

Partial Cystectomy and Omentoplasty for Liver Hydatid Cyst

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ABSTRACT

Objective To evaluate the results of partial cystectomy and omentoplasty in the management of hepatic hydatid disease.

Study design Descriptive case series.

Place & Duration of study Department of Surgery, Hayatabad Medical Complex Peshawar, from March 2011 to February 2015.

Methodology The study included patients diagnosed to have hydatid cyst involving right lobe of liver using ultrasound and CT scan abdomen. Patients having hydatid cyst in the left lobe of liver or other viscera were excluded. Postoperatively complications like bile leak were noted.

Results A total of 26 patients with liver hydatid cyst underwent partial cystectomy and omentoplasty. Male to Female ratio was 2.7:1. Mean age of the patients was 44.51 year. The operating time was from 45-90 minutes. Postoperatively 02 (7.7%) patients had bile leak, 03 (11.5%) had wound infection and 01 (3.8%) patient developed recurrent hydatid cyst in the liver. The average hospital stay was 5.4 days. There was no postoperative mortality.

Conclusion Partial cystectomy and omentoplasty for hepatic hydatid disease produced satisfactory results with minimum complications and short hospital stay.

Key words Hepatic hydatid cyst, Partial cystectomy, Omentoplasty.

INTRODUCTION:

Hydatid cyst is a zoonotic parasitic infection caused by *Echinococcus granulosus*. Human echinococcus is still endemic in some areas of world.¹ Humans are accidentally infected by ingested ova and liver is the most common site (50-70%) for hydatid cyst followed by lung, brain and other viscera.^{2,3} Different modalities of treatment are in use to cure the hepatic hydatid disease. Medical line of treatment cannot cure the disease satisfactorily,

however albendazole alone or in combination with praziquantel can prevent further progression of the disease.⁴⁻⁶ Surgery remains the main modality of treatment despite advances in medical and minimally invasive therapies.^{3,7}

The surgical procedures performed for hydatid liver disease range from complete resection to minimally invasive procedures such as percutaneous aspiration of the cyst.^{8,9} Despite potential high risk of recurrence, open partial cystectomy may be a reasonable approach, presenting a good alternative in difficult cases.^{8,10} However, the residual cavity remains the main problem. Omentoplasty is one of the most widely used procedures for obliterating the residual cavity. Moreover, it has been reported to reduce the postoperative complications like bile leak. The purpose of this study was to evaluate the postoperative outcome of partial cystectomy (endocystectomy) along with omentoplasty in the management of hydatid liver disease.

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METHODOLOGY:

This descriptive case series was carried out at the Department of General Surgery Hayatabad Medical Complex Peshawar, from March 2011 to February 2015. Initially, 35 patients were included but after final assessment, only 26 patients of either sex and of different age groups were considered eligible. Patients having hydatid cyst in the left lobe of liver, cysts involving both lobes of the liver and other abdominal viscera or extra abdominal involvement, were excluded. Patients with previous history of abdominal surgery, other hepatobiliary conditions like infected hydatid cyst, liver abscess, gallstones and obstructive jaundice, were also excluded.

All patients were evaluated clinically, biochemically and radiologically. Preoperative investigations included chest x-ray, ultrasound abdomen, CT scan abdomen and CT scan thorax in selected cases. An informed consent was taken. Injection ceftriaxone was given intravenously at the time of induction of anesthesia. Right subcostal incision was used in all cases for exposure of hydatid cyst of liver. Through right subcostal incision, peritoneal cavity was opened and the surgical field was isolated with packs impregnated with 20% hypertonic saline solution. Hypertonic saline solution (20%) was injected into the cyst after its decompression and kept in for at least 5 minutes to kill the daughter cysts. Cyst was deroofed and its contents were evacuated. Omentoplasty was done by placing a pedicled flap of greater omentum, fashioned on right gastroepiploic artery, to obliterate the large residual cavity in order to reduce its size and prevent its recurrence. The free pedicle was fixed to the cyst wall by two to three interrupted stitches of polyglycolic acid suture to prevent its displacement. A single drain was placed in the sub hepatic space in all cases. Postoperatively patients were kept nil per oral for 6 hours and injection ceftriaxone 1gm 12 hourly given for 3-5 days. Drain was usually removed after 72 hours.

Patients were sent home between 5th and 10th postoperative day. Follow up visits were scheduled at 1 month, 3 months, 6 months and one year interval after surgery. The outcome of procedure was assessed by clinical examination and imaging techniques.

RESULTS:

In this study of 26 patients, 19 (73.1%) were males and 7 (26.9%) females, having mean age of 44.5 year (M:F ratio 2.7:1). Twenty (76.9%) patients had palpable mass in the right hypochondrium and 15 (57.7%) had complaints of vague abdominal pain (table I).

Postoperatively, 03 (11.55) patients developed wound infection which were treated by removing the skin stitches, daily antiseptic dressing and antibiotic therapy. Only 02 (7.7%) patients had postoperative bile leak. They were managed conservatively and settled down within ten days. The hospital stay was between 4-7 days (average 5.4 days). There was no mortality in this study group. One (3.8%) patient developed recurrent hydatid cyst of the liver which was confirmed through abdominal ultrasound and CT scan abdomen. Three months after surgery, in 85% cases cyst was completely resolved. Marked reduction in the size of residual cavity was noted in others.

DISCUSSION:

The echinococcus is an endemic problem in some areas of the world but its frequency tends to decrease with the improvement of sanitary conditions.¹¹⁻¹³ In this study most of the patients with hydatid disease of the liver presented with vague abdominal pain and dyspeptic symptoms but many of them were asymptomatic as reported in other studies.^{8,14}

In the current study, the main diagnostic modalities employed were ultrasound and CT scan in all cases

Presentations	No. of patients (n)	Percentage (%)
Vague abdominal pain	15	57.7%
Severe pain right hypochondrium (RHC)	03	11.5%
Dyspepsia	06	23.1%
Nausea and vomiting	04	15.4%
Jaundice	03	11.5%
Mass RHC	20	76.9%
Asymptomatic	04	15.5%

with diagnostic accuracy of 100%. This is comparable to 96% and 100% reported in different studies.^{8,10} Similarly, Mohan SVS et al reported a diagnostic accuracy of 90% and 100% for ultrasound and CT scan respectively.⁹ Sayek and his colleagues also used ultrasound abdomen and CT scan abdomen to confirm the diagnosis of hydatid cyst.¹⁵ When ultrasound and CT scan do not provide the necessary information, especially in case of extrahepatic cysts or the serological tests are inconclusive, then MRI can be used as an alternative diagnostic modality for the diagnosis of hydatid disease.^{2,16,17}

The treatment modality of hydatid disease should be selected for each patient individually according to patient preference, age, and concomitant disease. These patient related factors affect the treatment plan and also pose a risk for surgical intervention.^{4,18} Surgery remains the principal treatment modality and is recommended for both symptomatic and asymptomatic patients.^{19,20} The surgical procedures include partial cystectomy along with residual cavity management, pericystectomy and liver resection.^{1,8-10} Medical treatment with anti-helminthic is usually preferred for small cysts, multiple liver cysts or in combination with surgery.²¹ In case of single cyst more than 5cm in diameter and positive serological test, surgical intervention is mandatory.^{1,8,14}

Omentoplasty is one of the procedures for the obliteration of residual cavity after partial cystectomy. Omentoplasty has been widely used as a method of dealing with the residual cavity but remains controversial.^{1,8,11} It is a simple procedure and usually followed by low postoperative complications, morbidity and mortality rates. Greater omentum can be used to obliterate the residual cavity and thereby markedly reducing the incidence of postoperative complications including hematoma formation, abscess and biliary leakage. This has been confirmed by current study. We had only 7.7% postoperative bile leaks which were managed conservatively. This figure is slightly higher than 4.3% reported in other studies.^{8,9} Radical surgery, pericystectomy or liver resection has lower risk of recurrence than conservative procedures (partial cystectomy, unroofing, capitonnage, omentoplasty).^{1,8} There was no mortality in this series. The reported mortality rate is up to 3.4% after surgical treatment.¹

CONCLUSION:

Partial cystectomy and omentoplasty is an acceptable surgical procedure for hydatid disease of the liver in terms of low postoperative complication rate and short hospital stay.

REFERENCES:

1. Akkucuk S, Aydogan A, Ugur M, Yetim I, Davran R, Oruc C, et al. Comparison of surgical procedures and percutaneous drainage in the treatment of liver hydatid cysts: A retrospective study in an endemic area. *Int J Clin Exp Med.* 2014;7: 2280-5.
2. Symeonidis N, Pavlidis T, Baltatzis M, Ballas K, Psarras K, Marakis G, et al. Complicated liver echinococcosis: 30 years of experience from an endemic area. *Scand J Surg.* 2013;102:171-7.
3. Giorgio A, Sarno A, De Stefano G, Liorre G, Fanella N, Scoynamiglia U, et al. Sonography and clinical outcome of viable hydatid liver cysts treated with double percutaneous aspiration and ethanol injection as first time therapy: Efficacy and long term followup. *Am J Roentgenol.* 2009;193:186-92.
4. Aydin U, Yazici B, Onen Z, Ozsoy M, Zcytuniu M, Kilic M, et al. The optimal treatment of hydatid cyst of the liver: Radical surgery with a significant reduced risk of recurrence. *Turk J Gastroenterol.* 2008;19:33-9.
5. El Malki HO, El Mejdoubi Y, Souadka A, Zakri B, Mohsine R, Ifrine L, et al. Does primary surgical management of liver hydatid cyst influence recurrence? *J Gastrpintesti Surg.* 2010;14:1121-7.
6. Kapan S, Turhan AN, Kalayci MU, Alis H, Augun E. Albendazole is not effective for primary treatment of hepatic hydatid cyst disease. *J Gastrointest Surg.* 2008; 12:867-71.
7. Smego RA Jr, Bhatti S, Khaliq AA, Beg MA. Percutaneous-aspiration-injection-reaspiration drainage plus albendazole or mebendazole for hepatic cystic echinococcus: A meta analysis. *Clin infect Dis.* 2003;37:1073-83.
8. Murtaza B, Mehmood A, Tahir AN, Malik AM. Hepatic hydatid cyst and omentoplasty. *Pak Armed Forces Med J.* 2005;55:296-303.
9. Mailk AA, Bari SU, Ameen R, Jan M. Surgical

- management of complicated hydatid cysts of the liver. *World J Gastrointest Surg.* 2010;2:78-84.
10. Gavava CG, Andujar RL, Herraiz AM, Cestillanos FO, Ibars EP, Rodriguez FSJ. Review of the treatment of liver hydatid cyst. *World J Gastroenterol.* 2015; 21:124-31.
11. Waqasi Z, AlMaawi A, Shakwer M. Hydatid cyst of liver. *Pak J Surg.* 2013;29: 147-50.
12. Zeybik N, Dede H, Balei D, Coskum AK, Ozerhan IH, Peker S, et al. Biliary fistula after treatment for hydatid disease of the liver: when to intervene. *World J Gastroenterol.* 2013;19:355-61.
13. Park KH, Jung SI, Jang HC, Shin JH. First successful puncture, aspiration, injection and reaspiration of hydatid cyst in the liver presenting with anaphylactic shock in Korea. *Yonsei Med J.* 2009;50:717-20.
14. Mohan SVS, Shashidhara TM, Kumar BVS. Hydatid cyst surgical management. *J Evo Med Dent Sci.* 2013;2:5903-8.
15. Sayek I, Tirnaksiz MB, Dogan R. Cystic hydatid disease: current trends in diagnosis and management. *Surg Today.* 2004;34:987-96.
16. Manouras A, Genetzakis M, Antonakis PT, Lagoudianakis E, Pattas M, Papadima A, et al. Endoscopic management of prolapsing hepatic hydatid cyst with intrabiliary rupture: a case report and review of the literature. *Can J Gastroenterol.* 2007;21:249-53.
17. Canyigit M, Gumus M, Cay N, Erol B, Karaoglanoglu M, Akhan O. Refractory cystobiliary fistula secondary to Percutaneous treatment with N-butyl 2-cyanoacrylate. *Radiology.* 2011;34:266-70.
18. Kouraklis G, Dosios T, Glinavou A, Kouvaraki M, Karatzas G. An alternative approach for the surgical management of hydatid disease of the liver. *Langenbecks Arch Surg.* 2001;386:62-4.
19. Tensaw M. Hydatid cyst in children. *Ann Surg.* 2010;6:98-104.
20. Congir AK, Salim F, Enon S. Surgical treatment of pulmonary hydatid cyst in children. *J Ped Surg.* 2001;36:917-30.
21. Kern P. Echinococcus granulosis infection: clinical presentation, medical treatment and outcome. *Langenbecks Arch Surg.* 2003;388:413-20.

Author's Contributions:

Ainul Hadi: Concept of work, data acquisition, data analysis and interpretation, final approval.

Syed Nadeem Ali Shah: Critical revision for intellectual content.

Saadia Muhammad: Data collection, collection of references.

Farrukh Ozair Shah: Drafting and data collection.

Conflict of Interest:

The authors declare that they have no conflict of interest.

Source of Funding:

None

How to cite this article:

Hadi A, Shah SNA, Muhammad S, Shah FO. Partial cystectomy and omentoplasty for liver hydatid cyst. *J Surg Pakistan.* 2016;21(4):126-9. Doi:<http://dx.doi.org/10.21699/jsp.21.4.3>.