

Research Article

A Case Series of Laparoscopic Management of Varied Presentations of Hydatid Cyst

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Keywords

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- Laparoscopic cyst evacuation
- Omentoplasty

Abstract

Background: Hydatid cyst is caused by Echinococcus species mainly, *E. granulosus* and *E. multilocularis*. In developing countries like India, it is still a major problem. It can involve any organ and can mimic almost any pathological condition.

Methods: The present study was carried out from January 2016 to January 2017. A total 6 cases of hydatid cyst operated laproscopically were studied retrospectively. Partial Cystectomy with external drainage was done as sole operative modality. Postoperative follow up was done at 2 weeks, 1, 3 and 6 months.

Results: Out of 6 cases, 5 were male and 1 was female. The mean age of patients was 35 years. Incidence of hydatid cysts at various sites was: Four patients had hydatid cyst in the liver, 1 patient in the lung, 1 patient in the spleen. Mean operative time was 90 minutes in our study though laparoscopic procedure. There were no cases of recurrence.

Conclusion: Hydatid cyst of liver and lung is not uncommon, but it may present in an unusual manner in these usual sites. High index of suspicion needs to be kept in mind while dealing with these patients with varied presentations. Surgery is the treatment of choice for hydatid cyst and laparoscopic technique is preferred as it has less complication with better patient satisfaction.

ABBREVIATIONS

USG: Ultrasound; CT: Computed Tomography

INTRODUCTION

Hydatid disease has been known since the time of Hippocrates, and it still represents a major health problem in endemic regions [1]. Hydatid cyst is the larval form of cestode tapeworm Echinococcus granulosus [2]. Hydatid disease is endemic in India, as well as other parts of the world, including, Middle East, Africa, South America, New Zealand, Australia, Turkey and Southern Europe. Infestation by hydatid disease in humans most commonly occurs in the liver (55-70%) followed by the lung (18-35%); the two organs can be affected simultaneously in about 5-13% of cases.

The other rare sites reported to be involved by hydatid cyst are peritoneal cavity, spleen (5.1%), pancreas, thyroid, breast, gallbladder, thigh, kidney, brain, supraclavicular region, pericardium, diaphragm and pleural cavity [2]. In this article, our main aim is to highlight the variable presentations of hydatid cyst in different organs of the body and its management.

MATERIALS AND METHODS

The present study was carried out from January 2016 to January 2017. Total 6 cases of hydatid cysts were operated laproscopically. All patients initially underwent ultrasound and then the diagnosis was confirmed by CT scan. Patients were operated after a preoperative albendazole therapy for 28 days in dose of 10mg/kg and postoperatively all patients were put on albendazole, three courses of 28 weeks each with an interval of 1 week. After port placement, 2% savlon was instilled into the cyst cavity as a scolicidal agent. After 10 minutes, the scolicidal agent was sucked and the cyst wall opened. Omentoplasty was done for all cases of liver hydatid cyst. Drainage tube was kept near the cyst. Splenectomy was done for splenic hydatid cyst. Postoperative course was uneventful. Follow up was done at two weeks, 1 month, 3 months and 6 months.

Case Studies

Case 1: A 60-year-old male patient presented with chronic distension of abdomen, loss of appetite, loss of weight and disturbed bowel habits. USG and CT abdomen confirmed the presence of a single hydatid cyst in the liver. Partial Cystectomy

with omentoplasty was done.

Case 2: A 35-year-old male presented with pain in chest. On CT thorax, there was a cystic lesion in the right lung (Figure 1). V.A.T.S. done with partial Cystectomy.

Case3: A 35-year-old male presented with pain in abdomen. On USG, there was a cystic lesion in the liver. Provisional diagnosis was hydatid cyst of liver (Figure 2). He underwent partial Cystectomy with omentoplasty.

Case 4: A 22 -year-old man presented with pain in the right hypochondrium. USG and CT (Figure 3) (Plain and Contrast) revealed a hydatid cyst in the liver. He also underwent similar procedure.

Case 5: A 25-year-male presented with complaint of right hypochondriac pain. CT showed a hydatid cyst in the liver. Partial Cystectomy with omentoplasty was done. Histopathology revealed a lamellate membrane with evidence of granular layer and proteinaceous material along with chronic inflammatory infiltrate.

Case 6: A 50-year-old female patient presented with pain in the left hypochondrium. USG and CT abdomen revealed a cystic lesion in the spleen. Laparoscopic splenectomy was performed.

All procedures of hepatic hydatid cyst were performed in the supine position under general anesthesia. Four trocars were placed according to cyst location. Following exposure of the cyst by a 30° telescope inserted through the umbilical trocar, an 11-mm trocar was inserted from a point as close as possible to the cyst, in the epigastric region. Another two 5-mm trocars were placed in right sub costal and at the level of umbilicus in the right anterior axillary line. Through the epigastric trocar, 3 gauzes were introduced into the abdominal cavity, placed around the cyst, and soaked with 10% povidone iodine solution as a scolicial agent. The cyst was punctured with a 14-gauge 6F aspiration needle. As a precaution, the tip of a 5-mm suction catheter was placed close to the puncture site, and as much cystic fluid as possible was aspirated, so that the endocyst (germinative membrane) is detached from the cystic wall and shrank to the bottom of the



Figure 2 CT abdomen - hydatid cyst in right lobe of liver.

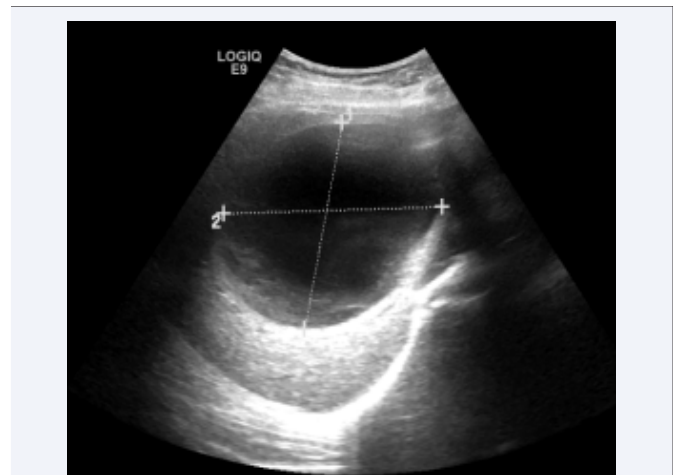


Figure 3 USG abdomen - hydatid cyst in right lobe of liver.



Figure 1 CT chest - hydatid cyst in right lung.

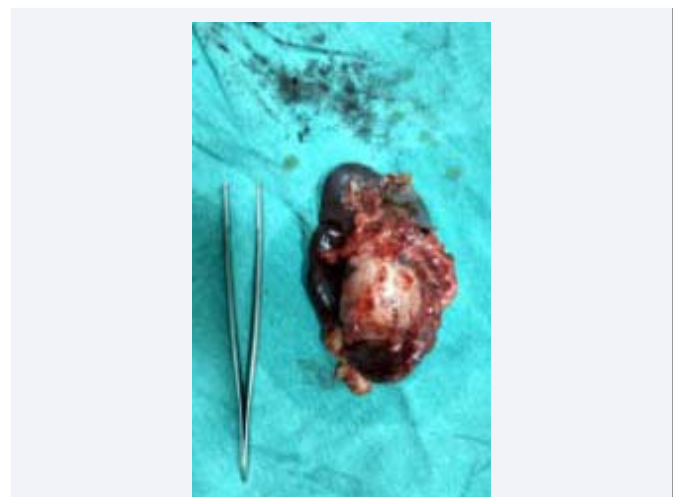


Figure 4 Gross specimen - hydatid cyst in splenic hilum.

cyst. The deflated cystic wall was suspended by 2 graspers, and Cystectomy was performed and the germinative membrane was aspirated. The cystic cavity was irrigated with 20% hypertonic saline several times, and unroofing was performed by partial Cystectomy. Omentoplasty was simultaneously performed. A

drain was placed in the cystic cavity. Gauzes and pieces of the excised cystic wall were placed in an endosac and removed. Post-operative period was uneventful.

The surgery for lung hydatid cyst was also performed under general anesthesia. Patients were positioned in the lateral position with a double-lumen tube. Three trocars were inserted relative to the cyst's position, after which the pleural cavity and lung were examined. The cyst was punctured and the hydatid liquid aspirated; then a scolicalid agent (Betadine) was instilled. Next, the fibrous membrane was opened and the germinative membrane aspirated through a 10-mm cannula. After a second treatment with the scolicalid agent, the cavity was examined by camera for bronchial fistulas. The operation ended with the positioning of a tube drain in the sixth intercostals space, to be left in place for 72 hours. Post operative period was uneventful.

For splenic hydatid cyst, four trocars were placed. First one (10 mm) was placed in the anterior axillary line below the left costal margin, second operating trocar (5 mm) at mid-axillary line below the left costal margin, third operating trocar (5 mm) at mid-clavicular line and fourth operating trocar (10 mm) was placed at 2-3 cm below the left costal margin [3]. After placement of the trocars, dissection of the splenophrenic ligament and splenocolic ligament was done. Tissues and vessels in the gastrosplenic ligament were transected. Splenorenal ligament and splenic hilum (Figure 4) was dissected and splenic artery and vein were identified and stapled. Following, the spleen was removed and extracted via 3 cm incision over left para-umbilical region. Postoperative period was uneventful. Patient was followed at 2 weeks, at 1 month, 3 months and 6 months with no specific complains.

RESULTS AND DISCUSSION

Results

A total of 6 cases were managed surgically (Table 1). 5 were male and 1 was female. The mean age of patients was 35 years. Incidence of hydatid cysts at various sites was: Four patients had hydatid cyst in the liver, 1 patient in the lung, 1 patient in the spleen. Mean operative time was 90 minutes in our study. Post-operative course was uneventful in all patients. The patients were followed up both clinically and radio graphically (USG) every 3 months in the first year, then every 6 months in the second year, and thereafter annually. No recurrence occurred in the follow up period.

Discussion

Hydatid disease is still a major problem in rural agricultural population. It can involve any organ of body and can present with wide variety of symptoms, depending on the organ involved. Liver is most common organ involved and surgery is the treatment of choice.

In our patients, the hydatid cyst most commonly affected 31-40 year age group which is similar to the previous studies [4,5]. Our study showed male preponderance (M: F=5:1). Right lobe of liver was most commonly involved which is similar to studies of Malik et al, [6]. All the cysts were single which has also been reported in other studies [7]. With advent of time and expertise laparoscopic surgery is gaining more and more importance and becoming the procedure of choice. Laparoscopic cyst evacuation and omentoplasty is the procedure of choice for liver cysts. All the patients were operated by laparoscopic cyst evacuation and omentoplasty, one of the patients treated with V.A.T.S. Mean operative time in our study was 90 minutes which is comparable to standard studies [8].

The advantages of laparoscopic surgery over open surgery are less operative duration, less Intraoperative complications, shorter hospital stay and better cosmetic results. To prevent dissemination of the daughter cysts during the laparoscopic procedures, we placed betadine soaked gauzes around the cyst before puncturing it. The suction tube was kept closer to prevent spillage.

CONCLUSION

Hydatid cyst of liver and lung is not an uncommon presentation. Although the disease is asymptomatic for many years because of slow growth of the cyst, it is progressive, may cause life threatening complications and has the tendency to recur. These cysts can be well managed by laparoscopic techniques and proper precautions should be taken during surgery to prevent dissemination, seeding or anaphylactic shock. This will decrease the morbidity and mortality in the postoperative period. When the cyst is present in the rare site such as in spleen, the suspicion of hydatid cyst is unlikely. This is further confusing when the patient does not have any primary hydatid cyst in lung or liver. The possibility of hydatid cyst in any patient presenting as a pain or swelling in left hypochondrium should be kept as differential diagnosis as it can affect any organ of the body like spleen.

Table 1: Comprehensive list of the patients (n=6) presented with hydatid cysts.

S. no.	Age	Sex	Organs involved	No. of cysts	Procedure
1	60	M	Liver (Right)	Single	Partial cystectomy with omentoplasty
2	35	M	Lung (Right)	Single	VATS
3	35	M	Liver (Right)	Single	Partial cystectomy with omentoplasty
4	22	M	Liver (Right)	Single	Partial cystectomy with omentoplasty
5	25	M	Liver (Right)	Single	Partial cystectomy with omentoplasty
6	50	F	Spleen (Hilum)	Single	Splenectomy

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