

## A Case of Unilocular Hydatid Disease Imported from Saudi Arabia

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**A 39-year-old Korean man with general malaise was found to have two hepatic cysts by computed tomography. He had the history of close contact with domesticated wild dog in Saudi Arabia in 1976. Two cysts, 15cm and 10cm in diameter which contained clear fluid, were excised from both lobes of the liver. He was pathologically diagnosed as unilocular hydatid disease. This case is regarded as an imported case from Saudi Arabia.**

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**Key Words:** *Unilocular hydatid disease, imported case in Korea.*

### INTRODUCTION

**Since** 1983, total 8 cases of human unilocular hydatid disease caused by metacestode of canine tapeworm, *Echinococcus granulosus*, have been reported in Korea (Cheong *et al.*, 1983; Park *et al.*, 1985; Kim *et al.*, 1986; Im *et al.*, 1987; Lee *et al.*, 1988; Jeon *et al.*, 1988). Six out of them were considered to be imported cases but remaining 2 had no history of residence abroad. This paper described a Korean man with two hepatic unilocular hydatid cysts who worked as a crane driver in Saudi Arabia and in Libya.

### CASE HISTORY

A 39-year-old Korean man visited Incheon Medical Center on September 1987, due to general malaise with fever and chill. Two hepatic cysts were found by computed tomography (Fig. 1) and sonography. He was transferred to Seoul National University Hospital.

On physical examination, soft liver was palpated 4 finger breadths without tenderness. Otherwise he was unremarkable. He had the history of working abroad for 4 and half years during past 11 years: July 1976-July 1977 at Medina; April 1981-April 1982. at

Tabuk, August 1982-August 1983 at Jidda and Tabuk, Saudi Arabia. January 1984-July 1985 at Benghazi, Libya. During his first sojourn in Saudi Arabia in 1976, he domesticated a wild dog near his residence. Seroiologically by ELISA, patient's serum was reactive to antigens of some cestodes such as cystic fluid of *Taenia solium* metacestode, extract of plerocercoid larva of *Spirometra erinacei* and hydatid cystic fluid. Explorative laparotomy was done under the diagnosis of hepatic echinococcosis on November 2, 1987.

In liver, two huge fibrous cysts were observed. The cyst in the right lobe was about 15 cm, pedunculated from the lobe and while a cyst in the left lobe was about 10 cm. Both cysts were aspirated by vacuum suction and irrigated with 0.5% cetrimide solution. Total 500ml of clear watery fluid was drained from each cyst and the gelatinous layer was evacuated. The scraped debris from inner wall of the cyst revealed microscopically some hydatid sands. The right cyst was excised, and then left lateral segmentectomy was performed. During the postoperative course, he suffered from fever which was thought to be originated from the hypersensitivity reaction to cystic fluid. He was discharged one month after operation. Until 8 months after discharge, he has been well without any sign of clinical or radiological recurrence.

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cystic fluid

## PATHOLOGICAL AND PARASITOLOGICAL FINDINGS

Grossly, the global cysts of the right and the left lobes were 15cm and 10cm in diameter respectively. The cyst in the right lobe was well encapsulated. That of the left was partly encapsulated (Fig.2) The inner surface showed several foci of cauliflower-like excrescences (Fig.3).

Histologically, the laminated layer was composed of gelatinous substance. The cauliflower-like protuberance consisted of amorphous fibrinous tissue without any protoscolex. The germinal layer was recognized as patch pattern on the inner wall. Calcium corpuscles were seen in the remained germinal layer (Fig.4). Host tissue outside cyst showed necrosis, hemorrhage, fibrosis and numerous inflam-

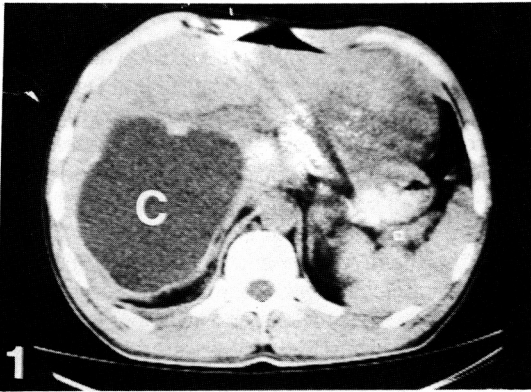


Fig. 1. CT finding of liver which shows well-margined even, thin walled cystic mass (C) of right lobe of liver, 12cm in diameter with inner fluid density.

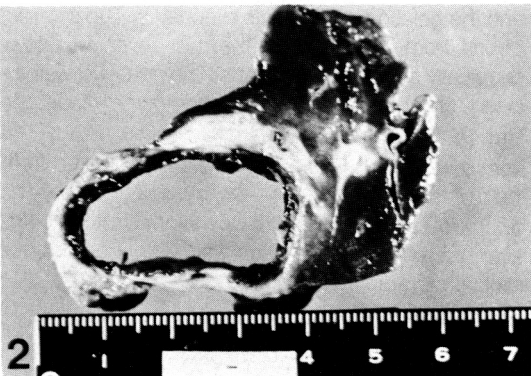


Fig. 2. Gross finding of the resected left hydatid cyst.

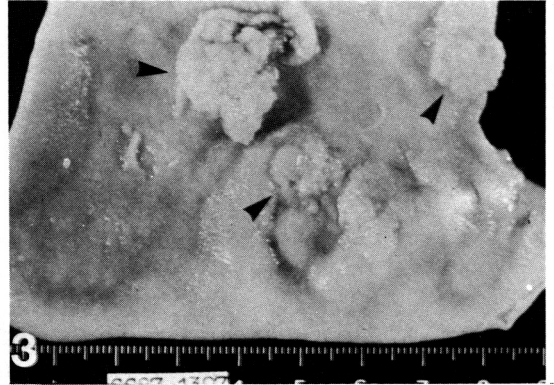


Fig. 3. Inner surface of the cyst which showed cauliflower like protuberance (arrow heads).

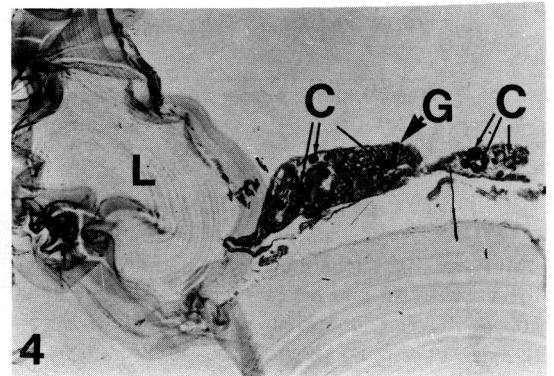


Fig. 4. Histologic finding of the parasite side of the cyst wall: laminated layer(L) and germinal layer(G) with deposit of calcium corpuscles(C), X100.

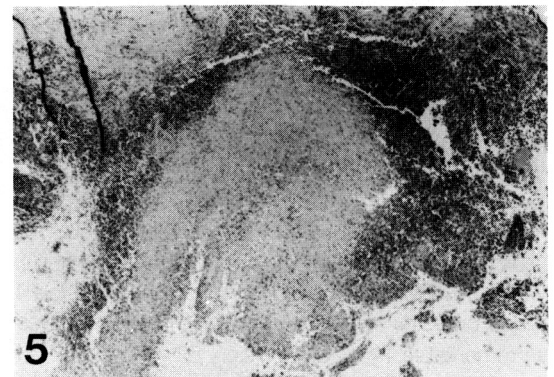


Fig. 5. Outer wall of the cyst which showed necrosis, hemorrhage, fibrosis and inflammatory cells infiltration in nearby liver, X40.

Table 1. Summary of human hydatid diseases reported in Korea (1983-1988)

No.	Age & Sex	Involved Organ	History of Abroad Travel	Symptoms & Signs	Reference
1	27 F	Lung	Absent	Chest pain	Cheong <i>et al.</i> (1983)
2	25 M	Lung	Kuwait	Chest pain	Cheong <i>et al.</i> (1983)
3	31 M	Lung	Middle East	Weight loss	Kim <i>et al.</i> (1983)
4	32 M	Liver	Saudi Arabia	Epigastric pain	Kim <i>et al.</i> (1985)
5	30 M	Lung	Middle East	Chest pain	Lee <i>et al.</i> (1986)
6	49 M	Lung	Saudi Arabia	Pneumonia	Im <i>et al.</i> (1988)
7	39 M	Liver	Saudi Arabia	Fatiguability	Jeon <i>et al.</i> (1988)
8	26 M	Lung	Absent	?	Lee <i>et al.</i> (1988)
9	39 M	Liver	Saudi Arabia	General malaise & Liver enlargement	Present authors

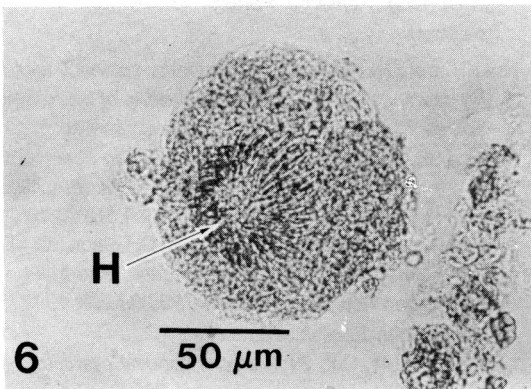


Fig. 6. A degenerated protoscolex recovered from cystic fluid which shows many hooklets(H).

matory cells infiltration (Fig.5). Adjacent liver tissue was chronically inflamed with fibrosis and lymphoplasmic cell infiltration.

A few degenerated protoscolices were found in the sediment of cystic fluid (Fig.6). They harboured a number of hooklets. A part of them was inoculated into peritoneum of mice but none of the cysts were detected after 6 months.

## DISCUSSION

In the liver, unilocular hydatid cyst grows about 1 mm a month (Spark *et al.*, 1971). Pressure symptoms and allergic manifestations began to develop when reached about 10cm. Therefore, it took about 5-20 years for development of the first symptoms. Considering the size of cysts and degree of degeneration of parasites, this case was most probably infected during his first visit in Saudi Arabia out of his 4 times of residence

in Middle East. This patient had domesticated a wild dog, during his sojourn in Saudi Arabia where human echinococcosis were endemic (Malaika *et al.*, 1981). Indigenous Bedouin people do not normally rear such wild dogs which are final host of *E. granulosus*. More than half of the human hydatid diseases are known to involve liver. Lung, brain, kidney, heart, muscle and soft tissue also may be involved (Spark *et al.*, 1971). As summarized in Table 1, most of previously reported cases in Korea were of pulmonary cyst probably because of easy recognition by chest film. Due to vague symptom of hydatid disease, especially that of hepatic hydatid, early detection of liver involvement may be much delayed in non-endemic countries.

The lesion by hydatid cyst can now be detected by ultrasonography, computed tomography and radioisotope scan. The nature of the space-occupying lesion can be preoperatively confirmed as hydatid cysts, if serologic test such as ELISA is sensitive and specific. However the serology is not yet satisfactory. Monoclonal antibody specific for major antigen can also be used for specific diagnosis (Felce & Siracus, 1987). In the present case, combined information of computed tomography, ultrasonography, serology and past history of living in endemic areas made a preoperative diagnosis possible.

In Korea, echinococcosis is regarded as one of the imported diseases. However, evidence of enzootic echinococcosis were present; from cattles in Cheju-do (Issiki, 1944; Seo *et al.*, 1975), from swines in Cheju-do (Kim *et al.*, 1969; Jang and Oh, 1974), from imported sheep from Austrailia (Lee, 1975). Since 1983, cases of hydatid diseases began to be detected because about a million workers were in endemic countries, especially in Middle East since 1975.

Although two recently reported cases had no history of residence abroad, the possibility of human infection are still uncertain in Korea. In this aspect, the recent infection status of the final and intermediate hosts of *E. granulosus* or other epidemiological findings must be evaluated in this country.

To minimize the further occurrence of this disease, the people traveling the endemic countries should be educated not to contact with wild dogs. Additionally the early detection and control measures must be taken into consideration also in Korea.

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