CASE REPORT

Successful Treatment of Hydatid Cyst of Lesser Sac with PAIR Therapy

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ABSTRACT
Hydatid disease has varied presentations and may involve any part of the body with hydatid disease of the liver being the most common site. Hydatid disease of lesser sac is a rare entity. Different treatment options of hydatid liver disease are available which include surgical, medical and radiological management. Surgical management has its limitations in terms of cost, morbidity, mortality, rate of recurrence and patient fitness to undergo surgery. Medical management alone carries a low chance of cure. Radiological management with PAIR therapy (percutaneous aspiration, injection and re-aspiration) of hydatid liver disease has been well described in literature. However, hydatid disease of lesser sac in itself is a rare entity and its treatment with PAIR procedure has not been described before. We describe a case of hydatid disease of lesser sac treated with the PAIR procedure.

Key Words:  Hydatid cyst. Lesser sac. PAIR therapy. Medical management. Surgical management.

INTRODUCTION
Hydatid cyst is endemic in sheep bearing areas of the world. It is the larval form of the parasite Echinococcus granulosis. The most common site of infection by the parasite is the liver followed by the lungs, kidneys, bone and brain.¹ Hydatid cyst of the lesser sac usually follows infection elsewhere in the abdomen. This case was unique in that an isolated cyst was seen in the lesser sac without evidence of cyst elsewhere in the abdomen.

PAIR therapy (percutaneous aspiration, injection, and re-aspiration) consists of percutaneous aspiration of cyst contents, injection of hypertonic saline and/or alcohol and re-aspiration of cyst contents. It was first introduced in 1992 by Mueller et al.² Hypertonic saline is a scolicidal agent, which can be used alone or in combination with absolute alcohol for treatment of hydatid cyst. Alcohol is a sclerosing agent and acts to obliterate the walls of the cavity. Medical therapy consists of anti-parasitic drugs which do not act effectively in isolation.³ Surgery is an alternative to PAIR therapy but carries greater morbidity and mortality, greater hospital stay and greater recurrence rate.⁴ PAIR therapy has been described for liver hydatid cysts. Cysts of lesser sac have not been treated before by this method.

CASE REPORT
A 14 years old boy presented to the medical reception centre with complaints of pain in upper abdomen and vomiting off and on for the last one and a half year. Examination revealed fullness in the upper abdomen and pallor. Ultrasound abdomen showed a cyst in upper abdomen with few internal septations and smaller cysts along the walls of the parent cyst, suggestive of daughter cysts (Figure 1). The cyst was pushing the stomach anteriorly and measured 12 x 8 cm in size with volume of 250 ml. The child subsequently underwent CT abdomen (Figure 1). ELISA test for hydatid cyst was positive and patient was started on tablet Albendazole 200 mg BD and referred to the Radiologist for PAIR therapy.

Prior to the procedure, an intravenous line was secured and nasogastric tube was passed. Emergency trolley was kept ready to deal with any emergency. Sterile precautions were taken. With 18 gauge needle, the cyst was punctured under ultrasound guidance. Two hundred and twenty ml of clear watery fluid was aspirated. The cavity was irrigated with 100 ml of 20% hypertonic saline. The patient was turned 360 degrees to irrigate the wall of the cyst with saline. After 30 minutes, saline was re-aspirated. During the procedure, the patient was observed for any signs of anaphylaxis. The aspirated fluid was sent for microscopy. Patient was asymptomatic post-therapy and was sent home the following day with advice to continue with tablet Albendazole and follow-up in the radiology department after 3 weeks.

After 03 weeks, the patient was re-evaluated. The patient had no complaints. He had no episode of vomiting or pain in abdomen post-treatment. Ultrasound showed floating membranes in the cyst (Figure 2). No daughter cysts were seen this time. The treatment was repeated and infected cyst was drained and patient was started on antibiotics. One month later, the patient again presented to the radiology department. The child had come for a follow-up and had no complaints. Ultrasound showed a cyst with floating membranes in it with volume...
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of 150 ml. The cyst was aspirated. One hundred and forty ml of muddy fluid was drained. Sixty ml of normal saline was infused followed by 15 ml of 95% ethyl alcohol. This was re-aspirated after half an hour. The procedure was repeated four times now. Recent most ultrasound showed a collapsed cyst with interlacing network of membranes showing the cyst change into a more solid appearance (Figure 3). The patient is asymptomatic and is on follow-up.

FIGURE 1: USG image (A) showing hydatid cyst with multiple daughter cysts along posterior wall of the cyst. CT image (B) showing a well defined cyst anterior to pancreas and posterior to the stomach.

FIGURE 2: On first follow-up, a cyst with floating membranes was seen on ultrasound. No daughter cysts were seen.

FIGURE 3: Residual cyst following therapy.

DISCUSSION

Hydatid cyst of liver has varied presentations. According to WHO classification, type-I is the unilocular cyst, type-II is the cyst with floating membranes, type-III is the cyst with multiloculations and daughter cysts, type-IV is the solid appearing cyst and type-V is the calcified cyst. Type I to III cysts are active and require treatment while type IV and V cysts are inactive and do not require active management.

Treatment options consist of surgical management, medical management and radiological management. Surgical management had been the only treatment modality till the last decade. This treatment is not widely available and carries greater morbidity and mortality, high recurrence rate and cannot be offered to every patient. Medical management has its limitations. It can be used in smaller cysts with diameter of less than 4 cm, those with thin walls, with multiple peritoneal cysts, cysts in multiple organs, bone cysts and cysts in brain. Presently, the role of Albendazole is as an adjunct to surgery and percutaneous drainage where it has been found to reduce the risk of complications and cyst recurrence. Radiological management offers many options. The basic procedure consists of percutaneous drainage of the cyst followed by instillation of scolicidal agent and / or alcohol. Some time is allowed for contact of scolicidal agent with the wall of the cyst and the patient is turned 360 degree to allow contact of the instilled agent with the wall of the cyst. This is followed by re-aspiration of the cyst contents. This is the PAIR procedure (percutaneous aspiration, injection and re-aspiration). Previously, percutaneous puncture was considered a highly risky procedure because of the risk of anaphylaxis. Now, it seems that it has been widely exaggerated and the actual risk may actually be lower than following administration of certain antibiotics. Other large studies now claim that this procedure can be performed safely and carries low morbidity and mortality compared to surgery and can be offered as a substitute for surgery. In one large series of percutaneous drainage of hydatid liver cyst, disappearance of the cyst was observed in 48.4% of cases, solid appearance of the cyst was seen in 46.2% of cases, 5.3% of the cysts showed a minimal residual fluid component with no viable scoleces. This data indicated parasitological cure in 100% of cases. The risk of recurrence of the hydatid cyst is low as compared to surgical management with few side effects and low mortality rate.

Modifications of the technique include aspiration of the cyst followed by instillation of Albendazole without re-aspiration. This is known as PAI (percutaneous aspiration and injection) procedure. As a precautionary measure against anaphylaxis, oral Albendazole is started at least one week prior to the procedure. Medical management along with radiological intervention gives superior results to radiological management alone.
REFERENCES


