

Hydatid Cyst of the Liver – A Case Report

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ABSTRACT:

Introduction – Hydatid disease is a parasitic infection caused by Echinococcus granulosus (dog tapeworm). Man act as a dead end host. In this case report, we present a case of a male with hydatid cyst of the liver.

Case presentation – A 58year old male came with complaints of painless swelling in the liver of chronic duration. Abdominal sonography revealed a well defined cystic lesion of size 17X13X14cm (volume ~ 1700cc) and another cystic lesion of size 7X6.7X4.5cm (volume~100cc) in the right lobe of liver. He underwent Exploratory laparotomy with surgical drainage and enucleation. Postoperative period was uneventful and had complete recovery.

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I. Background

Hydatid disease is a parasitic infection caused by Echinococcus granulosus also known as dog tapeworm. Dog(optimal host) , wolf, jackel and fox are the definitive host. Sheep and cattle are the intermediate host. Man acts as the dead end host. The adult worms are passed in the feces which are then ingested by the intermediate hosts. Humans get the infection by intimate handling of infected dogs, eating of raw uncooked vegetables or food contaminated with dog feces. After the ova is ingested by man , the hexacanth embryos are liberated, they enter the portal circulation and reach the liver(75%).Some embryos enter the right side of heart and reach the pulmonary circulation. Few embryos enter the systemic circulation and gets lodged in different organs of the body.

II.CASE REPORT

A 58 year old man was admitted with complaints of painless swelling in the right upper quadrant of the abdomen for the past 1 year , insidious in onset , gradually progressive to the current size with no history of fever,vomiting,jaundice,loss of appetite and weight.

Past surgical history of left lung lower lobectomy done in 2019 for hydatid cyst of the lung.

Abdominal examination revealed a 10X8cm mass in the right hypochondrium extending into the epigastric region which was nontender, smooth in surface and soft in consistency.

His laboratory values revealed total leukocyte counts were 7,740/cu.mm with 66% neutrophils and 3% eosinophils. Abdominal ultrasonography was performed which revealed a well defined cystic lesion of size 17X13X14cm (volume ~1700cc) and another cystic lesion of size 7X6.7X4.5cm (volume~100cc) noted in the right lobe of liver. To identify the exact location and to plan for surgery contrast enhanced CT of the abdomen was done which revealed cystic lesions in the segment VII and VI of the right lobe of liver with volume of 1840cc and 200cc respectively.



Fig 1. Showing cystic lesion in the right lobe of the liver

Due to the presence of multiple cysts patient was planned for surgical management. He was started on T.Albendazole 400mg twice daily preoperatively.

A right subcostal incision was made which revealed 2 cysts, larger cyst of size 20X15cm in segment VII and smaller cyst 10X8cm in segment VI. During the surgery, to prevent spillage of the fluid the abdomen was packed with saline soaked gauze. Using an aspiration needle the fluid from the cysts were aspirated and sent for microbiological investigations. The cavity was irrigated with hypertonic saline(1/3rd of the amount of aspirated fluid) for 15mins and aspirated again. The cyst wall of both the cavities were excised and sent for biopsy. In the larger cavity, 24F foley's catheter was placed and in the smaller cavity 20F foley's catheter with omental pedicle were placed. A drain was placed in the right subdiaphragmatic region.

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Fig 2. Showing the smaller cyst



Fig 3. Showing the excised cystic cavity

The aspirated fluid showed scolices and histopathological examination showed fibrous wall with granulomatous inflammation.

On review sonographical examination showed complete collapse of the smaller cyst and significant decrease in the size of the larger cyst. Hence the 20F catheter placed in the smaller cyst was removed on the eleventh postoperative day and he was discharged with the 24F foley's insitu. He was advised to continue T.Albendazole. On serial sonological examination of the abdomen there was significant decrease in the size and volume of the

larger cyst, hence on POD-44, the 24F foley's catheter was removed. He is advised to continue 3 cycles of T.Albendazole 400mg for 28days with a drug holiday of 14days.

III. DISCUSSION

Hydatid disease or cystic echinococcosis is a parasitic infection which caused by tapeworm. Tapeworms are commonly found in hosts such as sheep and dogs. Human beings can also get infected by this parasite when they accidentally consume food contaminated with these parasites. Hydatid disease is common in rural, poor and under developed areas where people are usually involved in handling sheep and other livestock. This disease is caused by the larval stage of *Echinococcus granulosus* or *Echinococcus multilocularis*(1). Hydatid disease can affect any organ, Liver being the most common organ followed by lungs.(2)(3).

The lifecycle of *E. granulosus* involves dog as the definitive host and sheep as the intermediate host. Man act as an accidental and dead end host. The adult worms of *E. granulosus* resides in the small intestine of the definitive host. Proglottids release the eggs, which are passed in the feces. After ingestion by the intermediate host, the egg hatches in the small intestine and release an oncosphere, which penetrates the intestinal wall and are carried by the portal veins to the liver mainly right lobe of the liver. Some ova pass through the capillary sieve and may lodge in any part of the body including lungs, peritoneum, brain, kidneys, spleen, ovary, scrotum, mediastinum, soft tissue, adrenal glands, bladder and the spinal cord(4)(5). In these organs the oncosphere develops into a cyst, which gradually enlarges, proctoscolices and daughter cyst are formed within the cyst. The definitive host gets infected by ingesting the cyst containing organ of the infected intermediate host. After ingestion, the proctoscolices evaginate and attach to the intestinal mucosa. They develop into adult stage in 32 to 80days. The characteristic feature of the cyst produced by *E. granulosus* is a well defined large, round to ovoid in shape(6).

The hydatid cyst usually grows 1cm in the initial 6months followed by 2-3cm annually, depending upon the tissue response of the host(1). This signifies that the patients are usually infected 2-3years prior their presentation. Hepatic hydatid disease has a high variable clinical presentation(7). It remains asymptomatic for years and even decades depending upon the size and site of the cyst(8). In case of an uncomplicated hydatid disease pain in the right upper quadrant is the most important diagnostic factor(8) and hepatomegaly being the most important clinical sign(9). Other symptoms may include nausea, dyspnea, dysphagia and jaundice. Superadded infection or rupture of the cyst though uncommon leads to fatal anaphylactic shock(1).

Hydatid disease may be solitary or multiple. Imaging usually depend on the stage of the cyst. Eosinophilia(>3%) has been cited as a diagnostic criterion(9) but an inconsistent finding in case of an uncomplicated cyst. Alkaline phosphatase is elevated in proportion to the volume of the cyst and is persistently elevated in case of a complicated cyst(7). In our case the eosinophil count and the levels of alkaline phosphatase were normal hence we consider it to be an uncomplicated hydatid disease. Serological testing can be done but even immunological studies cannot differentiate between pyogenic abscess and hydatid cyst of the liver(9,10).

E. granulosus infection can be diagnosed by ultrasound imaging. It is seen as a cystic cavity. In more than 50% of the cases, daughter cysts are seen. The USG features can be classified into 5 types: I) univesicular cyst with pure fluid collection, II) Multiseptated, rosette or honeycomb appearance, III) A- cyst with detached membrane (water lily sign), III) B-cyst with daughter cyst in solid matrix, IV) cyst with heterogeneous hypo/hyperechoic content, no daughter cyst, V) solid plus calcified wall. CT imaging is an accurate measure to diagnose (7) hydatid cyst especially when USG is inconclusive.

Surgical removal of the cyst is the preferred method of treatment(10,11). Surgical procedures include marsupialisation, total cystectomy, partial pericystectomy with omentoplasty and laparoscopic management. In our case, our patient underwent exploratory laparotomy with surgical drainage and enucleation of the cyst was done which was combined with pre and postoperative T. Albendazole therapy. On follow up patient had no complication or local recurrence.

IV. CONCLUSION

Hydatid disease of the liver is a parasitic infection which is common among people living in rural areas and those who handle livestock. Hence it should be kept as a differential diagnosis for lesion arising from the liver. USG and CT imaging helps to establish the diagnosis. Surgical intervention combined with medical management, pre and postoperatively for uncomplicated cyst is still a preferred mode of management.

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