

Conservative Surgery of Benign Simple Liver Cysts

Cirugía Conservadora de Quistes Hepáticos Simples Benignos

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MANTEROLA, C. & RIVADENEIRA, J. Conservative surgery of benign simple liver cysts. *Int. J. Morphol.*, 42(5):1454-1457, 2024.

SUMMARY: Simple hepatic cysts of the liver (SHCL) are incidentally detected in the liver, and may be solitary or multiple. There is sufficient evidence supporting the role of laparoscopic surgery in the treatment of these lesions. The aim of this study was to report the outcomes of laparoscopic treatment in patients with BSHCs in terms of postoperative complications (POC). Case series. All patients who underwent laparoscopic surgery for BSLC at RedSalud Mayor Clinic between January 2013 and December 2023 were included. Preoperative assessment consisted of general examinations, determination of ELISA-IgE and IgG for hydatidosis, abdominal ultrasound or computed tomography. The outcome variable was the development of postoperative complications (POCs). Descriptive statistics were used. During the study period, 22 patients with BSLC were operated, resecting them a total of 34 cysts. The median age of the series was 59 years, and 81.8 % of patients were female. The median sonographic diameter of the lesions was 9 cm. Subtotal pericystectomy was performed in all of them, without using drainage. In 45.4 % of cases simultaneously cholecystectomy for coexistent cholelithiasis was performed. The median operative time was 52 minutes. No patients needed to be converted. The series does not register POC or mortality. The median hospital stay was 1 day. The histopathological study confirmed "biliary type cyst" in all cases. With a minimum follow-up of 6 months, no late postoperative complications or recurrence of the resected lesions have been observed. The treatment applied to this series of cases was associated with a short hospital stay and good short- and medium-term outcomes.

KEY WORDS: Liver Diseases; Polycystic liver disease [Supplementary Concept]; Cysts/surgery; Nonparasitic hepatic cysts.

INTRODUCTION

Non-parasitic liver cysts or simple hepatic cysts of the liver (SHCL), occur in between 2.5 % and 18.0 % of the population; and they can manifest as single (solitary giant cysts - SGC) or multiple (polycystic liver disease – PLD, a hereditary condition), uni- or bilobar, located only in the liver or concomitantly in one or both kidneys. Apparently, the prevalence increases with age and is more common in women between the 6th and 7th decades of life (Lantinga *et al.*, 2013; European Association for the Study of the Liver, 2022).

SHCL are intrahepatic cystic formations, covered by a simple epithelium whose content is a clear liquid with watery characteristics. They do not communicate with the bile duct; are always benign and do not become malignant (Lantinga *et al.*, 2013; Cnossen & Drenth, 2014).

SHCL usually do not require treatment, the management of most simple cysts relies on a "wait-and-see" policy, and no further treatment is required in these cases.

Nevertheless, there is evidence supporting that some subgroups would benefit from surgery. For example, some cases of SGC, those that become complicated, some cases of PLD, and cases that make other surgical procedures difficult to perform (Manterola, 2013; European Association for the Study of the Liver, 2022).

Since the beginning of laparoscopic treatment of SHCL in 1991, sufficient evidence has accumulated to support its role as the treatment of choice for this disease (Z'graggen *et al.*, 1991).

The aim of this study was to report the results of laparoscopic treatment in patients with SHCL in terms of postoperative complications (POC).

The report of this study was made according to the checklist for descriptive observational studies (Manterola & Otzen, 2017).

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MATERIAL AND METHOD

Design: Case series.

Setting: The study was carried out at the RedSalud Mayor Clinic in Temuco between January 2013 and December 2023.

Participants: Subjects with single or multiple hepatic cystic lesions, suggestive of SHCL. The preoperative study consisted of general examinations, liver function tests, abdominal ultrasound or computed tomography; and determination of ELISA IgE and IgG for hydatidosis. Patients who underwent laparoscopic surgery for SHCL were included. Patients with cystic lesions suggestive of hepatic echinococcosis were excluded.

Sampling: A consecutive, non-probabilistic sampling was used.

Surgical technique: Surgery was performed with the patients under general anesthesia and placed in supine position. Surgical procedure was carried out by American technique, with the surgeon at the left side of the patient, the assistant and the scrub nurse at the right side, and the camera assistant stood beside the surgeon (Fig. 1). Working space was obtained with a pneumoperitoneum of 12 mmHg with carbon dioxide after a supraumbilical puncture with Veress needle. Laparoscopic exploration was performed with a 300 laparoscope introduced by the umbilicus. Another 10-mm port was used at the epigastrium as work channel and one or two additional 5-mm ports were placed according to the location of the cyst. After cyst localization, cyst fluid was aspirated and evacuated with a gross needle inserted percutaneously at the cyst pole. Pericystectomy was performed with LigaSure™ Maryland and laparoscopic L Hook, making the resection in healthy liver parenchyma. Then, specimen was extirpated in a plastic bag by the epigastrium port. Finally, cyst cavity was explored under direct view inserting the camera inside the cyst. No type of drainages was used (also as in open surgery).

Variables: The outcome was POC, measured 30 days postoperatively. Other variables of interest were surgical time, conversion, hospital stay, mortality and recurrence.

Follow-up: All of the resected specimens were subjected to histopathological study. All patients have been followed and controlled at months 1, 6, 12 and 24 with general laboratory and abdominal ultrasound.

Statistics: Descriptive statistics were used with calculation of percentages, measures of central tendency and dispersion.

Ethical principles: The identity of the patients was reserved using codes.

RESULTS

In the period studied, 22 patients with SHCL underwent surgery, resecting a total of 34 cysts.

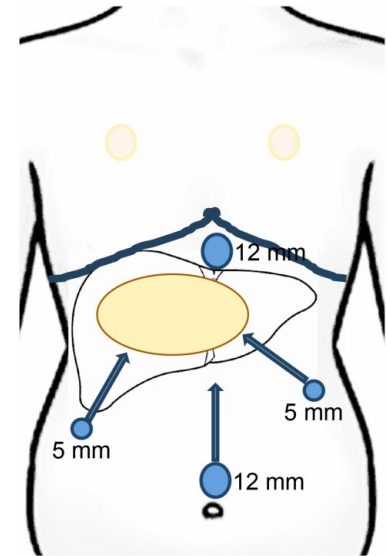


Fig. 1. Port placement for laparoscopic cyst resection in central and right-sided cysts. For left-sided cysts, the 5-mm and 12-mm midclavicular port site positions are reversed.

The median age of the series was 59 years, and 81.8 % of the cases were female.

The median ultrasound or tomographic diameter of the lesions was 9.0 cm. (maximum 19 cm and minimum 4 cm) (Fig. 2).

The behavior of the laboratory variables can be observed in Table I, and some clinical characteristics of the series in Table II.

Subtotal pericystectomy was performed in all of them, without the use of drainage (Fig. 3).

Omentoplasty was performed in 6 patients (27.3 %), due to the size of the residual cavity.

In 45.5 % of cases (10 patients), a cholecystectomy for cholelithiasis was performed simultaneously.

The median surgical time was 52 minutes. No patients needed to be converted.

The series does not record POC or mortality.

The median hospital stay was 1 day. The histopathological study confirmed “biliary type cyst” in all cases.

With a minimum follow-up of 6 months and a maximum of 36, there has been no evidence of late morbidity or recurrence of the resected lesions.

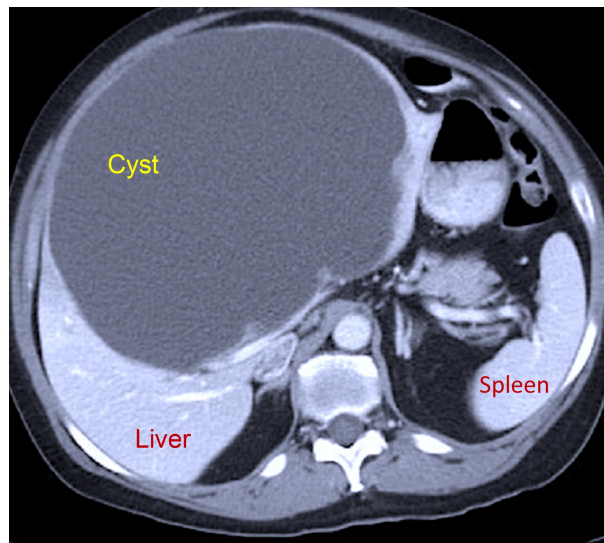


Fig. 2. Computed tomography imaging of a solitary giant liver cyst of 18 cm in length, which occupied the central liver region and the left lateral hepatic segments.

Table I. Laboratory Variables (N = 22)

Variable	Median	Minimum	Maximum
Hematocrit (%)	39	36	41
Leukocytes (k/UL)	7500	6500	9000
Creatinine (mg/dl)	0.8	0.7	1.1
Glycemia (mg/dl)	95	80	124
Prothrombin (%)	95	90	100
Bilirubin (mg/dl)	0.8	0.7	1.0
Alkaline phosphatase (UI/L)	350	280	420
ASAT (UI/L)	30	15	55
ALAT (UI/L)	35	25	65

ASAT: Aspartate aminotransferase. ALAT: Alanine aminotransferase

Table II. Clinical Characteristics (N = 22)

Variable	N° cases	Frequency
Coexistent diseases *		
Gallstones	10	45.5
Arterial hypertension	14	63.6
Diabetes Mellitus 2	2	9.1
No coexistent disease	7	31.8
Ultrasound pattern		
Anechoic	20	90.9
With some internal echoes	2	9.1
Type of disease		
SGC	18	81.8
PLD	4	18.2

* : Some patients had more than one coexisting pathology. SGC: solitary giant cysts. PLD: polycystic liver disease

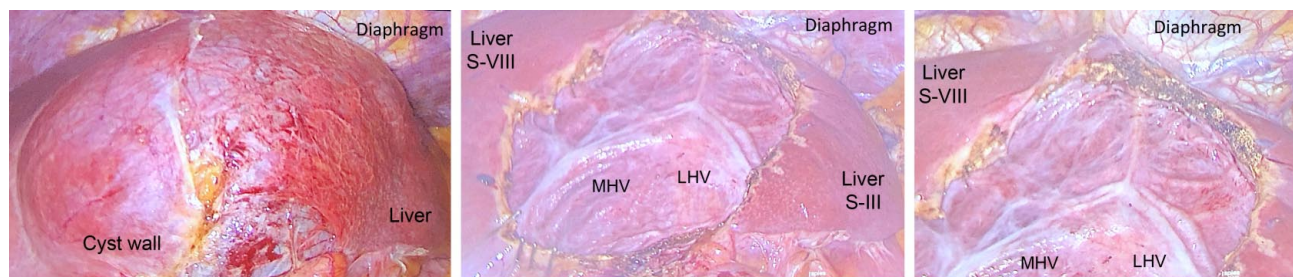


Fig. 3. Images of the laparoscopic procedure. The cyst that affects segments IV, V, II and III can be seen. Once the cyst resection is completed, the section limit of the liver parenchyma and the interior of the lesion can be seen (MHV: middle hepatic vein. LHV: left hepatic vein).

DISCUSSION

SHCL arise from the epithelium of the bile ducts and are lined by a layer of cuboidal epithelium, or less frequently squamous columnar epithelium; they are more common in women, with a 4:1 ratio; and do not compromise liver function. Occasionally, they can cause symptoms secondary to progressive complications, such as obstructive jaundice, perforation, intra-cystic hemorrhage, rupture into the peritoneum, pedicle torsion, etc. (Martinez-Perez *et al.*, 2016; Tartaglia *et al.*, 2019).

The most commonly used treatments for non-parasitic hepatic cysts include laparoscopic unroofing,

percutaneous aspiration, and alcohol sclerotherapy. However, these treatments have limitations. LU and alcohol sclerotherapy fail to prevent recurrences, although sclerotherapy is effective for cysts <5 cm in diameter, but although these generally do not require treatment (Yang *et al.*, 2021).

The treatment for these patients is surgical, with laparoscopic access being the best option, supported by evidence from systematic reviews (Antonacci *et al.*, 2014; Bernts *et al.*, 2019), Although there is some evidence for their treatment using robotic surgery (Nota *et al.*, 2015).

However, one important consideration in managing these lesions is the risk of confusing a SHCL with hepatic hydatid cyst disease, especially when dealing with a solitary cyst (Manterola *et al.*, 2013).

One of the noteworthy findings is the absence of POC in this series, whereas this variable has been reported between 4 % and 20 % of cases (Kiesel *et al.*, 2017; de Reuver *et al.*, 2018; Gomez *et al.*, 2021). Another finding to comment is the absence of conversion, which in other series ranges from 4 % to 7 % (Treckmann *et al.*, 2010; de Reuver *et al.*, 2018). Finally, another point worth mentioning is the hospital stay (median of one day in this series), although it has been reported between 2 to 5 days (Kiesel *et al.*, 2017; de Reuver *et al.*, 2018).

As a limitation, it should be noted that despite the good results observed, this is a small series; although the vast majority of those previously published include between 3 and 98 operated subjects (Kiesel *et al.*, 2017; de Reuver *et al.*, 2018; Bernts *et al.*, 2019; Yang *et al.*, 2021).

In conclusion, it can be mentioned that the treatment applied to this series of cases was associated with a reduced hospital stay and good evolution in the short and medium term.

MANTEROLA, C. & RIVADENEIRA, J. Cirugía conservadora de quistes hepáticos simples benignos. *Int. J. Morphol.*, 42(5):1454-1457, 2024.

RESUMEN: Los quistes hepáticos benignos simples del hígado (QHBSH) se detectan de forma incidental, pudiendo ser únicos o múltiples. Existe suficiente evidencia que avala el rol de la cirugía laparoscópica en el tratamiento de estas lesiones. El objetivo de este estudio fue informar los resultados del tratamiento laparoscópico en pacientes con QHBSH en términos de complicaciones postoperatorias (CPO). Serie de casos. Se incluyeron todos los pacientes intervenidos quirúrgicamente vía laparoscópica por QHBSH en la Clínica RedSalud Mayor entre enero de 2013 y diciembre de 2023. El estudio preoperatorio consistió en exámenes generales, determinación de ELISA-IgE e IgG para hidatidosis, ecotomografía abdominal o tomografía computarizada. La variable resultado fue desarrollo de CPO. Se utilizó estadística descriptiva. En el período estudiado, se intervinieron 22 pacientes con QHBSH, resecándose en ellos, un total de 34 quistes. El 81,8 % de los casos eran de sexo femenino; y la mediana de edad de la serie fue de 59 años. La mediana del diámetro ecográfico de las lesiones fue de 9 cm. Se realizó periquistectomía subtotal en todos ellos, sin utilización de drenaje. En el 45,4 % de los casos se ejecutó de forma simultánea una colecistectomía por colelitiasis coexistente. La mediana del tiempo quirúrgico fue de 52 minutos. No fue necesario convertir a ningún paciente. La serie no registra CPO ni mortalidad. La mediana de estancia hospitalaria fue de 1 día. El estudio histopatológico confirmó “quiste de tipo biliar” en la totalidad de los casos. Con un seguimiento mínimo de 6 meses, no se ha evidenciado CPO tardía ni reaparición de las lesiones resecadas. El tratamiento aplicado a esta serie de casos se asoció a escasa estancia hospitalaria y buena evolución a corto y mediano plazo.

PALABRAS CLAVE: Enfermedades hepáticas; Quiste simple del hígado; Quiste seroso del hígado; Quiste no parasitario del hígado; Enfermedad poliquística del hígado.

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