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Research Article

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Laparoscopic Hepatic Cyst Treatment Experience in a Second Level Hospital

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Introduction

Non-parasitic hepatic cysts occur in up to 5% of the total population; that presents one or more cysts, the incidence increases according to age and occurs more frequently in women between the 6th and 7th decades of life. It is considered that this pathology is due to the enlargement of the aberrant ducts formed during embryonic development, for which reason it is attributed that the formation of these is due to inflammatory hyperplasia of the ducts or to their obstruction with fluid retention [1,2]. The cystic fluid has a composition similar to that of serum, so it is not irritating to the peritoneum. They have cuboid epithelium, fibrous walls and chronic inflammatory changes [3].

They are commonly located in the right lobe of the liver on the anterior inferior surface, in segments IV, V and VI according to the Couinaud classification and are frequently diagnosed incidentally during routine radiological examinations [4].

There is a classification for several years for liver cysts:
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Classification of polycystosis according to Gigot [4]
Type I: Large cysts (> 10 cm) and limited number (<10).
Type II: Medium-sized cysts, diffusely distributed by the liver, with hepatic parenchyma recognizable among them.

Type III: Cysts of small to medium size distributed massively and diffused by the liver, with a minimum portion of hepatic parenchyma recognizable among them.

Classification of polycystosis according to Morino
Type I: It is characterized by a limited number of cysts that are found predominantly on the liver surface.
Type II: They include multiple small cysts distributed throughout the liver, including posterior segments.
The diagnosis is made by ultrasound or tomography, and is usually an incidental finding.

In ultrasound, the cysts appear as rounded or oval lesions, well delimited, anechoic and with posterior reinforcement. In the tomography, the lesions are observed as watery density, without wall and do not captures contrast, in case of irregularity, calcifications and septa in the wall of the cyst, these changes may suggest infection and / or neoplasia [1,2].

Magnetic resonance has a high resolving power. In patients with jaundice, endoscopic retrograde cholangiography allows the diagnosis of communication or compression of the cyst with the biliary tract. Doppler ultrasound offers the possibility of differentiating portal vein, venous structures and cystic lesions [1,2]. Endoscopic ultrasound is used in patients who are jaundiced or in whom vascular involvement or biliary structures are suspected, when there is a large liver cyst or hepatic polycystic disease. It also has great advantages such as the precise definition of the structure of the cyst wall and, in particular, to identify the presence of nodules in its wall, irregularities and solid papillary growths [5].

Asymptomatic hepatic cysts occur in approximately 90% to 95% of symptomatic cysts and are associated with abdominal distension with palpable mass, chronic abdominal pain, nausea, vomiting, gastric fullness, cholangitis, fever, dyspnea, torsion, hemorrhage, rupture, infection, malignant degeneration, compression of the portal vein or obstruction to the flow of hepatic drainage that can lead to portal hypertension with development of esophageal ascites and varices, encephalopathy, obstructive jaundice, edema of the lower limbs and occasionally portal venous thrombosis, which requires surgical treatment [1,2].

Intracystic complications are usually hemorrhage and infection, which occur in less than 5% of cases. Laboratory tests usually do not reveal alterations except in the liver function tests, where a discrete elevation can be observed in the TGO (glutamic oxalacetic transaminase) and TGP (glutamic pyruvic transaminase), in addition to elevation of alkaline phosphatase and bilirubin Direct when the cyst is obstructing the bile duct [6].

Invasive or non-invasive, solitary can treat symptomatic cases; the dominant cysts are resolved mainly percutaneously [7,8]. Of the invasive methods, laparoscopic fenestration is currently preferred [3,4]. Traditional surgery it is usually indicated in symptomatic polycystosis with hepatic resection in the absence of dominant cysts, in other cases with fenestration or a combination of both. In a follow-up period if there is recurrence of the cyst accompanied by abdominal symptoms, surgical reoperation will be required; but if there is recurrence without abdominal symptoms, reoperation is not necessarily considered, it should only be continued under surveillance. It should be taken into account that patients, who persist with the symptoms that indicated surgery for simple cyst in the absence of recurrence, were operated in a probably unnecessary way [4,5].

1. Percutaneous treatment: It consists of the puncture and aspiration of the content of the cyst, followed by the injection of a sclerosing agent directed at the ablation of the secretory epithelium. The contraindications are alterations in the coagulation times and the communication of the cyst with the biliary tree, also if a communication to the biliary tree is not detected and sclerose, a cholangitis is produced [6].
2. Hepatic resection: Indicated when there has been recurrence symptomatic, suspicion of malignancy or lesions that are in continuity with a malignant tumor, however morbidity and mortality is greater. The results of liver resections in expert hands are almost as good as those obtained with less invasive techniques [8-10].
3. Surgical Fenestration: This is achieved by drying the surface of the cyst that protrudes, leaving the internal surface exposed to the abdominal cavity. The deep cysts are drained through the exposed surface of the open cyst and communicated to the surface, causing a progressive collapse of the drained cysts with the reduction of the hepatic size and disappearance or improvement of the symptomatology [8].
4. Laparoscopic Fenestration: It is indicated in large cysts (> 10 cm), solitary or less than 10 or polycystosis. It is highly effective, without mortality and with low morbidity, which has shown a great advantage between fenestration by laparotomy, with less time for postoperative recovery. This technique has been used in patients with cysts located in the anterior segments of the liver and / or in the left hepatic lobe. It is not very helpful in patients who have cysts in the posterior segments of the right lobe (segments VI and VII), or those that are very deep in the liver parenchyma [11-13].
5. Resection plus laparoscopic fenestration: It associates the resection of the segments with the largest number of cysts with the fenestration of the residuals, thus avoiding large resections. Its main indication is symptomatic polycystosis without dominant cysts, presenting a high effectiveness, with a mortality that reaches only 3 to 5%, being ascites and pleural effusion the most frequent complications
6. Laparoscopic unroofing: The unroofing technique consists of fenestration accompanied by drainage of the cystic content within the peritoneal cavity by the excision of a part of the cyst wall. This procedure produces an effective decompression and the liver tissue function is conserved. It consists of the introduction of 2 10 mm ports. One located in the umbilical scar and the other in the upper portion of the abdomen over the midline, below the xiphoid appendix; In addition, another 5 mm port was operated in the upper right quadrant. The surgical team is placed in a traditional American way. A revision of the abdominal cavity is carried out, the cyst site is identified and puncture is carried out, with evacuation of the contents by aspiration. A wide dissection of the wall on the surface of the liver is performed, with cutting and electrocoagulation, hemostasis of the edges of the cyst is checked, electrocoagulation of the inner side of the cyst wall is performed, as extensive as possible and drains are finally placed in the bed of the cyst cavity, which are exteriorized by the hole in the upper right quadrant.

Objective

The aim of this study is to analyze the initial experience in the laparoscopic treatment of the simple hepatic cyst, in a second level hospital (ISSSTE Tampico). Demonstrate the effectiveness of laparoscopic surgery in their treatment.

Material and methods

All the clinical files were reviewed and analyzed, through an observational and retrospective study of patients of both sexes and of all age groups diagnosed with a non-parasitic liver cyst, managed by laparoscopy in the General Surgery Service of the Hospital del ISSSTE Tampico in the period from January 2014 to December 2017. Patients operated on at another hospital were not included. The variables to be studied were: age, sex, symptomatology, radiological studies, complications and recurrence. All patients underwent routine laboratory tests and liver function tests. Ultrasound of liver and biliary tract was performed, abdominal tomography in the preoperative period and later for follow-up. For the analysis of the results, descriptive statistics were used.

Results

During the period analyzed, 6 patients were included: 4 women, 2 men, with a greater incidence in the 6th decade of life, with an average age of 52 years respectively. The symptoms that most frequently appeared were pain in the right upper quadrant in the 3 patients, 2 patients with gastro esophageal reflux and 1 palpable mass. No alterations were found in blood count, blood chemistry, liver function tests, coagulation times, practically the results of laboratory studies were found normal. All the patients had ultrasound and tomography, which showed a well-defined, anechoic, rounded image compatible with the liver cyst. The 3 cysts were presented in the right lobe, the size of the cyst varied between 8 and 15 cm. No patient presented infection data and microscopically all patients presented with benign disease. All patients were treated with unroofing of the cyst by laparoscopy with an average surgical time of 1 hour 30 minutes. The inpatient stay was 2 to 3 days on average. All patients were evaluated with control liver ultrasound.

After the surgical treatment there was remission of symptoms in the 6 patients, until the moment of follow-up of our patients we have no evidence of recurrence. No complications were observed and the mortality was 0%.

Discussion

The non-parasitic liver cyst is a rare entity worldwide, 11 in our hospital we have seen a high incidence of this pathology compared to previous studies reported in the world literature, which report a lower incidence in a similar period of time or greater than in our review. Many patients remain asymptomatic, so they are only under serial ultrasonography control. Sometimes the cyst increases in size and compresses the bile duct or underlying organs, presenting symptoms such as postprandial fullness, pain, nausea and vomiting, and in some cases, when the biliary tract is compressed, obstructive jaundice appears, which indicates to the surgeon the need to perform of surgery [2,5,14].

Laparoscopic management of hepatic cysts is safe, although it should be taken into account that there may be complications such as blood vessel injury which can be serious, so the conversion should be considered before presenting lesions of a larger vessel. Which can even cause death by heavy bleeding? The drained content of the cyst must be taken into account, since in case of presenting cloudy or fetid material, it must be covered with antibiotic to the patient, in addition to always leaving a soft or rigid drainage to maintain a canalization and allow the release of some remnant of content, avoiding its accumulation with high probabilities of formation of a residual abscess [15,16]. Open intervention in non-parasitic

cysts should be reserved for lesions of deep localization that are not visualized by laparoscopy as in those located in the posterior segments of the liver and for patients with previous abdominal surgery with firm adhesions or symptomatic recurrence of the cysts. Liver resection offers better results in cases of recurrence; however surgical time, blood loss and the risk of major complications limit this procedure and is generally reserved for patients who present a cyst suspected of malignant transformation [8-10].

Conclusions

In this study conducted in a second level hospital (ISSSTE Tampico) where the population captured are public servants and their families, it is noteworthy that a proportion of patients already have an assessment and even a previous treatment of a wrong pathology before of having the first contact with us, either in a private environment or in first level clinics of the same institution, so that early diagnosis and adequate surgical management continue to be one of the most challenging problems for the surgeon. In our hospital 166 laparoscopic procedures are performed approximately every year, of which only 6 were analyzed in the present study, which shows that this pathology, although it occurs in 5% of the general population, only a very low percentage presents symptoms that indicate a surgical intervention, it has also been observed that in this hospital we have 6 cases in a relatively short period of time probably because it is a second level hospital, however there are reports at the international level with the same number of patients in a period of 5 years or more, so we are obliged to know how to detect them and have the ability to perform the different surgical techniques that are useful in it. 16 Laparoscopic unroofing of non-parasitic hepatic cysts is an effective method and safe for the treatment of this disease since it can be offered as a first treatment in May of the cases, presenting with this method little blood loss, decreased in-hospital stay, with low morbidity and mortality, and as a consequence an early return to normal activities. It should be mentioned that as far as the experience of laparoscopic surgeons is concerned in our hospital we are in a period of growth. Some disadvantages for minimally invasive surgery are some lesions of deep localization, which cannot be located laparoscopic ally and patients who have presented other abdominal surgeries, which may have firm adhesions, preventing adequate visualization and resection of the cysts under this pathway. So patients who are ideal candidates to perform resection under this route should be appropriately evaluated.

The results of this series have been similar to those reported in the international literature, with adequate recovery, with low complication rate and minimal recurrence, which is why we consider that we are at a level very similar to other institutions recognized in the world in the management of this pathology.

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