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Different presentations of hydatid cyst and its management – A prospective and observational study in a tertiary care hospital in Kolkata

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ABSTRACT

Background: Hydatid disease of liver is quite common disease in Eastern India, though not very frequently reported. The diagnosis of hydatid cyst is often difficult because of its initial modes of presentation. **Aims and Objectives:** The objectives of the present study were to evaluate the different clinical presentation, surgical management options, and complications if any after operation in a tertiary care center. **Materials and Methods:** This prospective study was conducted with 30 patients (Male 17 and Female 13 with a mean age of 41.23 years) who were diagnosed of having hydatid cyst of liver. **Results:** The presenting symptoms that were found pain abdomen (22 cases), abdominal lump/mass (16 cases), cholangitis (five cases), jaundice (two cases), constitutional (anorexia, nausea, and malaise two cases), and fever (18 cases). Deroofing and omentoplasty and wound drainage (12 cases), partial pericystectomy (nine cases), pericystic-cystectomy (six cases), marsupialization (two cases), and one case was managed nonoperatively. Post-operative complications were – biliary fistula (two cases), post-operative cholangitis (two cases), surgical site infections (two cases), and retained cyst (one case). **Conclusion:** A high index of suspicion is always recommended when an adult patient comes with pain abdomen and abdominal mass. Different surgical methods, for example, deroofing and omentoplasty with wound drainage, partial pericystectomy, and pericystic-cystectomy can be applied. To establish the definite surgical management, many more randomized and controlled studies are needed.

Key words: Cystic echinococcosis; *Echinococcus granulosus*; Surgical techniques

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INTRODUCTION

Hydatid disease, a parasitic infestation by the larval form of cestode, Echinococcus granulosus, was first described by Hippocrates as "Liver full of water".[1] Though liver is mostly affected (50-70%), after oral ingestion of ova and reaching there by portal circulation, but can spread to every possible organ.[2] The host tissue, that harbours the parasite, isolate itself from the parasite by the formation of peri-cyst encasing the actual hydatid cyst. Hydatid cyst or Echinococcosis is one of the most neglected parasitic diseases.[3] Diagnosis is often delayed as many patients are asymptomatic even in advanced stage. Parasitic load, the site, the size of the cyst, cyst complications determine the degree of symptoms. Initial vague symptoms of abdominal fullness, nonspecific pain, low grade fever etc. may later progress to obstructive features, as the mass enlarges, pressing over nearby organs, and there may be Cholangitis and even anaphylactic reactions due to leakage of the cyst contents. These complications rather than disease itself, are difficult to treat.[4]

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Hepatic hydatid cysts are managed according to the general status, cyst location and associated complications.[5,6] Surgical, either open or laparoscopy, medical or interventional radiology (inj. of Protoscolicidal agent and repeat aspiration- PAIR) are the available options.[7] But surgery by far remains the gold standard for treatment which is applicable for the entire spectrum of disease.[8,9]

There are sporadic reports of cases from different regions of India.[10,11] But very few reports are found in the present study area as per available literatures. Again, in our country with limited resources and high patient load, lack of awareness among populations, limited access to medical facility, it is pertinent to clarify some aspects concerning the hydatid cyst of liver in order to better understanding of the different presentations, therapeutic options particularly surgical approaches.

Aims and objectives

The objectives of the present study were to evaluate the different clinical presentation, surgical management options and complications if any after operation in a tertiary care center.

MATERIALS AND METHODS

The present, prospective, and observational study was conducted among patients with hydatid cyst of liver, who were admitted in the Department of General Surgery and Department of Surgical Gastroenterology of IPGMER and SSKM Hospital, Kolkata, West Bengal, for a period of almost 3 years. All patients, with the diagnosis of hepatic hydatids, were included. Patients with non-parasitic cystic liver disease are excluded. Patients with non-parasitic cystic liver disease are excluded from the study. Diagnosis was confirmed by clinical examination, ultrasound (USG), computed tomography scan of whole abdomen, serology, immunohistochemistry, and routine blood examination. Thirty cases were selected accordingly and the patients were observed, different presentation noted, relevant investigations done, and managed as the cases present. Almost all patients were treated surgically, some chemotherapeutic agents were supplemented with the surgical procedures. The surgical procedures were employed according to the site over different liver segments, size, and associated complications. In the post-operative period, some patients present with different complications, for example, biliary fistula, retained cyst, cholangitis, and surgical site infections which were managed judiciously.

Ethical approval

The study was conducted in accordance with the ethical principles that have their origin in the Declaration of Helsinki. It was carried out with patients verbal and analytical approval before sample was taken. The study protocol and the subject information and consent form were reviewed and approved by a Local Ethics Committee.

RESULTS

Modality of treatments

Surgery was performed in 29 patients and one patient were treated conservatively. Pre and postoperative chemotherapy with albendazole were given to all 30 study participants. Scolicidal agents i.e. combination of 0.5% Cetrimide and 0.05% Chlorhexidine was used. Follow up was performed at follow up clinic by clinical examination and USG when necessary.

Scolicidal agents

Combination of 0.5% Cetrimide and 0.05% Chlorhexidine.

Follow-up was performed at follow-up clinic by clinical examination and USG when necessary.

Operative and perioperative management

Surgery (open) was done according to the location, characteristics of the cyst in the liver, and general condition of the patient. Antibiotic prophylaxis with second- and third-generation cephalosporins done. Peripherally, located cysts were managed by *en block* removal of cyst and pericyst to avoid spillage of cyst contents and keeping the operative field protected by SAVLON soaked mops. Sometimes used 20% hypertonic saline as a scolicidal agent. During the procedure, Adrenaline and Steroids kept ready whenever it if necessary.

For the cysts that were located deep inside the liver parenchyma, partial or total cystectomy was performed. Sometimes, the cyst wall was aspirated with large bore needle or after withdrawing approx. 50 ml of fluid, two stay sutures were given over cyst wall. 3–4 cm of incision given after withdrawing the needle. The cyst cavity was visualized and contents were sucked out by a disposable cannula. All precautions were taken by keeping SAVLON soaked mops. During removing the cyst contents, it was necessary to remove the membranes in one piece. The residual cavity was evaluated along with the contents after thorough washing the cavity with scolicidal agents and normal saline. Bile staining implies biliary communication and toothpaste like materials were the sign of dead cysts. If there was no biliary communication, the cyst cavity was packed with omentum and fixed to the wall with absorbable suture materials or capitonnage (in folding) in case of large cysts and simple closure in

Table 1: Distribution of study population according to age group and gender (n=30)

Age groups (years)	No of patients
10–19	1
20–29	4
30–39	7
40–49	12
50–59	5
>60	1
Total	30
Gender	
Male	17
Female	13
Total	30

Table 2: Distribution of study participants according to presenting symptoms*, signs* and involvement of lobe (n=30)

Presenting symptoms	No of patients
Pain abdomen	22
Abdominal lump/mass	16
Jaundice	2
Fever	18
Constitutional symptoms	2
Cholangitis	5
Presenting signs	
Hepatomegaly	22
Jaundice	16
Pallor	30
Poor nutritional status	16
Lobe involvement	
Right lobe only	20
Left lobe only	Nil
Both lobes	10

*Multiple response

Table 3: Distribution of study participants according to ELISA for echinococcal antibody (n=30)

Test	No of patients
True (+) Ve.	20
True (-) Ve.	10
False (+) Ve.	1
False (-) Ve.	0
Sensitivity (20/20×100)	100%
Specificity (10/10+1)	99%

small cavity. External drainage done in case of infected cyst. Exploration of common bile duct done for intrabiliary rupture. In all cases, cholecystectomy was done as a standard procedure. Albendazole treatment was advised (15 mg/kg. Body weight) for a period of 6 months–1 year. (15 mg/kg. Daily as 4 weeks on and 2 weeks off for a period of 6 months–1 year for 6 courses at least, and periodic check-up of liver function test and complete blood count. All patients are advised thromboembolic prophylaxis till they were ambulatory. Post-operative complications had arisen in some cases as retained cyst, biliary fistula, cholangitis, and surgical site infections.

Table 4: Distribution of study participants according to type of operation and post-operative complications (n=30)

Type of operation	No of patients
De-roofing and omentoplasty and wound drainage	12
Partial pericystectomy	9
Pericystic cystectomy	6
Marsupialization	2
Non-operative	1
Findings of post-operative complications	
Retained cyst	1
Biliary fistula	2
Post-operative cholangitis	2
Surgical site infections	2

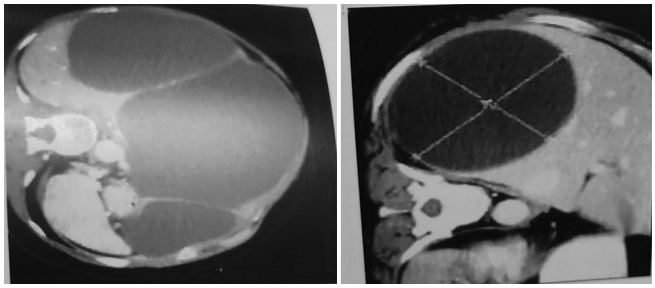

Figure 1: Hydatid cyst (including daughter cyst) of liver; Cart wheel appearance on CECT of liver

RESULTS AND ANALYSIS

Out of total 30 study subjects 12 belonged to 40-49 yrs age group with a mean age of 41.23 years. 17 were male and rest were female (Table 1). The most common presenting symptom was pain abdomen (22) followed by fever (18). Abdominal lump or mass and Cholangitis were found in 16 and 5 patients respectively. Hepatomegaly was found in 22 of the subjects and jaundice in 16. Most of the patients i.e. 20 presented with hydatid cyst in their right lobe of liver only while both lobes were involved in 10 patients (Table 2). On performing ELISA for Echinococcal antibody, 20 came to be true positive and 10 true negative with 100% sensitivity and 99% specificity (Table 3). Surgical management was the main mode of treatment in 29 cases wherein pre and post operative chemotherapy was given to every patient. Deroofing and omentoplasty with wound drainage were done in 12 of the patients followed by partial peri-cystectomy and peri-cystic cystectomy in 9 and 6 patients respectively and one case was managed non operatively. In the post operative period each of Biliary fistula, post operative cholangitis and surgical site infection occurred in 2 patients each and managed accordingly.

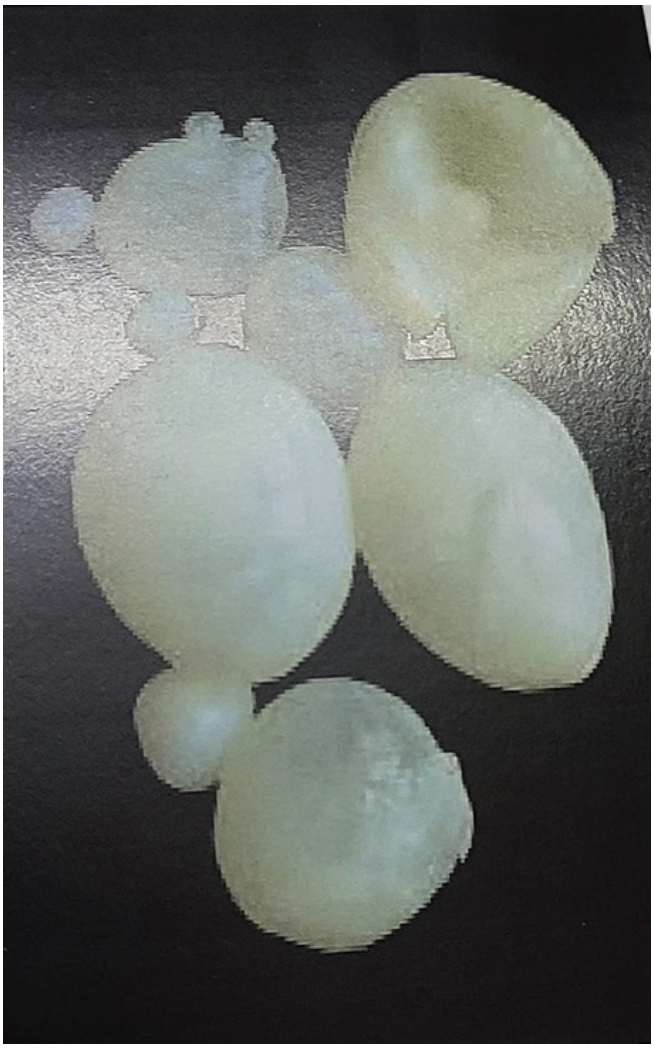

Figure 2: Hydatid cyst (including daughter cyst) of liver; Cart wheel appearance on CECT of liver

One case of retained cyst was seen and re-operation was performed in that case (Table 4).

DISCUSSION

The present study shows more patients in their 4th decade of life followed by 3rd decade. Late presentation of symptoms or delayed diagnosis may be a cause of such finding. Pothare AN et al, had found highest incidence of the disease in 3rd decade followed by 5th decade.[6] It supports that the disease is mainly found with advancing age.

In the present study male patients were more than female with ratio of 1.3:1. Outdoor activities, poor hygiene, handling of cattle are more in male which may be the cause. However, easier access to healthcare in male rather than female may contribute for such finding.[12] Palanivelu et al. also reported higher male patients than female (5:1).[13]

Pain abdomen was the most common presenting complaint with abdominal lump and other constitutional signs were seen in some patients. Hepatomegaly was present in 70% of cases. Right lobe of the liver was mostly involved. As the right lobe is much bulkier than the left lobe and its major venous drainage is from portal vein, right lobe preponderance of hydatid cyst can be explained. Baruah et al also reported that right lobe of the liver was the mostly affected.[14] ELISA for EA was performed in all cases with 100% sensitivity and 99% specificity.

There are several interventional options, other than surgery, as for case and availability of expertise E.g., Puncture under USG guidance, aspiration, PAIR technique, but it is contraindicated in calcified cyst, solid cyst and vary superficial and inaccessible cyst and surgery remains the gold standard of treatment.[7] However, it was very difficult to say which surgical treatment will be better – open/ laparoscopy. The number of cyst size, relation to bile duct and blood vessels, extra-hepatic disease, age and general condition of the patient will guide the choice of surgical procedure.[13] Though the radical surgery lowers the relapse rate but increases the operative risk. So, it is better to do careful selection of patients which guarantees safety and effectiveness.[16,17] In present study, mainly open surgical methods were followed with pre operative and post operative treatment with Albendazole to reduce the chances of recurrences (specially in cases of operative spillage or missed small daughter cyst) as suggested by Franchi et al.[18] To prevent anaphylactic shock, all the necessary medicines (Inj. Hydrocortisone, Inj. Adrenaline, Inj. Promethazine) were kept ready at operation theatre. 0.5% cetrimide and 0.005% chlorhexidine (SAVLON) TM was used as scolicidal agents. Post operative complications that were seen – Biliary fistula, cholangitis, surgical site infection and retained cyst. Patients who were treated surgically had abdominal USG and IgM done in the follow up period.

Limitations of the study

Institute based observational study.

CONCLUSION

Liver Hydatidosis, though occult and incidentally diagnosed, when it becomes symptomatic, various specific and non-specific signs and symptoms arise. To decide the surgical management, cystectomy followed by Omentoplasty ensures effective management option. For peripherally located cysts, Pericystectomy can be tried. Resection procedures were considered too radical for a benign disease.

However, appropriate randomized and controlled studies are needed to establish the definite surgical management of liver hydatidosis.

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