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Case Report

Laparoscopic management of hydatid cysts of liver in two different presentations: case reports

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ABSTRACT

Hydatid cyst is a zoonotic infection caused by *Echinococcus granulosus* is mostly asymptomatic in humans till they progressively grow to larger masses mostly in liver lungs and spleen. Aim of this study is to study laparoscopic management of liver hydatid cyst (single and multiple) and combining it with most common laparoscopic procedure i.e. laparoscopic cholecystectomy. In case 1, a 23-year-old female presented with history of progressive epigastric fullness from last 1 year and dull abdominal pain since last 2-3 months. Ultrasound showed two hydatid cysts (one in each lobe of liver) and cholelithiais. She was managed laparoscopically for both pathologies and was discharged on drain on post-operative day 3. There were no perioperative complications. Post operatively drain was kept in view of biliary fistula which gradually reduced and stopped by day 3. This is the overall second case mentioned in literature and first case where cholelithiasis is managed along with two large hydatid cysts. In case 2, a 21-year-old male presented with complaint of dull aching pain abdomen and on evaluation was found to have a large cystic swelling originating from left lobe of liver and adherent to pericardial surface of diaphragm. He was operated laparoscopically and left subhepatic drain was placed in which, output was bilious for 4-5 days and was in decreasing trend. There was no other perioperative and post-operative complication. Laparoscopic surgery is becoming preferred modality in managing not only individual cases of abdominal hydatid cysts, but also along with other benign diseases like gall bladder.

Keywords: Hydatid cyst liver, Cholelithiasis, Anaphylaxis, Post-operative day

INTRODUCTION

Human echinococcosis(dead end host) is the term given to a zoonotic disease spread by dogs and cattle (definitive hosts) which enter as a larval stage of cestode parasite, *Echinococcus granulosus* (tape worm).[1,3] This disease is highly endemic in eastern Mediterranean, south east Europe, North Africa, trough end of south America and Central Asia with incidence rates ranging from 50/10 to 5/10.[1,4,5] Mostly, laparoscopic management of hydatid cysts is continuing since 1996, described first time by Saglam et al.[5] But combining the same with other benign abdominal diseases management and its feasibility along with safety is what we are studying. To the best of our knowledge, there was only one case report where laparoscopic hydatid cyst (single) was dealt simultaneously with cholecystectomy.[1]

CASE REPORTS

Case 1

A 23-year-old female presented with dull pain upper abdomen and bilateral hypochondrial region from last 2-3 years which was insidious in onset and progressed to increased severity and epigastric fullness specifically post prandial. There was no history of weight loss and similar complaint in the family. There was no history of contact to primary or secondary hosts but there was from low socioeconomic status.

On examination, three was smooth globular swelling of size approximately 10×10 cm which was involving right half of epigastric region and more of right hypochondrial region and it moved on inspiration. Keeping differentials of hepatobiliary mass in mind, routine investigations were done. ultrasound was done which described two cystic masses (10×8 cm in right lobe of liver and 6×5 cm in left lobe of liver) along with cholelithiasis. According to GHARBI classification, both the cysts were type CE3. Contrast enhanced computed tomography (CECT) whole abdomen was done to rule out any other intra-abdominal lesion (Table 1).

Gharbi classification of hydatid cysts is given in Table 1.[6]

Table 1: Gharbi classification.

Type	Gharbi classification
Type I	Pure fluid collection - univesicular cyst
Type II	Fluid collection with a split wall—detached laminated membrane - "water lily" sign
Type III	Fluid collection with septa - daughter cysts
Type IV	Heterogeneous appearance - presence of matrix - mimics a solid mass
Type V	Reflecting thick walls - calcifications

MRCP was done to rule out any biliary communication and to be prepared accordingly. MRCP showed exophytic multiloculated cystic lesion involving segment V and VI of size approximately 11×9.6×9.7 cm and segment IV cystic lesion of size 5×6×5.5 cm. there was no cystobiliary communication and there was evidence of cholelithiasis (Figure 1).

Figure 1: MRCP showing findings of chholelithiasis and both liver lobe cysts.

Preoperatively patient was started on oral albendazole 400 mg twice a day for one week which was continued postoperatively for 3 more weeks. After explaining about merits and demerits of surgery like need of conversion to open, anaphylactic shock, separate surgeries in case of prolonged procedure, biliary fistula, CBD stenting, and dissemination, and taking proper consent, patient was taken up for laparoscopic surgery (Figure 2).

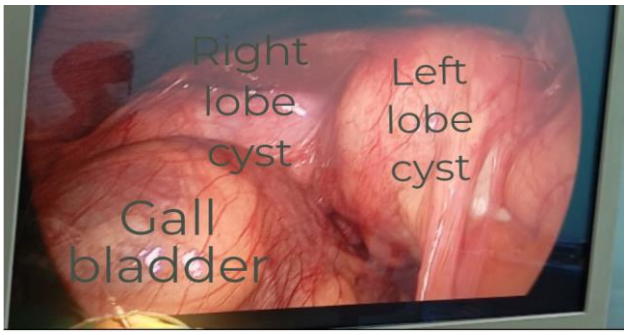

Figure 2: Laparoscopic view.

10% betadine-soaked gauge pieces were kept around the cysts and opening was made in right lobe cyst to aspirate partially and then instillation 20% hypertonic saline and after ten minutes it was aspirated. Then the cyst wall was excised and all the brood pouches aspirated under vision (Figure 3). Then the left lobe cyst was opened in similar fashion and daughter cysts were aspirated under vision (Figure 3). vitals of the patient were monitored simultaneously to look for any anaphylaxis.

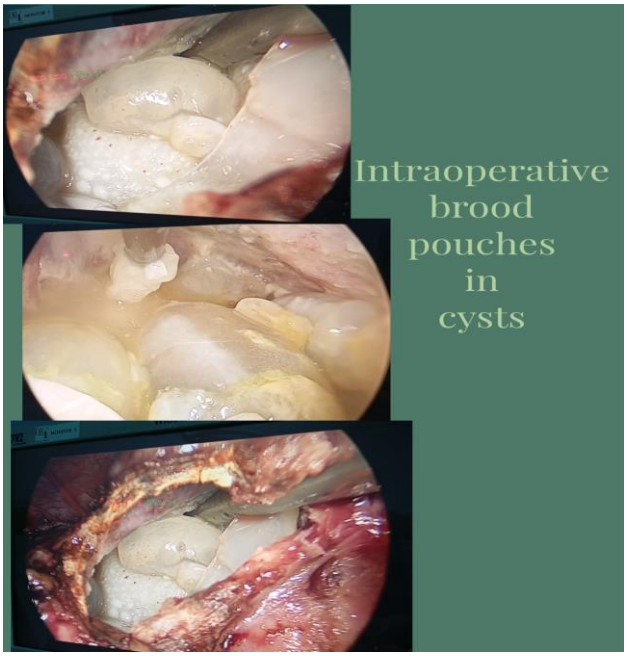

Figure 3: Both lobes cysts after deroofing.

Finally, cholecystectomy was done and wash with hypertonic saline was again given. Bile leak was noted from right lobe of liver at one site which was sutured using vycryl 2-0 with figure of eight suture. Finally, a right subhepatic and pelvic drain (both of 20 FG) were placed and fixed and the specimen were taken out in endobag one by one (Figure 4).

The surgery lasted 3 hours. Post-operative the patient was started on liquids after 6 hours and semisolid from next day. There was biliary fistula with subhepatic drain in situ with progressively decreasing output (Table 2).

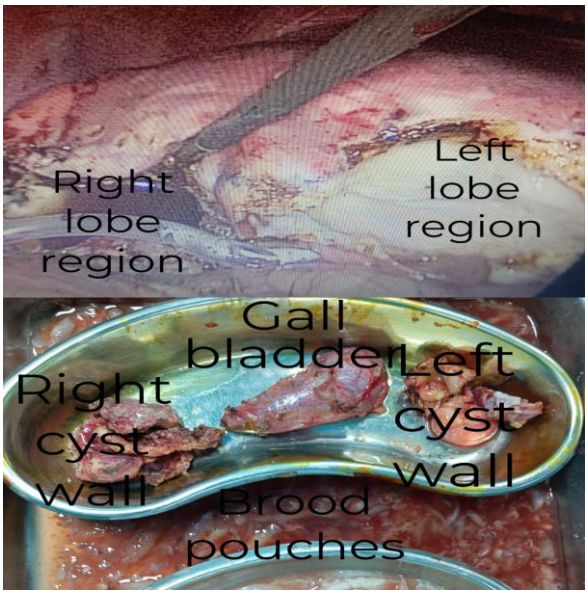

Figure 4: Intraoperative picture and post-operative specimen picture).

Table 2: Biliary fistula output.

Day	Output (ml)
1	300
2	100
3	20

Figure 5: Laparoscopic incision sites.

Pelvic drain was removed and patient was discharged on subhepatic drain under stable condition with course of 3 week albendazole 400 mg BD. After 7 days (POD 10), the total drain output was 20 ml serous and hence it was removed. Stitches were removed after total 14 days of surgery (Figure 5) and patient reviewed with ultrasound after 1 month with no new cyst/ collection formation and is advised to get 6 monthly ultrasound for 4 years as per protocol.

Case 2

A 21-year-old male came with swelling and epigastric discomfort since past 1 year which progressed with time and there was feeling of mobility of mass with cardiac pulsation. The patient was from rural area and was handling cattle. His cardiac evaluation was normal and there was no palpable mass on examination. On ultrasound there was a cystic mass of size 6×8 cm which was further evaluated by MRCP which showed an exophytic mass from left lobe of liver and abutting posteriosuperior surface of pericardium. Size was 6.8×8×6.5 cm and was having multiple floating membranes with necrotic components (CE3) (Figure 6). After preparing the patient, thorough discussion regarding benefits and risks (in the form of rupture into pericardium with pericardial effusion, anaphylaxis, and infection) were explained and then patient was taken for surgery. Same technique as in previous case was applied and hypertonic saline was used to instill the cavity and then aspirate the same.

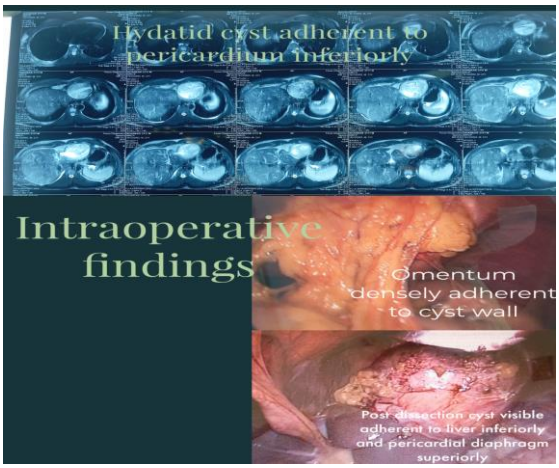

Figure 6: MRCP findings and intraoperative findings.

Posterior wall as left adherent to the diaphragm related to pericardium and thorough was with hypertonic saline was done. Left subhepatic drain was placed. The surgery lasted 90 minutes approximately.

Post operatively, the drain output was as follows (Table 3).

Table 3: Drain output.

Day	Drain output
1	50 ml altered bilious
2	50 ml serous
3	Minimal serous

Patient was discharged on POD 3 with drain out and after 14 days, sutures were removed and kept on albendazole

400 mg BD for 3 weeks. Same advice to follow up with ultrasound after 1 month and then 6 monthly for 4 years.

DISCUSSION

In managing abdominal hydatid cyst disease, surgical techniques have been advocated are ranging from aspiration to radical and segmental resection. The surgical treatment of liver hydatid disease has evolved dramatically with the improved of the minimally invasive surgery.[3]

On contrary, manuscripts in the first decade of 21st century reported an anaphylactic shock during the minimally invasive procedure of the hydatid cyst management which exaggerated the fear discouraging many surgeons from readily adopting these techniques.[9,10] Later, many publications put up rules and conditions in the laparoscopic approach like the deep-seated cysts; posteriorly located cysts (segments I, VII and VIII); and cysts characterized by Gharbi classification as a type 4 or type 5, all these situations would prevent the laparoscopic approach.[11,12] In general, the combined actions in one laparoscopy were discussed separately many times in selective cases.[13]

Recently, the partial pericystectomy with total cystectomy for hydatid liver cysts were described in details as one laparoscopic surgery and neither showed a higher risk or much difficulty in the prevention of hydatid spillage, sterilization and nor evacuation of the parasite or in the management of the residual cavity.[8]

In our cases, we continue the discussion and questions that others began above that is whether the abdominal hydatid cysts could be present with other pathological problems like a cholelithiasis be treated surgically simultaneously. the difficulty of techniques, risk of contamination, duration of the procedure and predicting of early or late complications play the main role in the decision of choosing either combined or separated interventions.

Case report by Bakr et al supported and paved the path for further studies on same.[1] They showed that during the planned procedure; every technique that prevents spillage needed to be done; every instrument that avoids the direct contact between the contents of the cyst and the abdominal cavity on one side; and between these contents and ports in another side were to be used. Then, the gallbladder was resected classically and the procedure was done, the patient then discharged on POD 2 and follow up was made on day 30, 60 and 90 and patient denied any symptom or sign of recurrence.

CONCLUSION

To the best of our knowledge, this is the second case over all reported to follow the technique of laparoscopic assisted hydatid cyst removal along with cholecystectomy and first case to remove two hydatid cysts simultaneously along with gall bladder. The second case is a complicated one as decision to leave the pericyst to pericardial region was important.

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