary phase where the adult worm causes periodic biliary obstruction. Intense peripheral eosinophilia is noted in both phases of infectionbutmany cases have been reported in which eosinophilia was absent [9]. Furthermore, in endemic areas of developing countries, eosinophilia may also be caused by other helminthic infections and local food habits.

The causative agent of fascioliasis could be *F. hepatica* or *F. gigantica.* The size and shape of the eggs is a crucial diagnostic feature because both species can co-existand they have different transmission and epidemiological characteristics.Valero *et al* [10] had suggested the differentiation of species by applying the size ranges. *F. gigantic* doubles the size of *F. hepatica* and the posterior end of the *F. hepatica* is pointed, whereas, *F. gigantica* is rounded. However, molecular methods at the gene level are required for further confirmation of species.

Microscopic examination of stool is one of the easiest diagnostic methods but multiple specimens needed to be examined because of intermittent shedding of eggs. Specific tests are required because negative fecal specimens do not exclude the diagnosis [11]. Serology is useful in the early detection prior to the appearance of eggs in thefeces. Even declining antibody titers correlate with successful treatment but antibodies persist for years after infection [12]. So, serological diagnosis could be debatable. Demerdash *et al* [13] showed sensitivity and specificity of 96% and 98.2% in the stool while 94% and 94.6% in the serum respectively as detected through Enzyme-linked immunosorbent assay (ELISA). Radiological features in endemic regions are helpful too for diagnosis. Some findings observed in biliary phase are biliary wall thickening, echogenic worm casts, and intrahepatic biliary radicle dilatation. ERCP may be normal in early disease and mimics closely primary sclerosing cholangitis in the chronic phase.

For treatment, the WHO recommends a single dose of Triclabendazole 10mg/kg body weight for a complete cure.

Nitazoxanide found to be well tolerated with a cure rate of 40% and 60% in children and adults, respectively [14]. Treatment failures are common with Praziquantel; therefore, it is not recommended. Preventive measures, which include information, education and communication on the mode of transmission, are effective too. Public health measures and environmental measures such as containment of the intermediate host and drainage of grazing lands in endemic areas are recommended. Family members of the patient should also be screened for the infection as they may harbor the parasite with or without symptoms since they share the common food and water.

Fascioliasis has a patchy distribution worldwide, with foci related to the local distribution of intermediate host population and farming. Hybrid species have been reported in regions with a geographical overlap of two species [15]. In India, the geographical distribution of species is not clearly documented. Till date, cases of human fascioliasis have been reported from the north and northeastern India including Assam, UP and Bihar. So, the patient with supporting clinical history should be suspected of fascioliasis. Stool routine microscopy examination and their treatment is simply a short course of anti-helminthic therapy.

CONCLUSION

Although not well-documented in India, ahigh index of suspicion for diagnosis is warranted in patients presented with abdominal pain, hepatomegaly and focal lesions in the liver with or without eosinophilia. The occurrence of this disease in India could be greater than previously reported.Once diagnosed, should be treated with a single dose of Triclabendazole for a complete cure.

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