

Cases of Human Fascioliasis in north-west Ethiopia

Bitew Bayu¹, Sebhat Asnake², Alemseged Woretaw³, Jemal Ali², Molla Gedefaw⁴, Tsegaw Fente⁵, Assefa Getachew⁶, Sintayehu Tsegaye¹, Tamiru Dagne⁷, Gashaw Yitayew⁴

Abstract

This report presents four cases of human fascioliasis in Gondar town, northwest Ethiopia. There are only few case reports of human fascioliasis in Ethiopia as the disease mostly affects animals. However, the need to be aware of the possibility of occurrence of this disease in humans and the inclusion of drugs used for treating the disease, in the Ethiopian drug list, should be emphasized. [*Ethiop.J.Health Dev.* 2005;19(3):237-240]

Introduction

Fascioliasis is a parasitic disease of the biliary ducts that primarily affects animals. It is a trematode infection caused by the two major species of *Fasciola*: *Fasciola hepatica* and *Fasciola gigantica*. Like the schistosomes, the life cycle of these parasites is tightly knitted to water and snails (1-3).

Human cases of fascioliasis have been reported in South America, Europe, Africa, Australia and the Far East with an estimated 2.4 million cases worldwide. The number of people infected with *Fasciola hepatica* has increased significantly since 1980. Several geographical areas have been described as endemic for the diseases in humans. Humans acquire the infection through the ingestion of metacercaria that are attached to certain aquatic plants and vegetables. Infection may also be acquired by the consumption of contaminated water, or the ingestion of food items washed with such water (2-4).

In Ethiopia, fascioliasis is mainly an animal disease, causing a great economic burden in the highland areas of the country. There are only a few reported cases of the disease in humans and even those reports are suspected to be cases of false fascioliasis i. e. finding of *Fasciola* eggs in the stools of people who had recently consumed the livers of infected sheep or cattle (1, 5).

This study presents four cases of human Fascioliasis that were encountered at Solomon clinic in Gondar town.

Case Series

Case 1: A 65 year old male patient, who is a resident of Gondar town, experienced an insidious onset of epigastric pain three years ago. This was associated with the passage of mucoid substances in his stool samples. In addition, he had mild fever, nausea and anorexia. He had no recent history of ingestion of raw cattle or sheep liver, but he used to eat vegetables frequently. Stool examination revealed the presence of ova of *Fasciola*

species (Figure 1), repeatedly. The patient was treated with a standard dose of triclebendazole, and showed symptomatic improvement and the stool became negative for the ova of the parasite. A year later, the patient began to experience symptoms similar to the previous episode and again his stool became positive for the ova of *Fasciola* species. No abnormality was detected on physical examination. His abdominal ultra-sound scan and liver function tests (LFT) were also normal. But the white blood cell (WBC) differential count showed an eosinophilia of 16%. The patient claims that he had stopped eating raw vegetables ever since his first illness.

Case 2: A 10-year old female child from Gondar town began to feel epigastric pain six months prior to presentation at Solomon clinic. Associated with this, she had anorexia, nausea and fatigue. She was also having fever, urticaria and generalized itching sensation. At that time she was treated for allergy and the itching and the urticaria subsided. But the abdominal symptoms persisted and her parents noted that she was losing weight. She had no history of ingestion of raw vegetables. She had not consumed cattle or sheep liver in the week of her presentation. Her family used tap water for drinking and for household consumption. No abnormality was detected on physical examination. She had a normal abdominal ultra-sound scan. But her serum alkaline phosphatase was found to be elevated to twice the normal level. Her WBC differential count showed an eosinophilia of 12%. On stool examination, the ova of *Fasciola* species were detected.

Case 3: A 70 year old male patient from Gondar town presented with a major complaint of prolonged abdominal pain for one year. He also had occasional bouts of diarrhoea associated with the passage of mucus during this period. He had a history of ingestion of raw vegetables but had no recent history of consumption of sheep or cattle liver. The man was living in a rural locality in north-west Gondar before he came to Gondar

¹Solomon Clinic, Gondar town; ²University of Gondar, Department of Microbiology and Parasitology, College of Medicine and Health Sciences, Fax 08111479, E-mail: sebhataasnake@fastmail.fm, P.O. Box, 196, Gondar, Ethiopia; ³University of Gondar, Department of Biochemistry; ⁴Gondar University Hospital; ⁵University of Gondar, Faculty of Veterinary Science; ⁶University of Gondar, Department of Radiology; ⁷University of Gondar, Department of Medical Laboratory

town seven years back. He used river water for drinking. No abnormality was detected on physical examination. Stool examination revealed ova of *Fasciola* species. His WBC differential count showed an eosinophilia of 20%. Thickening of the biliary ducts was detected upon abdominal ultra-sonographic examination. However his LFT was normal.

Case 4: A 22-year old pregnant lady from Gondar town came for an antenatal follow up. She had no abdominal complaints. She had a history of ingestion of raw

vegetables but had not recently consumed the liver of sheep or cattle. She was living in a rural village located around Lake Tana before she came to Gondar town five years back. She used to drink river water. No abnormality was detected on physical examination. Routine stool examination showed ova of *Fasciola* species. She had eosinophilia of 10%. But her ultra-sound scan and LFT were normal.

A summary of the cases is given in Table 1 below.



Figure 1: Ova of *Fasciola* species under microscope

Table 1: A summary of four cases of human fascioiasis in North-west Ethiopia

Case	Age	Sex	Complaints	Duration	risk factors Identified	Ova of <i>Fasciola</i> in stool	Abdominal Ultra-sound	Liver function test	WBC and differential count
1	65	M	Nausea, vomiting, mild fever, epigastric pain	3 years	Raw vegetable ingestion	Yes	Normal	SGOT=34U/L SGPT+19 U/L Alk. Phosphatase =125 U/L	WBC=5,050 N=56% L=28% E=16%
2	10	F	Anorexia, nausea, urticaria, itching, weight loss	6 months	None	Yes	Normal	SGOT=57 U/L SGPT=21 U/L Alk. Phosphatase =213 U/L	WBC=7,800 N=64% L=24% E=12%
3	70	M	Abdominal pain, intermittent diarrhea	1 years	Raw vegetable ingestion, drinking river water	Yes	Thickening of biliary ducts	SGOT=55 U/L SGPT=43 U/L Alk. Phosphatase =135 U/L	WBC=5,500 N=54% L=26% E=20%
4	22	F	None	unknown	Raw vegetable ingestion, Drinking river water	Yes	Normal	SGOT=33 U/L SGPT=26 U/L Alk. Phosphatase =136 U/L	WBC=7.700 N=60% L=30% E=10%

SGOT= Serum glutamate oxaloacetate transferase
SGPT=Serum glutamate pyruvate transferase
Alk. Phosphatase=Alkaline phosphatase

N=Neutrophils
L=Lymphocytes
E=Eosinophils

WBC=White blood cells

Discussion

In humans, *Fasciola* causes a spectrum of diseases from mild to severe ones depending on the extent of infection. Digestive disturbance, fever and epigastric or right upper quadrant abdominal pain are early symptoms which occur during the migration of the parasite to the liver. Allergic manifestations may follow and eosinophilia is the predominant laboratory finding. Symptoms and signs usually subside as parasites reach the biliary duct (their final habitat). But some patients may continue to have abdominal symptoms, hepatomegally and jaundice. Extensive liver damage may eventually result in cirrhosis with a shrunken liver and portal hypertension (2-3, 6).

Diagnosis of Fascioliasis can be made by recovering the ova of the parasite in the stool of the infected person. Duodenal aspirates could be taken to increase the yield (2-3).

The finding of eosinophilia in the blood of suspected cases is supportive evidence about infection with *Fasciola*. There are also different serological tests that can be used to detect the antigens of the parasite or antibodies produced against them. The sensitivity of the diagnosis of fascioliasis by recovering the ova is low compared with the serological techniques. On the other hand, the serologic tests may have some cross reaction with *Schistosoma* infections. In addition, imaging techniques like ultra-sonography and computerized tomography are helpful in making diagnosis. But the sensitivity of ultra-sound to detect the signs of fascioliasis is low compared with the CT-scan (3-2, 6-7).

The currently approved drug for treating human fascioliasis is triclebendazole. But the drug is not found in the national drug list and hence, it is not available in the country (3, 8).

Analysis of the cases in this series shows that abdominal pain and eosinophilia are common in human fascioliasis. Patients may be asymptomatic as in the fourth case. Ingestion of raw vegetables is a common denominator in the series except the third case. In addition, two of the cases had been using river water for drinking. The patients were asked if they had recently consumed the liver of cattle/sheep to rule out the possibility of false fascioliasis. None of the patients had jaundice or hepatomegally as a sign of involvement of the liver and the biliary ducts. But the third case showed a thickening of the biliary ducts on ultra-sound examination and the second case had an elevated serum alkaline phosphatase level which can be a sign of involvement of the biliary ducts. In general, there was not much ultra-sonographic finding as might have been expected from the sensitivity of the test.

To date, there have been very few case reports of human fascioliasis in Ethiopia. On the other hand, studies done

in some areas of the Nile Delta in Egypt have reported prevalence rates of human fascioliasis as high as 12.8 % (9). Considering the high prevalence of fascioliasis in cattle and sheep in the Ethiopian highlands (especially in the Blue Nile and Lake Tana basins), it could be deduced that fascioliasis may have a significant impact on human health in these areas.

Conclusion

The compilers of this report believe that the disease has been underreported in Ethiopia due to the low yield of stool examination and a lack of awareness. There is a need for a population based survey for human fascioliasis, in the swampy areas of the Nile basin and the shores of Lake Tana. Besides, clinicians and laboratories in the area should be aware of the disease and should be encouraged to report emerging cases. Through this communication, the authors would also like to emphasize the need for the inclusion of triclebendazole in the national drug list of Ethiopia.

Acknowledgement

Our special thanks go to Ato Solomon Adugna, Head of the Department of Biochemistry of Gondar University, for his assistance in taking the pictures of the ova of the parasite. We thank all those who have been involved in documenting these cases.

Reference:

1. Mekete G, Mohammed Adem A. Parasitology for medical laboratory technology students. Jimma University, Faculty of Public Health, 2003:42-44.
2. Myron Levine M: Fluke infections, In: Strickland, G.T, editor. Hunter's tropical medicine and emerging infectious diseases, eighth edition, Saunders, 2000:844-7.
3. Gerald. Schistosomiasis and other trematode infections. In: Braunwald, Fauci, Kasper, Hauser, Longo, Jameson, Editors. Harrison's principles of internal medicine, 15th edition, McGrawHill. 2001:1247.
4. Mas-Coma MS, Esteban HG, Bargues MD. Epidemiology of human fascioliasis: A review and proposed new classification. Bull World Health Organ. 1999;77(4):340-6.
5. Tedla S. Introduction to parasitology: Protozoan and Helminth Parasites of Man. Addis Ababa University Press, Addis Ababa, Ethiopia. 1986:60-5.
6. Saba R, Korkmaz M, Inana D, Mamikoglu L, Turhan O, Gunseren F, Cevikol C, Kabaalioglu A. Human fascioliasis. Med Clin (Barc).1981;76(5):230-2.
7. Hassan MM, Moustafa NE, Mohamoud LA, Abbaza Be, Hegab MH. Prevalence of *Fasciola* Infection among school children in shakia Governorate, Egypt. J Egypt Soc Parasitol. 1996;25(2):543-9.
8. Drug Administration and Control Authority (DACA) of Ethiopia. List of Drugs for Ethiopia (LIDE),

Fourth Edition. Universal Printing Press, Addis Ababa, Ethiopia. 2002.

9. Esteban JG, Gonzalez C, Curtale F. et al. Hyper endemic Fascioliasis associated with Schistosomiasis in villages in the Nile Delta, Egypt. *Am J Trop Med Hyg.* 2003;69(9):429-37.