

□ Brief Communication □

## A human case of invasive fascioliasis associated with liver abscess

Jin-Bong KIM<sup>1)</sup>, Dong-Joon KIM<sup>1)</sup>, Sun HUH<sup>2)\*</sup>, and Seung-Yull CHO<sup>3)</sup>

Departments of Internal of Medicine<sup>1)</sup>, Parasitology<sup>2)</sup>, College of Medicine, Hallym University, Chunchon 200-702, and Department of Parasitology<sup>3)</sup>, Catholic University College of Medicine, Seoul 137-701, Korea

**Abstract:** A 56 year-old Korean housewife/farmer/goat keeper suffered from right upper quadrant pain and fever with chills. In the abdominal sonogram and computerized tomography, multiple, 2-3 cm, irregular shaped cavities were observed in the right lobe of liver. A liver biopsy revealed extensive central necrosis with Characot-Leyden crystals surrounded by palisading histiocytes, eosinophil-rich inflammatory infiltration. Worm was not observed. However, the serologic test for *Fasciola*-specific IgG antibody by micro-ELISA was positive. Prior antibody levels did not differ and eosinophilia persisted 6 and 16 months after praziquantel treatment although the cavitory lesions in the liver disappeared 6 months after the treatment. Reported herein is a human case of invasive fascioliasis diagnosed clinically by a combination of radiological, histopathological and serological studies.

**Key words:** *Fasciola* sp., fascioliasis, histology, radiology, serology, micro-enzyme linked immunosorbent assay (ELISA), IgG

Human fascioliasis is a zoonotic helminthiasis acquired inadvertently by eating fresh or improperly cooked water plant contaminated with metacercariae of *Fasciola hepatica* or *F. gigantica*. A total of 2,594 human fascioliasis cases has been described worldwide through the late 1980's (Chen and Mott, 1990). In Korea, a total of 15 surgically confirmed cases have been reported (Jang *et al.*, 1990; Chang *et al.*, 1991; Lee *et al.*, 1993; Han *et al.*, 1993; Cho *et al.*, 1994; Kim *et al.*, 1994). Additional five cases diagnosed by serological and/or histopathological findings, also have been reported in Korea (Park *et al.*, 1988 Han *et al.*, 1993). We report herein a clinical case of human fascioliasis in its invasive stage, resulting in multiple liver

abscesses, which was diagnosed by radiological, histopathological and serological techniques.

A previously healthy, 56 year-old housewife/farmer/goat-keeper living in Hongchon, Kangwon-do, Korea, began to feel ill with right upper quadrant abdominal colic, chills, and fever (February 20, 1994) after an uncertain period of prodromal symptoms. In a local clinic, the patient was treated with a combination of ceftizoxime, amikacin and metronidazole for liver abscess, with no decrease in symptoms. The patient was then transferred to Hallym University Hospital, Chunchon, Kangwon-do, for further evaluation on February 24. The patient denied a habit of eating raw water plants. On physical examination, no abnormal finding was observed except for decreased respiratory sound of the right lower lung and severe tenderness on the right upper quadrant of the

\* Received Nov. 8 1995, accepted after revision Nov. 29, 1995

\* Corresponding author(e-mail:shuh@sun.hallym.ac.kr)

abdomen. Results of blood counts showed slight leukocytosis (12,500/mm<sup>3</sup>) with 21% eosinophilia, hemoglobin 11.7 g/dL, platelets 222,000/mm<sup>3</sup>, and an elevated erythrocyte sedimentation rate (ESR) of 44 mm/hr. Results of blood chemistry and urinalysis were normal. Serologic tests for anti-*Entamoeba histolytica* antibody and HBs Ag/Ab were non-reactive. Blood cultures were negative. Neither helminth ova nor protozoan cysts were observed in the stool. A chest radiograph revealed a small amount of right pleural effusion. An abdominal sonogram demonstrated multiple, round, 2-3 cm low density lesions, in the right lobe of the liver. Multiple antibiotics therapy with amoxicillin/clavulanic acid and metronidazole were carried out for a bacterial liver abscess even though the bacterial culture was negative. Fourteen days after admission, the abdominal colic and other general symptoms were improved, but the hepatic cavitory lesions in the computed tomography (CT) did not change (Fig. 1). Endoscopic retrograde cholangiography also showed multiple contrast collections in the right lobe of the liver (Fig. 2). With the guidance of ultrasound, a needle biopsy was done to rule out malignancy. Histologically, the lesion demonstrated central necrosis with Charcot-Leyden crystals surrounded by palisading histiocytes, eosinophil-rich inflammatory infiltration (Fig. 3). Suspecting a parasitic disease, antibody test by ELISA for *Fasciola*-specific IgG antibody was done 33 days after admission (March 29,

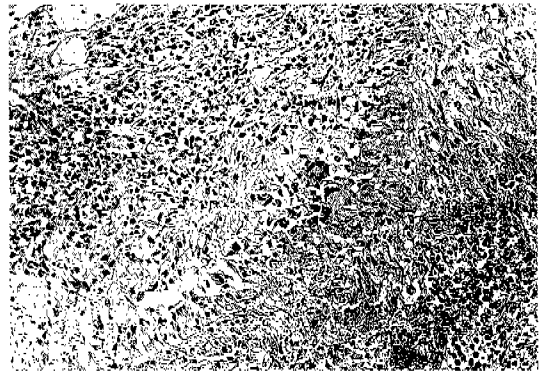
1994). The ELISA result was positive for *Fasciola*-specific IgG antibody (absorbance of 0.42). Specific IgG antibody to other tissue parasites, e.g., *Clonorchis sinensis*.



**Fig. 2.** Endoscopic retrograde cholangiography showing multiple contrast collection (arrow) in the right lobe.



**Fig. 1.** Abdominal CT scan showing multiple, variable sized, hypodense masses (arrow) with peripheral rim enhancement in the posterior segment of right lobe of the liver.



**Fig. 3.** Liver needle biopsy revealing central necrotic debris with Charcot-Leyden crystals surrounded by palisading histiocytes, eosinophil rich inflammatory cell infiltration. H & E  $\times$  100.

*Paragonimus westermani*, sparganum and *Taenia solium* metacestodes, were negative (Data not shown). Stool examinations, done several times, were negative for *F. hepatica* eggs. The patient was prescribed praziquantel, 1,500 mg *per os*, for two days. Follow-up peripheral blood counts demonstrated persisting eosinophilia. Thirty day after admission, the patient's symptoms were greatly improved, even though the blood counts demonstrated 46% eosinophilia with elevated ESR (30 mm/hr). The patient was discharged 36 days after admission when symptoms were not apparent. Two weeks after discharge, eosinophilia still persisted (WBC 10,200/mm<sup>3</sup>, neutrophil 17%, lymphocyte 31%, eosinophil 51%). An abdominal sonogram, one month after discharge, revealed persistent small cavities in the right lobe of the liver. Six months after discharge, the blood chemistry and blood counts were normal except for an eosinophilia (14%). The cavitory lesions were no longer visible in the abdominal sonogram. *Fasciola*-specific IgG antibody did not return to normal limits until 16 months after discharge (absorbance of 0.47, seven months post-discharge and 0.41, 16 months post-discharge).

Many helminthic or protozoan infections result in liver disease. For example, *C. sinensis*, *F. hepatica*, *Ascaris lumbricoides*, *Capillaria hepatica*, *Toxocara canis/T. cati* larvae and *E. histolytica* may invade the liver (Neafie and Connor, 1976; Connor *et al.*, 1976). Of them, in fascioliasis, the worms usually stay in bile duct. Therefore, the lesions consist of dilatation, hyperplasia of the biliary epithelium or periductal fibrosis. However, biliary fascioliasis is a manifestation occurring after parenchymal invasion by juvenile worms (Chen and Mott, 1990). In the invasive stage of *Fasciola* parasites, capsular or subcapsular lesions are composed of serpyiginous areas of necrosis, bordered by palisading histiocytes (Scheuer, 1980). These lesions are observed radiologically as a cluster of microabscess (Han *et al.*, 1993). The histological findings of the present case are compatible to abscesses in fascioliasis.

The liver abscesses in this case were determined to be caused by *Fasciola* parasites

in their early invasive stage, because clinical course of the patient corresponded with that of early invasive fascioliasis. Together with the histopathological findings, results of antibody tests were compatible with that of fascioliasis. No other specific antibody levels were positive against parasites.

Although the patient was treated with praziquantel, it is very doubtful that the patient was cured since praziquantel is ineffective in treating fascioliasis (Chen and Mott, 1990). Because bithionol, closantel and trichlabendazole are not authorized for human use in Korea, there was no other drug of choice. Changes observed in the radiologic follow-up, *i.e.* regression of the abscesses, appear to be a natural course in fascioliasis, rather than a cure. The disappearance of apparent symptoms after prolonged hospital care also may be a result of parasite maturation. Persisting eosinophilia and high levels of antibody in follow-up studies also supported the view of treatment failure by praziquantel.

## REFERENCES

- Chang EC, Choi HL, Park YW, Kong Y, Cho SY (1991) Subcutaneous fascioliasis: A case report. *Korean J Parasitol* **29**: 403-405.
- Chen MG, Mott KE (1990) Progress in assessment of morbidity due to *Fasciola hepatica* infection: a review of recent literature *Trop Dis Bull* **87**: R1-R38.
- Cho SY, Yang HN, Kong Y, Kim JC, Shin KW, Koo BS (1994) Intraocular fascioliasis: A case report. *Am J Trop Med Hyg* **50**: 349-353.
- Connor DH, Neafie RC, Meyers WM (1976) Amebiasis. In Binford CH and Connor DH, Pathology of tropical and extraordinary diseases. Vol. I, Armed Forces Institute of Pathology, Washington D.C., pp308-316.
- Han JK, Choi BI, Cho JM, Chung KB, Han MC (1993) Radiological findings of human fascioliasis. *Abd Imaging* **18**: 261-264.
- Jang PR, Ko GS, Park CK, Han DJ, Kang K, Huh S (1990) A case of human ectopic fascioliasis in the omentum. *Human Science* **14**: 775-780.
- Kim J, Chung WS, Cho KH (1994) Status of parasitic infections diagnosed by surgical biopsy in Kwangju and Chollanam-do. *Korean J Parasitol* **32**: 93-100.
- Lee SK, Kim JW, Han DS, *et al.* (1993) A case of

biliary fascioliasis diagnosed by percutaneous cholangiography. *Korean J Gastrointest Endos* **13**: 739-744.

Neafie RC, Connor DH (1976). Visceral larva mirgans. In Binford CH and Connor DH, Pathology of tropical and extraordinary diseases. Vol. II, Armed Forces Institute of

Pathology, Washington D.C., pp 433-436.

Park YM, Kang SY, You JH, et al. (1988) A case of acute fascioliasis diagnosed by serological test. *Korean J Gastroenterol* **20**: 750-755.

Scheuer PJ (1980). Liver biopsy interpretation. Cassel Ltd, London, p217.

=초록=

간질증 초기 침습기에 발견된 간농양 예

김진봉<sup>1)</sup>, 김동준<sup>1)</sup>, 허선<sup>2)</sup>, 조승열<sup>3)</sup>

한림대학교 의과대학 내과학 교실<sup>1)</sup>, 기생충학교실<sup>2)</sup>과 가톨릭대학교 의과대학 기생충학교실<sup>3)</sup>

강원도 홍천에 거주하는 56세 주부가 갑자기 우상부 복통, 고열, 오한을 주소로 내원하였고, 복부 초음파검사와 콤퓨터단층촬영 결과 2-3 cm 직경의 불규칙한 꼴의 동공이 간 우엽에서 여러개 관찰되었다. 간생검상 샤르코-라이덴 결정을 포함한 심한 중심성 괴사 주위로 조직구, 호산구등 염증세포가 침윤되어 주위 조직과 명확히 구분되었다. 효소면역측정법을 이용한 간질 특이 항체 혈청 검사에서 양성이었다. 간 병변은 프라지판텔 투약 6개월 후에 모두 사라졌으나, 특이 항체가와 호산구 증가는 투약 6개월, 16개월 후에도 정상화 되지 않았다. 방사선학적 소견, 조직병리학 소견 및 혈청학 검사 결과를 종합할 때, 초기 침습성 간질증으로 진단하였으며, 프라지판텔에 의하여 치료되지 않은 예이었다.

[기생충학잡지 33(4): 395-398, 1995년 12월]