

A CASE SERIES ON SURGICAL MANAGEMENT OF HYDATID CYST OF LIVER IN A TERTIARY CARE CENTRE OF EASTERN INDIA

Hepatobiliary Surgery

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ABSTRACT

Introduction: Hydatidosis, a zoonotic disease is still of major concern in developing countries. Although it can involve any organ, liver is most commonly affected. The diagnosis, apart from the varied history and physical signs, involves specific serological tests and radiological techniques. We present this case series to describe our institutional experience in managing this condition. **Methodology:** This series was conducted at a tertiary care center of eastern India from January 2021 to July 2022. All patients managed surgically with a definitive diagnosis of hydatid cyst of liver on computerised tomography (CT) scan with or without symptoms were included in the study. Open or laparoscopic cyst excision was performed and postoperatively followed till 3 months. **Results:** The series had a male predominance (72%) with 46.7 years being the mean age. Abdominal pain was the most consistent presenting complaint (100%) followed by abdominal mass (40%). Right lobe of liver was involved in 76% cases. Surgical site infection (16%) followed by biliary leak (12%) was the most common postoperative complication encountered. The mean length of hospital stay was 10.1 days with 2 cases presenting with recurrence in the 3 month follow up period. **Conclusion:** This series highlights the clinical presentation, preoperative diagnosis and management of liver hydatidosis with an emphasis on the need of clinical suspicion. A knowledge of surgical approaches and post operative complications is necessary to appropriately tackle such cases.

KEYWORDS

Hydatid cyst, Echinococcus granulosus, liver cyst, parasitic infection

INTRODUCTION:

Echinococcosis or Hydatid cyst is a zoonotic disease caused by the parasite, Echinococcus granulosus. Humans acting as the intermediate host in the life cycle, after ingesting the eggs shed in the faeces of the definitive host. Being a communicable and preventable disease, understanding the various pathophysiological mechanisms involved aids in early management and prevention of the disease. Known since the Hippocratic era as the "Liver full of water" [1], its incidence has drastically decreased in the developed countries. Despite stringent control measures, hydatidosis still continues to pose a heavy burden on human health in developing countries, especially among the rural population with a wide spectrum of clinical presentations.

Liver being the first site of filter for the larvae, is the most common site of affection [2]. The diagnosis of liver hydatidosis, apart from the history and physical signs, involves specific serological tests and radiological techniques. Yet hydatid disease must be considered among the differential diagnosis of cystic lesions of liver. With medical therapy, surgical excision and other minimally invasive methods of treatment in the surgeons armamentarium [3], it is a curable disease with minimal complications in the early stage. Hence, we present this case series to vividly describe the spectrum of clinical presentation, available surgical treatment options and prognosis of liver hydatidosis in East Indian population.

MATERIALS AND METHODS:

This prospective series was conducted at a tertiary care institute catering to the population of Eastern India from January 2021 to July 2022. All patients managed surgically with a definitive diagnosis of hydatid cyst of liver on computerised tomography (CT) scan with or without symptoms were included in the study. Patients with other cystic diseases of liver, post operative histopathology not suggestive of hydatidosis were excluded from the study. The study was approved by the institutional ethical committee.

All patients were evaluated thoroughly with detailed history and clinical examination, ultrasonography and CT scan of the abdomen (figure 1), classified based on WHO classification [4]. A preoperative dose of albendazole was given for 14 days in the dose of 10 mg/kg body weight and continued post operatively in three courses. The surgical procedure of cyst excision was performed using either the open approach or laparoscopy with 2% savlon instilled into the cyst cavity as a scolicalid agent and removed as shown in figure 2. If an obvious cysto-biliary communication is noted, the open margins are sutured closed. Omentoplasty was done in most of the cases with a drainage tube. The intraoperative technique, post operative complications

according to clavien dindo classification [5], length of hospital stay, biliary leak and recurrence was recorded and analysed.

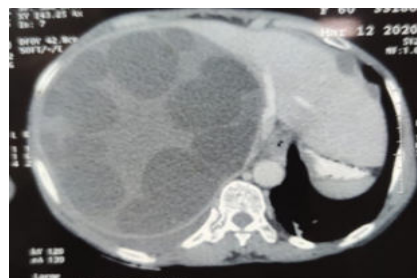


Figure 1: Contrast enhanced CT scan showing hydatid cyst of right lobe of liver

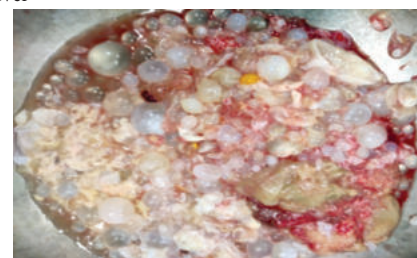


Figure 2: Specimen of the cysts after removal

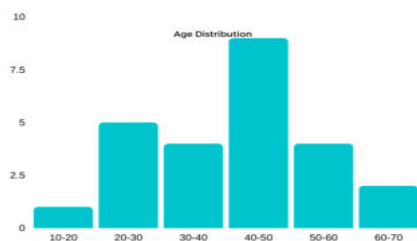
RESULTS:

A total of 25 patients were taken in the study, of which 18 (72%) were male and 7 (28%) were female. The mean age of the study cohort is 46.7 ± 7.4 years with the majority of the patients (36%) belonging to the 5th decade (40 – 50 years) as shown in graph no 1. The most common presenting complaints are abdominal pain (100%), Jaundice (12%) followed by abdominal mass (40%) as depicted in table no 1.

The most frequent location of the hydatid cyst was found to be the right lobe accounting for 76% of cases (table 2). Open cyst excision was performed in 21 (84%) patients and laparoscopic approach in 4 (16%) patients. The stage of the cysts encountered classified based on WHO is depicted in table 3.

Six (24%) of the patients had a significant post operative complication requiring re-intervention (Table 4). Surgical site infection was present in 4 (16%) patients. Post operative biliary leak was found in 3 (12%) of

cases. The mean length of hospital stay was 10.1 ± 4.6 days. Two (8%) of patients had recurrence of the disease on follow up.



Graph 1: Age distribution of the patient cohort (X-axis depicting age in years and Y-axis depicting number of cases)

Table 1: Presenting complaints

Presentation	Number of patients	Percentage (%)
Abdominal pain	25	100
Jaundice	3	12
Abdominal Mass	10	40
Fever	1	4
Asymptomatic	None	0

Table 2: Involvement of hepatic lobes

Lobes	Number of patients	Percentage (%)
Right	19	76
Left	5	20
Both involved	1	4

Table 3: Stage of the cyst based on WHO Classification

WHO Classification	Number of patients	Percentage (%)
CE 1	0	0
CE 2	6	24
CE 3	13	52
CE 4	6	24
CE 5	0	0

Table 4: Post operative complication

Post operative complication	Number of patients	Percentage (%)
Bile leak	3	12
Surgical site infection	4	16
Anaphylaxis	0	0
Recurrence	2	8
Death	0	0

DISCUSSION:

Liver hydatidosis, though a treatable disease is still a major health burden in rural population of developing countries. Humans are the accidental dead end host in the life cycle of the parasite *Echinococcus granulosus*. Liver is the most common affection requiring surgical management. Our series comprised of 25 cases of liver hydatid cyst managed surgically either by open or laparoscopic approach.

The disease had a male predominance of 72% comparable to other studies [6, 7]. Whereas, Tiwary et al [8] demonstrated a female predominance in their series. The most common age of presentation in our series is the adult hood (40 - 50 years) with similar such results in other series [6, 7]. This has its implication on the socioeconomic development of the population, considering the working age group being affected the most. Most frequent clinical presentation was upper abdominal pain being present in all our patients, similar to other series [9, 10].

Right lobe is the most commonly affected side which could be explained to the straight and short course of the right division of portal vein. Type CE 3 cysts were the common stage in which they were operated. 84% of patients underwent open approach of cyst excision. With the advent of minimally invasive techniques, the utility of laparoscopic excision is on the rise, although the open approach is still considered the standard technique.

The most common post operative complication encountered in our series was surgical site infection followed by bile leak. Similar incidence of post operative bile leak was described in other series by Palanivelu et al [11] and Pothare et al [6]. All patients of biliary leak

were managed by means of endoscopic biliary stenting. The mean length of operative stay was 10.1 days which was slightly more in comparison to other series [12]. The recurrence rate in our study was 8%, probably owing to the non compliance to post operative pharmacological therapy. Like many diseases, prevention is the key to control and changes in social habits and hygiene can prevent these infections [13].

CONCLUSION:

A high index of clinical suspicion among surgeons is necessary to tackle the still existing burden of liver hydatidosis by means of early detection and treatment, especially in endemic regions around the world. On timely diagnosis, the surgeon must be actively involved in the management protocol, as surgery is the definitive final treatment for the excision of the cysts. A knowledge of surgical approaches and post operative complications is necessary to appropriately tackle such cases.

Conflict of Interest: None to declare

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