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Hydatid cyst of Diaphragm – A case of hydatid cyst with rare localisation

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Hydatid cyst (H.C.) disease, frequently seen in our country, has been known since ancient times. It can localise in each part of the body but more frequently in the liver. However, diaphragmatic localization is known to be rare.

In this article, we report a case of hydatid cyst with diaphragmatic localization.

Introduction

Hydatid cyst disease has been known since the time of Hippocrates, who refers to the disease as a "liver full water". The disease is a serious problem in countries in which it is endemic. The primary carriers are dogs and wolves. The intermediate hosts are sheep, cattle, and deer. Men enter the cycle by contacting infected canine feces. After the embryo has been swallowed by the intermediate host, it finds its way through the mucosa of the small bowel, and reaches the liver by the mesenteric and portal venous circulation. While 70-80% of cysts are located in the liver, some may locate in various organs by either passing to the systemic circulation or to the neighbouring organs. The disease, known to have rare localizations in only 12-15 percent of all cases has a much more rare diaphragmatic localization with the incidence of 1-2% [1, 2, 3, 4].

Case report

A 35 – year – old, male patient underwent surgery at our department twice in 1984 and 1987 with the diagnosis of a hydatid cyst of the liver. The was admitted again with doubtful abdominal pain especially at the right hypocondrium and complaints of nausea. Nothing special was found in the posteroanterior thorax and abdominal radiographs and on routine laboratory diagnostic tests. The only finding on physical examination was a 3 cm hepatomegaly. Eosinophilia was 5%. Casoni skin test was (+) for early and (-) for late stage, indirect hemaglutination test was (+) at a rate of 1/512. On the abdominal computed tomographic (CT) examination cystic formations with the radii of 6x5x5 cm and, 4x3x3 cm and 8x6x7 cm in the right lobe of the liver, one is close to the diaphragm, were found to be H.C. (Fig. 1, 2). Ultrasonographic (US) findings were in agreement with CT (Fig. 3)

The cystic lesions were determined to be new formations rather than recurrences because of their different localizations. The patient, hospitalized for further diagnosis and treatment and operated on in October 1990 was discharged from the hospital on 14th postoperative day. No peculiarity was detected on control examinations performed two years later.

Discussion

H.C. disease is a serious problem in countries such as Turkey, Iran, Egypt and Greece where it is endemic; however, in USA only one case was observed in 5 years [1, 2, 3, 4, 5].

There is almost no organ in the body where the disease has not been reported. It is located in the liver frequency of 70-80% (85% in the right and 15% in the left lobe). In 12-15% of cases rare localizations have reported in the literature, such as bone, thymus, brain, testis, ovary, uterus, breast, pericardium, diaphragm, mediastinal cavity, subcutaneus tissue, aorta, kidney, pancreas, mesentery of small in-

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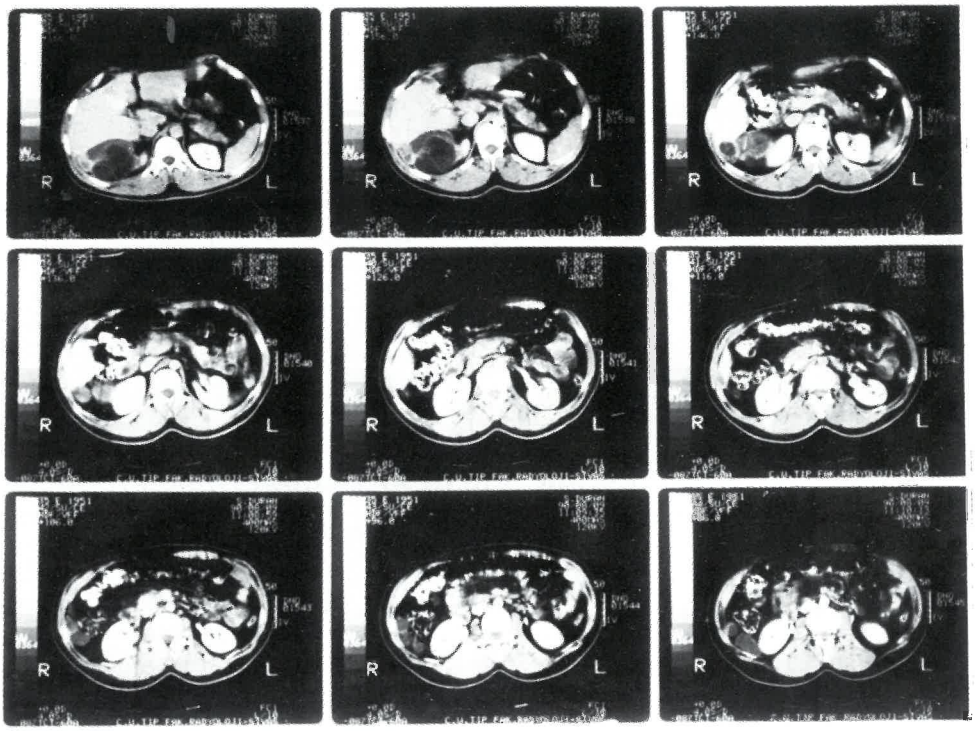


Fig. 1. Abdominal CT scan of the case.

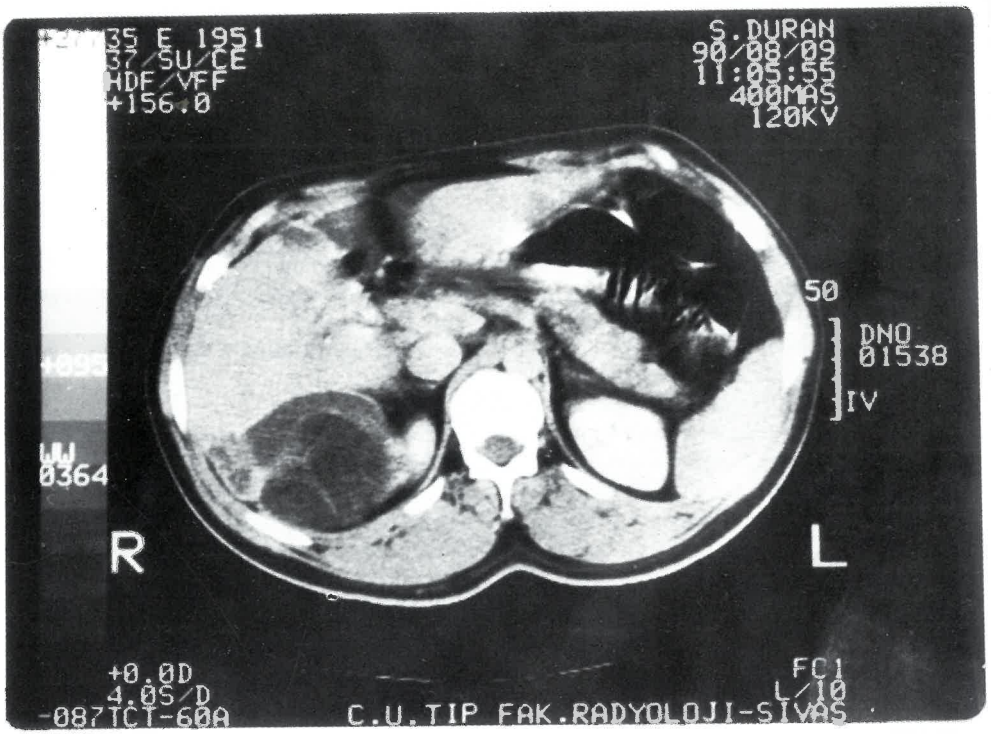


Fig. 2. Abdominal CT scan of the case.

testine, adrenal glands, spleen, muscles, thyroid gland and peritoneum [1, 2, 3, 5, 6, 7, 8]. Out of 76 cases operated on at our department with the diagnosis of hydatid cyst during the last ten-year period, only 9 cases (12%) had rare localization, but only in one case a diaphragmatic localization was detected (1-2%) Reports on this rare localization are also rare in the literature [5, 6, 7, 9, 10]. The diagnostic validity of CT and USG is accepted to be 90-98%. The CT examinations is regarded to be superior to USG only in the diagnosis of decesive anatomic localisation and in cases of abdominal cysts [1, 2, 6, 8]. At our clinic we intend to reduce the margin of error in diagnosing hydatid cysts by using jointly CT and USG in a routine manner.

The treatment of choice for all forms of H.C. disease must be surgical. In surgical treatment, the main principle is to empty of the cyst, take out the daughter cysts and the germinative membrane and then treat the rest of the cyst cavity. The methods used at this point are primary closure, capitonage or omentoplasty, and marcupialisation and tube drainage are no longer used [1, 2, 4]. Chemotherapy is out of question in the primary therapy of H.C. It can be used in patients who cannot be treated by surgery, and in such cases preoperative or prophylactic agents such as mebendazole or preferably albendazole [4, 10, 11, 12, 13, 14] reduce post operative recurrence rate of about 10%.

Our patient was previously operated on twice with diagnosis of hepatic H.C. He was again operated on with the diagnosis of H.C. localized in various parts of the liver according to the last CT and USG findings. During operation, however, another H.C., localized on the lateral part of the diaphragm, which was not detected before, was treated with partial cystectomy and capitonage (Fig. 4). Postoperative albendazole therapy was suggested to him when discharged from the hospital. Of 77 H.C. cases that Pinna [5] had diagnosed, 25 had formed empyema and H.C. had reached the right lung from the liver through the diaphragm. Dawson [1] had to have a mending on the diaphragm of his patient during operation because of the close localization of the cysts on the liver in respect to the diaphragm. Abi [7] reported 40 cases of H.C. with rare but not diaphragmatic localization and all were treated surgically.

Hafid [9] reported a case of H.C. localized on the pericardium and like in our case, during operation he noted the existence of another cyst on the diaphragm. He states that diaphragmatic localization of the disease is very rare. One of the Brough's cases [10], with H.C. present in the left lobe of the liver and diaphragm, was operated on because of recurrence. For the late period of the operation he recommended albendazole for prophylactic purposes. Hafid [9] reported 2 cases of diaphragmatically located H.C. out of 100 cases during the last 10-years-period. In Turkey, a report was recently published by Astarcioğlu [15]. He reports three cases of H.C. with rare localization in subcutaneous tissue, diaphragm and the pleura. Vega et al [6] reported a new case of H.C. localized on the diaphragm independently of the liver, diagnosed with CT and echography preoperatively. Total excision of the cyst and primer repair of the damaged diaphragm was performed.

In our case, new cystic formations were made on the liver and the diaphragm without symptoms relating to the dia-

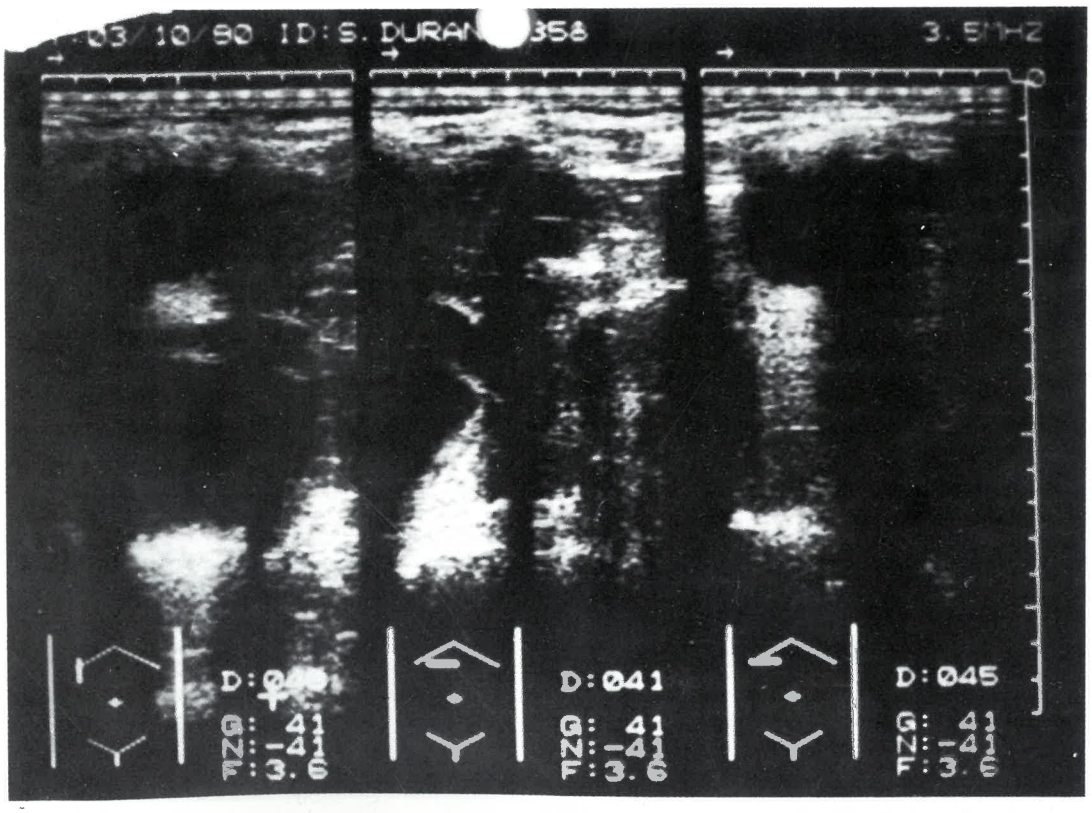


Fig. 3. Abdominal ultrasonography of the case.

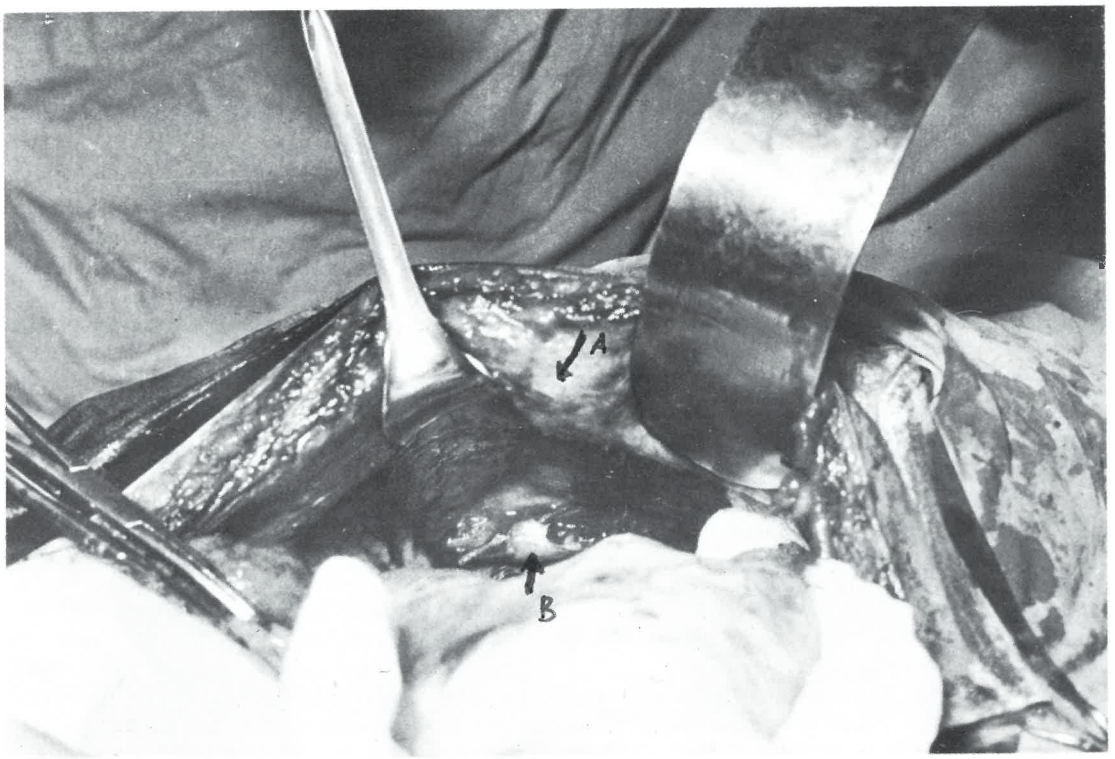


Fig. 4. Photograph of the case taken during the operation
A) Diaphragm
B) Hydatid cyst on the diaphragm

phragmatic localization. This rare localization of the disease can be explained, according to Pinna [5], by fact that, a great part of the liver is without periton. This anatomic feature makes it clear why cysts located in this area are more likely to adhere to the diaphragm and are then subjected to its cacuum creating action.

But according to Vega [6] diaphragmatic localization of H.C. is possible when the embrionyos reach that site by arterial or lymphatic circulation. In our opinion, Pinna's explanation [5] may be more acceptable in our case because of the localization of the cyst close to the diaphragm.

In conclusion, we can say that diaphragmatically located H.C. disease with the incidence of 1-2% is very rare and our diagnostic and treatment methods are in agrement with those reported in the literature.

Our aim in presenting this rare case, is to remind physicians of the possibility of the localization of H.C. disease in various organs, and to emphasize the need for careful planning of all the necessary examinations before the operation.

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