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HUMAN FASCIOLIASIS AMONG IMMIGRANT WORKERS IN SAUDI ARABIA

By
EBTESAM M. EL-MATHAL
AND MAHMOUD A.H. FOUAD
Department of Zoology, College of Science for Girls, Dammam, and Department of Medical Parasitology, Faculty of Medicine, King Abdel-Aziz University, P.O. Box 80205, Jedda 21589, Saudi Arabia

Abstract

Animal fascioliasis has been reported in Saudi Arabia among imported and local sheep. The paper demonstrated the parasitological and clinical features of human fascioliasis in nine out of ten male immigrant manual workers with manifestations suggesting fascioliasis. The sedimentation and Kato-Katz techniques proved effect in diagnosing *Fasciola* species eggs in human stool. The common clinical features were abdominal distension, flatulence, tender right-upper quadrant and easy fatigability and the least was the tinge of jaundice. Others as right upper quadrant pains, colicky abdominal pains & vomiting, epi-gastric pain and mild fever, and tympanitic abdomen were encountered. Anaemia and eosinophlia were also encountered in the ten patients. Fascioliasis patients (nine) were successfully treated with Mirazid® as two capsules (600 mg) on an empty stomach an hour before breakfast for six consecutive days. Follow-up clinically and parasitologically was available in only seven fascioliasis patients who were completely cured. Follow-up for the other two fascioliasis patients was out in hand. Other parasites recovered in the stained (eosin, iodine and Zeihl-Nelson stains) smear stool samples was *Entamoeba histolytica*, *Giardia lamblia* and *Cryptosporidium parvum*. Besides, three were free from intestinal protozoan. The results were discussed on the light of the other work carried out regionally.

Introduction

Generally, animal fascioliasis as an increasing zoonotic liver flukes is a world wide health problem not only in the Arab countries Haridy *et al.*, 1999; Haseeb *et al.*, 2002), but in European and American countries (Mas-Coma and Bargues, 1997). On the other hand, sheep are among the most important livestock in Saudi Arabia and mutton is the preferred and the most consumed meat all-over the year throughout the kingdom (Abou-Zenadah, 2005). In Saudi Arabia, Magzoub and Kasim (1978) reported 0.04-2.4% fascioliasis and Ghandour *et al.* (1989) reported 0.28% among slaughtered sheep at different regions. Also, fascioliasis natural infection in rodents was reported (Abou-Zenadah and Fouad, 2005).

This work aimed at clarification of the clinical and parasitological picture of these human fascioliasis cases to be in mind.

Subjects, materials and methods

A total of ten immigrant manual workers (25 to 45 years-old males) were referred for blood, urine and stool analysis. They complained of some vague sings and symptoms ranged between colic and sometimes mild fever to severe abdominal pain particularly in the right hypochondria with or without vomiting.

Blood, urine and samples were taken for the routine laboratory examination. Stool samples were taken on three successive days and examined for protozoa parasites by eosin and iodine stain as well as by Zeihl-Nelson stain (Garcia, 2001) as well as by using the sedimentation and the Kato-Katz techniques (Katz *et al.*, 1972).

The parasitologically positive fascioliasis patients were treated with extract of *Commiphora molmol*, which is a medicinal plant of Family: Burseraceae) (Wallis, 1967), the locally named in Saudi Arabia: Myrrh, Gum Myrrh/Myrrha (Commercially known as Mirazid®). Follow-up for the cure rate was carried out by using the stool sedimentation and the Kato-Katz techniques, every two weeks for two months

Results

The results are shown in tables (1, & 2).

Table 1: Results achieved among patients by routine blood, urine and stool examinations.

No.	Age	Blood E% Hb%	Urine	Stool stained smear
1	33	10 9.9	-ve	*Entamoeba histolytica*
2	40	12 12.0	-ve	*Giardia lamblia*
3	42	8 10.6	-ve	*G. lamblia*
4	25	4 9.5	-ve	*E. histolytica*
5	30	15 10.5	-ve	*Cryptosporidium parvum*
6	34	10 11-0	-ve	*Cryptosporidium parvum*
7	28	4 12.0	-ve	Negative
8	29	8 11.5	-ve	*E. histolytica & C. parvum*
9	31	4 11.0	-ve	Negative
10	45	4 10.5	-ve	Negative

E%= Eosinophilia, Hb%= Haemoglobin. Nine patients shown *Fasciola* sp. eggs in stool by using sedimentation and Kato-Katz techniques.

Table 2: Clinical data of ten fascioliasis patients.

Symptoms and signs	+ve	Positive %
Asymptomatic	-	-
Abdominal distension & flatulence	3	30
Right upper quadrant pains	2	20
Colicky abdominal pains & vomiting	2	20
Easy fatigability	3	30
Epi-gastric pain and mild fever	2	20
Tinge of jaundice	1	10
Tender right upper quadrant	3	30
Tympanitic abdomen	2	20

Other clinical data as weight loss, anorexia, nausea, vomiting, discomfort after meals and heart burn.

Discussion

In the present study, all the ten patients proved to be infected with *Fasciola* species as demonstrated by the recovery of the eggs in stools. No doubt, they acquired the infection abroad, as they were manual workers and recently came to the kingdom.

In the present study, the protozoan parasites recovered in a descending order was three *C. parvum*, three *E. histolytica* and two *G. lamblia*. Double protozoan infection was demonstrated in only one patient. On the other hand, three patients were protozoan free. By using the sedimentation and the Kato-Katz techniques, *Fasciola* sp. ova were recovered in the stools of nine patients. The *Fasciola*-free patient was that No. 8 who had *E. histolytica* and *C. parvum*. These three intestinal protozoan parasites, *E. histolytica* (Shoura and Morsy, 1973) and *G. lamblia* (Awadallah and Morsy, 1974) are well known in the Kingdom as well as *C. parvum* (Al-Braiken *et al.*, 2003). However, a very rare data is known about human fascioliasis in the Kingdom. In the present study, nine out of ten male immigrant manual workers with the suggestive fascioliasis manifestations had infection. The common features were the abdominal distension, flatulence, tender right-upper quadrant and easy fatigability and the least was the tinge of jaundice. Others as right upper quadrant pains, colicky abdominal pains & vomiting, epi-gastric pain and mild fever, and tympanitic abdomen were encountered. These manifestations are more or less the same as those reported by El Shazly *et al.* (2001) and Haseeb *et al.* (2003) in Egypt. Besides, low Hb% (9.5-12.0) and eosi-nophilia% (4-15) were recognized. In Egypt, Abo-Madyan *et al.* (2004) and El Shazly *et al.* (2005) reported high eosinophilia and decreased haemoglobin%. Wilson (1991) stated that human fascioliasis has to be differentially diagnosed from some diseases as acute hepatitis, infection with other liver flukes as schistosomiasis (Katayama fever), visceral toxocariasis, biliary tract diseases and hepatic amoebiasis. In the Middle East countries, fascioliasis has to be differentially diagnosed from the two endemic diseases, visceral leishmaniasis (Morsy, 1997) and malaria (CDC, 1988). Wilson (1991) added that the early manifestation in fascioliasis (during the liver migration) are fever, right-sided abdominal pain, nausea, diarrhoea, jaundice, also urticaria may be present. The liver is enlarged, tender. The symptoms may persist for several weeks or months. The chronic ones are often asymptomatic. Nevertheless, the patient may suffer from: episodic, cholangitis, cholecystitis, obstructive jaundice. Rarely, extra-biliary migration can cause painful or itchy subcutaneous nodules (up to six cm), also focal le-

sions (mass, abscess, or haemorrhage) in the brain, orbit, lung or other body sites.

On the other hand, the nine proved fascioliasis patients were treated with Mirazid® as two capsules (600 mg) on an empty stomach an hour before breakfast for six consecutive days. The follow-up was achieved on only seven patients who showed the complete cure rate indicated by the clinical improvement and by the complete absence *Fasciola* egg in stool for two months. The two other fascioliasis patients were not at hand for follow up.

Meanwhile, Abou-Zenadah (2005) in Saudi Arabia and Haridy *et al.* (2003) and Morsy *et al.* (2005) in Egypt successfully treated the farm animal's fascioliasis with the Mecca Mur or the extract of *C. molmol* (Mirazid®) as well as human fascioliasis (Abo-Madyan *et al.*, 2004; Mattar and El-Toukhy, 2004). They added that Mirazid® is a safe and effective anti-fascioliasis drug. Similar results of the high cure rate of Mirazid® (*C. molmol*) on Egyptian human fascio-liasis were reported by El-Gohary *et al.* (1999); Motawea *et al.* (2001); Massoud *et al.* (2001); Hegab and Hassan (2003); Has-san *et al.* (2004) and Soliman *et al.* (2004). A liver fluke *Dicro-coelium dendriticum*, which is common in man and animals in Saudi Arabia (Bolbol, 1985; Khan et al., 1988; Abou-Zenadah, 1999) were success-fully treated with *C. molmol*, as well as in Egypt (Massoud *et al.*, 2003). In Egypt, natural fascioliasis was reported in camel (Haridy and Morsy, 2000), donkeys and horses (Haridy *et al.*, 2002) and rabbits (El Bahy, 1997).

Regarding *C. molmol* (Myrrh), the Council of Europe (1981) included it in the list of plants and parts thereof which are acceptable for human consumption. Ford *et al.* (1992) stated that *C. molmol* is a safe natural plant approved by FDA for food use and was given GRAS status as a flavour ingredient by FEMA.

In conclusion, no doubt human fascioliasis may increase in the Kingdom, since the reservoir host as sheep and rodents are naturally infected. Examination of other susceptible hosts as camels, donkeys, horses and rabbits in the Kingdom is on-going and will be published in due time elsewhere.

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