The Role of Laparoscopy in the Treatment of Patients with Liver Hydatid Cyst in Kirkuk General Hospitals

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Abstract:

Background: Treatment of liver hydatid cystic disease rangse from surgical intervention (laparoscopic or conventional approach) to percutaneous drainage and to medical therapy.
Objective: Evaluation the role of laprascopy in the management of liver hydatid disease.
Methods: A total of 32 cases with liver hydatid cyst underwent laprasopic management in Kirkuk general hospital from January 2010 to December 2015. Age, sex, duration of surgery, surgical morbidity, and evidence of hydatid cyst recurrence were measured.
Results: Laproscopic management done for 918) male (56%) and (14) female (44%) with liver hytatid cyst, with mean age of (35 years). The number of cysts were either single (68.8%) or to maximum 2 cyst (31.2%), with size range (4-14 cm). patients presented with either pain (53.1%), nausea or dyspepsia (9.4%), accidentally found on u/s (9.3%), and jaundice (3.1%). The most common complication was associated with cyst size of ≥ 6 cm: bile leakage (53.1%), peritonitis (3.13%), port site infection (3.13%).
Conclusions: laparscopic approach of liver hydatid cyst is a tolerable and safe procedure.
Keywords: Laparoscopy, Liver, Hydatid Cyst.

Introductions:

Hydatid disease is a severe parasitic disease with a widely ranging distribution. Echinococcosis is considered to be endemic in regions wherein farming is the basic occupation of the population [(1)]. Selection of the most appropriate treatment to obtain the lowest morbidity, mortality, and recurrence rates is mandatory for the hydatid disease of the liver (HDL) [(2)]. The most effective treatment of no complicated hydatid disease is evacuation of the cyst fluid and decreasing the dead space of the cystic cavity. However, if the cysts are complicated, there is no standard management of treatment. In this latter scenario, treatment is determined according to the stage of the cyst and the relation of the cyst to the biliary ducts or surrounding organs [(3)]. Surgery is still the main modality in the treatment of hepatic hydatid disease [(4)]. The rapid development of laparoscopic techniques has encouraged surgeons to replicate principles of conventional hydatid surgery using a minimally invasive approach. Several reports have confirmed the feasibility of laparoscopic hepatic hydatid surgery [(5-7)].

Methods:

Laprosopic treatment for liver hydatid cyst performed for totally 22 patients with solitary cyst and 10 patients with two cysts in surgery department of Kirkuk General Hospital from January first 2012 to December thirtieth 2015. The disease was diagnosed by ultrasonography and computd tomography, thoracic radiology was offered to all patients.All patients received Albendazole (10 mg/kg/ day PO) starting 1 week before surgery and continuing to up to 3 months after surgery.The inclusion criteria of this study were; solitary or as maximum two cyst of uniocular in segment 3, 4, 5, 6 and 8 with

a diameter between (4-12 cm) and with no evidence of calcification. The exclusion criteria were:1) three cyst or above, 2) cyst located near vascular element of liver, 3) cyst located in segment 1,2, and 7 witch considered as blind area for laparoscopic procedure, and 4) intra parenchymal cyst.

Surgery were performed with patient under general anesthesia and placed in supine position, the surgeon and camera assistant were standing on the left side of patient, and the scrub nurse was standing on the left side of patient using pneumoperitoneum of 14 mm. Laproscopic exploration was performed with a 30^{o} laparoscope, through a 10 mm ports were placed according to location of the cyst, after the cyst located in operating field was isolated by surrounding it with gauzes soaked in (10%) povidon iodine introduced through a 10 mm port to give us a dark discoloration of gauze (as scolicoidal agent).

The fluid of the cyst was vacuumed and evaluated with a large needle (the sheeth of verse needle) I traduced directly through skin to inside of cyst and connected to suction chine, hypertonic glucose solution was injected into the cyst. The germinal membrane was removed by placing it as one piece into plastic bag, cavity was explored under direct vision with camera 30^{o} inserted inside the cyst to exclude any biliary communication, cyst cavity irrigated with hypertonic glucose, a redevac drain was inserted into the cavity.

Oral fluid intake was allowed in the same day if no bile drained through the drain, the drain removed after 48 hours postoperative, and the patient followed on 1, 3, and six-month intervals by ultrasound.

Results:

A total of 32 cases were diagnosed with liver hydatid cyst. A 56% (no=18) of them were male patient, and (44%) (no =14) of them were female. As seen in figure (1).

The mean age of patient diagnosed with liver hydatid cyst was 35 years old. The peak incidence of liver hydadit cyst occur at age group 25-35 years (no=19, 5904%) followed by age group 36-45years and 46-55 years (no=6, 18.8%), and age group ≥65 (no=1, 3%). As showed in table (1).

The majority of liver hyadatid cyst were found in the right lobe of liver (no=22, 68.85), left lobe (no=7, 21.9%), and both lob (no = 3, 9.3%). About two third of patients (no= 22, 68.8%) single liver cyst, and one third of patients (no= 10, 31.2%) had two liver cyst. Regarding the size of liver cyst: two third (no= 23, 71.9%) of the cysts were 4-5cm in size, one fifth (no= 6, 18.8%) of the cyst were 6-8 cm in size, and one tenth (no= 3, 9.3%) of the cyst were 6-8 cm in size was 8-14 cm in size. As seen in table (2).

Presentation of patients with liver hydatid cyst was as following: pain (no= 21, 65.6%), nausea or dyspepsia (no= 8, 25%), accidentally found on u/s (no= 2, 6.3%), and jaundice (no= 1, 3.1%). As showed in figure (2).

The most common complications post laproscopic management of liver hydatid cyst was bile leakage (no= 17, 53.1%), peritonitis (no= 17, 3.13%), port site infection (no= 17, 3.13%). As seen in figure (3).

The majority of postoperative complication occurs with cyst size of ≥ 6 cm as follow: bile leakage (*n*= 4, 12.6%), port site infection (*n*= 1, 3.13%), and peritonitis (*n*= 1, 3.13%). As showed in table (3).

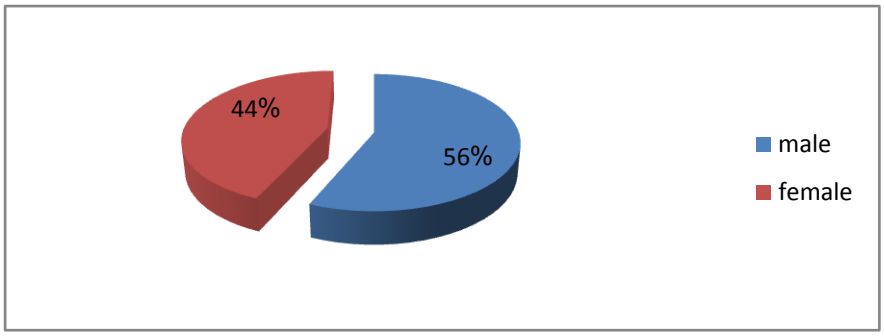

Figure (1): Distribution of Patients according to their Gender.

Table (1): Age Distrbution of Patients with Liver Hydatid Cyst.

AGE GROUP	PATIENTS no	%
Mean age at diagnosis (35 year)		
25-35	19	59.4%
36-45	6	18.8 %
46-55	6	18.8%
≥65	1	3%

Table (2): Characteristic of Liver Hydatid Cyst.

CHARACTERISTIC of CYST	PATIENT No	%
SITE of CYST		
Left Lobe	7	21.9%
Right Lobe	22	68.8%
Both Lobe	3	9.3%
NUMBER of CYST		
One cyst	22	68.8%
Two cyst	10	31.2%
SIZE of CYST		
4-5 cm	23	71.9%
6-8 cm	6	18.8%
8-14 cm	3	9.3%

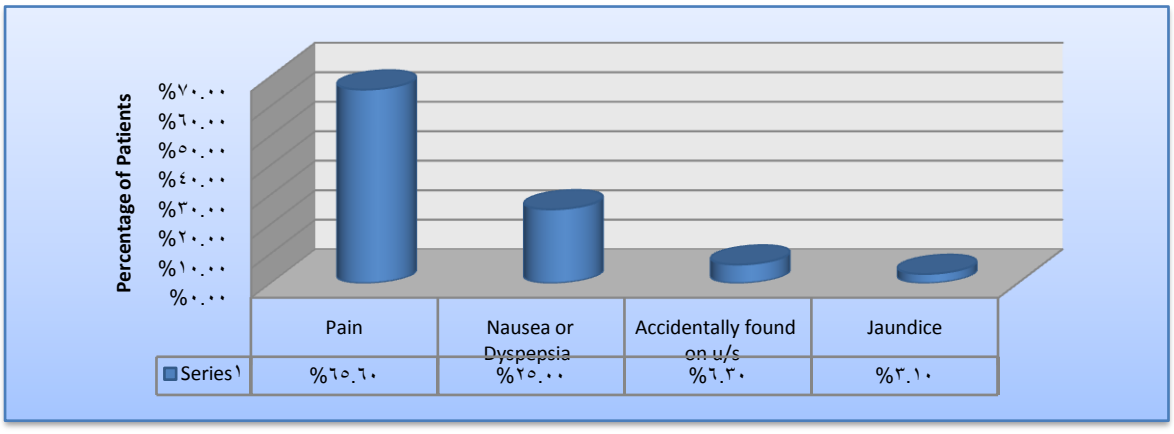

Figure (2) A: Complications of Laproscopic Management of Patients with Liver Hydatid Cyst.

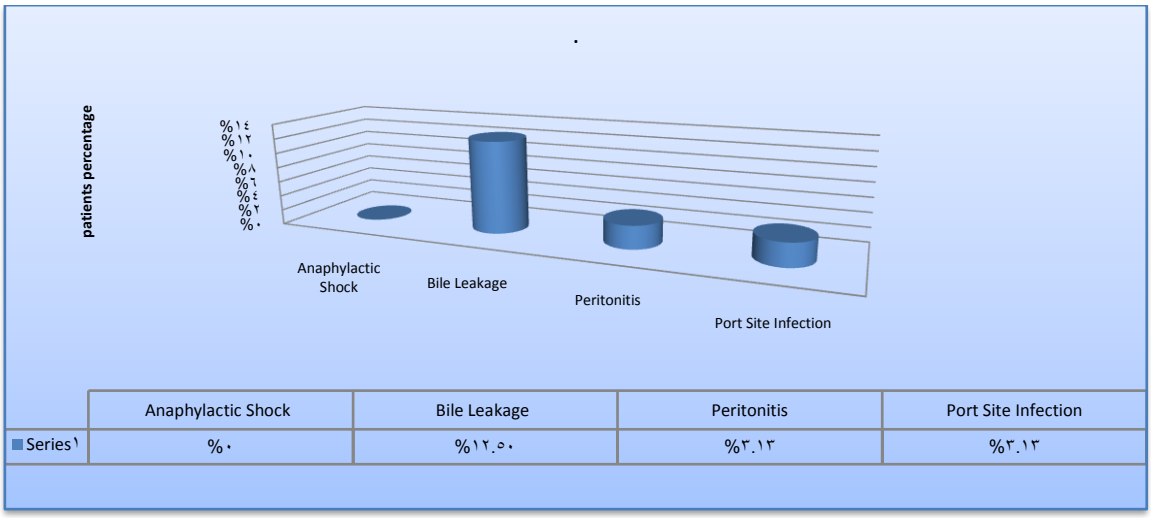

Figure (2) B: Complications of Laproscopic Management of Patients with Liver Hydatid Cyst.

Table (3): Distributions of Laparoscopic Complications according to the Size of Liver Hydatid Cyst.

SIZE of CYST	Bile Leakage No	%	Port Site Infection No	%	Peritonitis No	%
4-5 cm	0	0%	0	0%	0	0%
6-8 cm	2	6.3%	1	3.13%	0	0%
8-14 cm	2	6.3%	0	0%	1	3.13%

Discussions:

Laparoscopic surgery provides a safe and efficacious approach for almost all types of hepatic hydatid cysts. Large, prospective, randomized trials are needed to confirm its superiority [8].The laparoscopic approach is associated with faster surgery recuperation and possible resolution of concomitant abdominal surgical problems [9] .The use of djuvant medical therapy will lead to decrease rate of cyst recurence after the surgey and most comon drug used is benzimidazole carbamates (albendazole in a dosage of 10-15 mg/kg body weight alone or in combination with praziquantel in a dose of 40 mg/kg body weight) is recommended for a standard pharmacological approach [10].

Most of patient inthis study were male (56%) while female account for only (44%). This was slightly more than other study done in iraq (2010) (50% male, 50% female) [11]. In another study done by (Rooh-ul-Muqim1 et al 2010), they saw female predomnancy of this disease (Females) (62.79%) [12]. Pain was the major presenting feature for patients with liver hydatid cyst pain (no= 21, 65.6%), this was in agreement with other studies [11, 12]. The most common site of liver involvement was right lobe of liver (no=22, 68.85). This was also in agreement with (C. Palanivelu, et al 2006) study [13]. Fortunately we experienced little post laproscopy complication and the main complications we faced were bile leakage (no= 17, 53.1%), peritonitis (no= 17, 3.13%), port site infection (no= 17, 3.13%). This was in agreement with other studies [12, 13]. Those post operation complication were mainly related to the cyst size of $\geq$ 6 cm and as followed: (bile leakage (12.6%), port site infection (3.13%), and peritonitis 3.13%). This

may be due to many factors one of them is the surgeon skills and the other is anatomical restriction , as seen in (Florin, et al2013) study The general complication rate and abdominal wound complication rate were respectively (0%) and (0%) in group 1 (mean cyst diameter was 6.62 cm) compared with (5.23 and 8.72 %) in group 2 (p = mean cyst diameter was 7.23 cm) [8].

Despite the above-mentioned advantages, the laparoscopic evacuation of liver hydatid cyst has its limitations and risks i.e. hydatid dissemination and anaphylaxis mainly at the time of needle insertion through a puncture. Forunatley We did not face such complication during our surgery. The first case report of anaphylactic shock complicating laparoscopic treatment of hydatid cyst has been reported in 1998[14]. We think that draining the remaining cyst cavity for 48 hours by redivac drain would help to obliterate the cavity; we had not used the technique of obliterating the cavity by plugging the greater omentum, as it is time consuming. We used povidine iodine to irrigate the gauze that surrounded the cyst and during aspiration and injection of the cyst cavity but after evacuating all the content, we resorted to isotonic saline for irrigation. Another important issue in laparoscopic hydatid cyst surgery is the removal of the germinative membrane [15]. Several techniques and instruments have been used, i.e. aspiration-grinding apparatus [16]. Others used a large-bore suction catheter [17]. We used a wide bore suction catheter without valve system for evacuating the cyst. We have not converted any of our laparoscopic procedures to open. Patient selection has been addressed by many authors, especially at an early experience. It has been shown that the use of laparoscopic ultrasound is of value in detecting the cyst and assessing the structure of the liver during the procedure Advances in technology i.e. laparoscopic fibro-optic camera permits resection of more complicated cyst [18, 19]. We had the need for prospective, multicentric randomized study that can provide sufficient evidence to clear most of the controversies related to actual applicability of laparoscopy for the management of liver hydatid cyst.

Conclusion:

laparscopic approach of liver hydatid cyst is a tolerable and safe procedure. The most post laprosopic complication occurred with large size hydatid cyst (≥ 6 cm).

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