

## LAPAROSCOPIC MANAGEMENT OF HEPATIC HYDATID DISEASE- AN OBSERVATIONAL STUDY IN NORTH EAST INDIA

Rubul Das<sup>1</sup>, Nipan Das<sup>1</sup>, Subal Rajbongshi<sup>1</sup>, Baharul Islam<sup>2</sup>, Bhim Singh<sup>2</sup>, Neeraj Kumar Agrawal<sup>3</sup>

<sup>1</sup>Assistant Professor, Department of Surgery, Fakhruddin Ali Ahmed Medical College and Hospital, Barpeta, Assam, India

<sup>2</sup>Post Graduate Trainee, Department of Surgery, Fakhruddin Ali Ahmed Medical College and Hospital, Barpeta, Assam, India

<sup>3</sup>Associate Professor, Department of Pharmacology, Government Autonomous Medical College, Ratlam, Madhya Pradesh, India

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### Corresponding Author:

**Dr. Neeraj Kumar Agrawal,**  
Email: drneer80@yahoo.com  
ORCID: 0000-0002-9710-2796

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### Abstract

**Background:** Although laparoscopy has become commonly employed in the treatment of liver hydatid cysts, some surgeons are concerned about the increased risk of complications. This study summarises our experience with laparoscopic treatment of this disease. **Materials and Methods:** In this retrospective analysis, 43 patients with liver hydatid disease were included. A history, physical examination, ultrasound, CT scan, and serological testing were used to detect hydatid cysts in all patients. Prior to surgery, all patients were administered Albendazole 200 mg twice day for two weeks. Clinicopathologic characteristics, operation time, laparotomy conversion, morbidity, mortality, and recurrence were all investigated. **Result:** The patient's average age was  $38.6 \pm 14.03$  years. Pain was the most prevalent symptom in 79.06% of cases, while 72.9% had only one cyst. The right lobe of the liver was the most frequently affected. In two patients, the cysts were bilateral. The average duration of follow-up is 6 months. Recurrence and hernia were seen in two (4.65%) of the patients. **Conclusion:** Laparoscopy seems to be a secure and reliable way to treat hepatic hydatid cyst disease. In the hands of skilled surgeons, it is linked to less conversion rates, a low incidence of postoperative complications and short-term recurrence.

## INTRODUCTION

The parasitic disease hydatidosis is prevalent and widespread throughout the world. Australia, New Zealand, South America, the Mediterranean region, the northern part of Africa, Turkey, the Middle East region, and some Asian parts, notably the Indian subcontinent, make up the majority of the area. However, due to increased travel and immigration, doctors and surgeons may encounter the condition internationally.<sup>[1,2]</sup>

The disease is brought on by the *Echinococcus Granulosus*, which remains in the small intestine of canines. The eggs are consumed by intermediate hosts like sheep, goats, or reindeer that eat the discharged eggs. Unintentionally serving as intermediary hosts are people. The liver develops hydatid cysts as a result of the larvae being released in the duodenum, crossing the intestinal wall, and moving through the portal vein to the hepatic sinusoids. Unfiltered, some larvae enter the lungs and other organs after passing through the liver.<sup>[1,3]</sup>

In humans, hydatid cysts (HC) most frequently develop in the liver (50% to 93%).<sup>[1,4,5]</sup> If untreated, cysts can develop into fistulas into nearby organs or the biliary system, rupture into the peritoneal cavity, which can result in the formation of numerous daughter cysts all over the peritoneal cavity, or they can die on their own.<sup>[1,2]</sup> Older cysts are more likely to develop exogenous daughter cysts, which is a significant risk factor for the recurrence of the disease following surgery.<sup>[6,7]</sup>

There are now more choices for treating liver hydatid disease, including medication, percutaneous drainage, or a combination of the two. The most common kind of therapy is surgery. The usage of the other modalities varies depending on the stage of the sickness and is limited. Numerous papers have discussed laparoscopic surgery (LS) for hepatic HC. Due to risk of hydatid fluid spilling during a minimally invasive procedure causing anaphylactic shock may prevent this technique from becoming more popular.<sup>[6]</sup>

In accordance with improvements in LS, hepatic hydatid disease laparoscopic treatment has recently

become more well-known and undergone a revolution.<sup>[7]</sup> There are no local reports of its efficacy despite being an innovative and promising technique with low morbidity and death.

This study's objective was to assess the issues that came up during the laparoscopic management of hepatic hydatid cyst sickness.

## MATERIALS AND METHODS

The Department of Surgery at tertiary care hospital in north east region of India was the site of this retrospective observational investigation. The study was approved by Institutional Ethical Committee (Approval No. FAAMC&H/P.Est./I.E.C/26 Pt.-/2022/89).

43 individuals who underwent LS for hepatic HC were included in the study. Laparotomy patients were not allowed to participate in the study. Laparoscopic intervention was not performed on patients who had undergone emergency surgery for a ruptured hydatid, had more than three cysts, or had cysts with calcified walls. Based on a history, physical examination, ultrasound, CT scan, and serological testing, the hydatid cyst was identified in each patient. Prior to surgery, all patients received 200 mg of albendazole twice day for two weeks. The following factors were looked at: clinicopathologic characteristics, operating time, laparotomy conversion, morbidity, mortality, and recurrence.

General anaesthesia was used for every surgery. The administration of antibiotics coincided with the onset of anaesthesia. Hydrocortisone injections were administered to the patients as a preventative measure before to surgery. A nasogastric tube was inserted after Foley's catheter was passed. After inducing pneumoperitoneum, the liver cyst was located using a zero degree telescope that was placed through an infra-umbilical port. An aspiration needle was put into the peritoneal cavity through a second port that was implanted on the right side, near to the cyst. To facilitate access and deployment, a third port was installed. The aspiration of cyst fluid with 20% hypertonic saline, twice aspirated, and then the cyst wall was unroofed. All of the cyst contents were completely emptied using a sucker before being irrigated with hypertonic saline. Any leftover contents, daughter cysts, and biliary leaks were checked in the cavity. The cyst cavity was entered with a drainage tube for postoperative drainage.

If there was no bile or fluid outflow, the drain was removed after 2 to 3 days, and the patient was sent

home on the third or fourth day. The drain was left open for a longer period of time in cases with bile drainage. Following surgery, ultrasonography was used to check on the cyst cavity at intervals of 15, 30, 90 and 180 days. If the ultrasound report was doubtful or ambiguous, a CT scan was done. All patients had a 90 day regimen of albendazole after surgery. SPSS version 15 was used to analyse the data.

## RESULTS

[Table 1] depicts the demographic characteristics of the study participants.

The most prevalent complaint stated by the included patients was pain, which was recorded by 79.06% of cases, while the remaining instances reported fever, abdominal mass, and Jaundice swelling. It was discovered by chance in four (9.30%) patients during an ultrasound performed for another reason. In all patients, Haemagglutination test, USG-abdomen and CT scan were performed. LFT were performed on patients who presented with jaundice. Three individuals exhibited jaundice, with two showing obstructive jaundice on liver function testing. [Table 2]

[Table 3] shows that the right lobe was most frequently afflicted (83.72% of cases), whereas 11.62% of cases involved the left lobe. Bilobar affection was present in only 2 instances. The identified liver hydatid lesions had an average size of 8.0 cm (range, 3–17 cm). Cysts tended to be solitary in nature (72.09%).

The laparoscopic needle aspiration, cyst unroofing, and cavity evacuation took 46.27 + 13.84 minutes on average. The procedure lasted between 35 and 85 minutes. It was shorter in single and small cysts.

[Table 4] is showing the lists of complications. Postoperative biliary leakage occurred in 4 (9.30%) cases and was treated conservatively, with complete resolution 7-10 days after surgery. Two patients had minor peritonitis that was treated conservatively with antibiotics. Because of insufficient exposure and access, the treatment was modified to open surgery in three patients (6.97%). Not a single patient experienced anaphylactic shock during or after surgery. Only 21 of a total of 43 patients showed up for the follow-up visit. At a 6-month follow-up, 2 (4.65%) patients had each developed a hernia, which was treated laparoscopically. The bulk of the patients were from rural locations, which was the primary cause of the subpar follow-up. The series didn't have any deaths.

**Table 1: Demographic Characteristics of Study Participants**

Items	Study participants n = 43
Age range (Years)	15-64
Age (Mean ±SD) years	38.6 ± 14.03
Male	16 (37.20 %)
Female	27 (62.79 %)

**Table 2: Preoperative Symptoms Among Study Participants**

S.No.	Features	Study participants n = 43 (%)
1	Symptoms	
	Pain	34 (79.06)
	Fever	5(11.62)
2	Signs	
	Mass	9(20.93)
	Jaundice	3(6.97)
3	Incidental finding	4(9.30)

**Table 3: Criteria of the Lesions among Study Participants**

Items	Sites	Study participants n = 43 (%)
Site of the lesion	Right lobe	36 (83.72)
	Left lobe	5 (11.62)
	Bilateral	2 (4.65)
Number of cyst	Single	31 (72.09)
	Double	6 (13.95)
	Triple	6 (13.95)
Cyst size (cm)	Mean ± SD	8.0 ±3.16

**Table 4: Post Operative Complications among Study Participants.**

S.No.	Complications	Study participants n = 43 (%)
1	Anaphylactic shock	Nil
2	Infection (port site)	3 (6.97%)
3	Bile leakage	4 (9.30%)
4	Peritonitis	2 (4.65%)
5	Conversion	3 (6.97%)
6	Recurrence	2 (4.65%)
7	Hernia formation	2 (4.65%)
8	Mortality	Nil

**Figure 1: Laparoscopic Surgery of Hepatic Hydatid Cyst**

## DISCUSSION

This study's 15–64 year age range and mean age of 38.6 years are comparable to other series' average presentation ages.<sup>[2,8-10]</sup> However, in some locations, the average age of presentation is higher and typically all age groups are equally impacted.<sup>[11]</sup> Similar to prior studies, this study primarily affected women.<sup>[8,11,12]</sup> While some research have found a male predominance or a gender-neutral infestation.<sup>[2,9,10,13]</sup>

In our study, pain was the most often reported symptom (79.06%) by the patients who were included. Our findings were supported by Jabbari Nooghabi et al,<sup>[14]</sup> and 68.52% of the included cases reported experiencing pain. Other symptoms were abdominal lump (14.81%), fever (27.78%), vomiting (31.48%), gastrointestinal discomfort (24.07%), flank pain (44.44%), and jaundice (3.7%). Additionally, Shrestha et al,<sup>[9]</sup> revealed that while abdominal lumps were seen in 23.06% of patients,

abdominal pain was experienced by 50% of cases. Other symptoms included vomiting, dyspepsia, fever, and jaundice, and our investigation found that three cases (11.53%) of accidental discovery involved these symptoms.

The hepatic right lobe's single cyst was the most frequent pathology in the current investigation. Studies from India and the Uruguayan community reported the same thing.<sup>[2,13]</sup>

43 patients with hydatid cysts in the liver were treated laparoscopically in this study. A study from the University Hospital in Turkey demonstrated good outcomes and little recurrence during the straightforward drainage of cysts using a customised trocar and cannula in 16 patients, as well as unroofing and drainage in 20 additional patients. 13 In 33 patients, Ertem et al. reported successful laparoscopic cystectomy and partial cystectomy with drainage, along with omentoplasty in 15 patients, with just 2 patients converting to open surgery.<sup>[7]</sup>

Three patients (6.97%) in this study needed laparotomies because to inadequate access, exposure, and anatomy. Due to the same factors, other people have observed conversion rates between 4% and 25%.<sup>[7,15]</sup> This series did not have any deaths. Peritonitis, biliary leakage, and port-site infections were among the complications that were conservatively treated. Hernia and recurrence accounted for 4.65% of late complications each. In another series, biliary leakage was detected in 9 (13.7%) instances and infection in 2 (3%), all of which improved with conservative treatment.<sup>[2]</sup> other sources reported 17% postoperative and 17% perioperative problems, with 1 (9%) occurrence of recurrence.<sup>[15]</sup> Only 2.27% recurrence (single case) was reported by Tai et al.<sup>[16]</sup>

Laparoscopic management, the severity of morbidity and recurrence was low (4.65%) as compared with that in open surgery (3% to 10%).<sup>[7]</sup>

## CONCLUSION

The goal of the current study was to evaluate the problems that resulted from the laparoscopic treatment of hepatic hydatid cyst illness. Laparoscopy for hepatic hydatid cysts has been found to be a safe and successful treatment in patients who were carefully chosen. It is a straightforward procedure that could result in a lower risk of intra-abdominal leakage, fewer problems, and recurrence. Additionally, it provides all the benefits of minimally invasive surgery. There is no widely accepted standard technique in this area, so more research is required.

## REFERENCES

- Huizinga WK, Grant CS, Daar AS. Hydatid disease. In: Morris PJ, Wood WC, editors. Oxford textbook of surgery. 2nd ed. New York: Oxford University Press; 2000. p. 3298-305.
- Palnivelevu C, Jani K, Malladi V, Senthilkumar R, Rajan PS, Sendhilkumar K, et al. Laparoscopic management of hepatic hydatid disease. *JLS* 2006; 10:56-62.
- King CH. Cestodes (tapeworms). In: Mandell GL, Bennett JE, Dolin R, editors. Principles and practice of infectious diseases. 4th ed. New York: Churchill Livingstone; 1995. p. 2544-53.
- Bickel A, Daud G, Urbach D, Lefler E, Barasch EF, Eitan A. Laparoscopic approach to hydatid liver cysts. Is it logical? Physical, experimental, and practical aspects. *SurgEndosc* 1998; 12:1073-7.
- Ertern M, Uras C, Karahasanoglu T, Erguney S, Alemdaroglu K. Laparoscopic approach to hepatic hydatid disease. *DigSurg* 1998; 8:280-2.
- Yaghan R, Heis H, Bani-Hani K, Matalka I, Shatanawi N, Gharaibeh K, Bani-Hani A. Is fear of anaphylactic shock discouraging surgeons from more widely adopting percutaneous and laparoscopic techniques in the treatment of liver hydatid cyst? *Am J Surg* 2004; 187:533-7.
- Ertem M, Karahasanoglu T, Yavuz N, Erguney S. Laparoscopically treated liver hydatid cysts. *ArchSurg*. 2002; 137:1170-3.
- Chautems R, Buhler L, Gold B, Chilcott M, Morel P, Mentha G. Long-term results after complete or incomplete surgical resection of liver hydatid disease. *SwissMedWkly* 2003; 133: 258-62.
- Shrestha SK, Thapa PB, Maharjan DK, Tamang TY. Laparoscopic approach for management of hydatid cyst of liver. *J Nepal HealthResCouncil* 2017; 15:67-70
- Bashir A, Fadela ,MoamenShalkamyAbdelgawaada , Ahmed AbdElkaderSolimanb , MahoudHasabElnabiAbdElrazikahe. Laparoscopic management of liver hydatid cyst: an early center experience of consecutive 25 cases. *TheEgyptian Journal ofSurgery*, Vol. 40 No. 3, July-September 2021. 912-18
- Niscigorska J, Sluzar T, Marczevska M, Karpinska E, Boron- Kaczmarska A, Moranska I, et al. Parasitic cysts of the liver-practical approach to diagnosis and differentiation. *MedSciMonit*.2001; 7:137-41.
- Ahmed HV, Sherwani AY, Aziz R, Shera AH. Hydatid cyst liver, laproscopic management-our experience with 37 patients. *J SurgRes* 2020; 3:066-074.
- Cohen H, Paolillo E, Bonifacino R, Botta B, Parada L, Cabrera P, et al. Human cystic echinococcosis in a Uruguayan community: a sonographic, serologic, and epidemiologic study. *Am J TropMedHyg* 1998; 59:620-7.
- JabbariNooghabi A, MehrabiBahar M, Asadi M, JabbariNooghabi M, Jangjoo A. Evaluation and comparison of the early outcomes of open and laparoscopic surgery of liver hydatid cyst. *SurgLaparoscEndoscPercutanTech* 2015; 25:403-407
- Seven R, Breber E, Mercan S, Eminoglu L, Budak D. Laparoscopic treatment of hepatic hydatid cysts. *Surgery* 2000; 128:36-40.
- Tai QW, Tuxun T, Zhang JH, Zhao JM, Cao J, Muhetajiang M, et al. The role of laparoscopy in the management of liver hydatid cyst: a single-center experience and world review of the literature. *SurgLaparoscEndoscPercutan Tech* 2013; 23:171-175