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Original article

Surgical management of non-parasitic cystic disease of the liver. A single center's experience

K.S. Atmatzidis, Th.E. Pavlidis, Ch.N. Lazaridis, J.G. Makris, Th.V. Papaziogas

SUMMARY

Non-parasitic cysts of the liver, although a rather rare and asymptomatic condition, often require curative intervention, and their management concentrates a great surgical interest. Over the last 30-year period 25 such patients (21 cases with solitary cyst and 4 cases with multiple cysts) were managed by open operation. Total excision of the solitary cyst was possible in only 3 suitable cases, while the fenestration technique was performed in the remaining 18 cases. In 6 cases with large lesions, the residual cavity was filled by omentum placement. The short- and long-term results were satisfactory in all but two cases with recurrence, in which re-operation was necessary. Thus, the fenestration is considered a reasonable approach for the management of such cysts.

Key words: Liver cysts, congenital cysts, simple cysts, benign hepatic cysts, non-parasitic cysts, cystic liver disease

INTRODUCTION

Congenital non-parasitic cysts of the liver or benign hepatic cysts or simple cysts of the liver, are rather uncommon entities, usually asymptomatic. They represent cystic unilocular formations, solitary in the vast majority of cases. They usually affect the right lobe, contain a clear serous fluid, do not communicate with the biliary tree, and are lined with a single layer of cuboidal or columnar epithelium. Their origin is attributed to congenital malformation consisting of hyperplasia, occlusion, dilattion, and cystic degeneration of aberrant, small, intrahepatic bile ducts, whereas in rare cases, a blunt abdominal injury may be a contributing factor. Simultaneous location in other organs, such as kidneys, spleen, pancreas, ovaries, lungs has occasionally been found. However, multiple cysts occupying the whole hepatic parenchyma independently or in combination with autosomal dominant polycystic disease could occur. In the latter, renal involvement is estimated in up to two thirds of the cases of polycystic liver, while hepatic involvement accompanies about one third of cases of polycystic kidneys.[1-4]

Small, asymptomatic cysts do not require treatment. For the large cysts, surgical management remains the cornerstone, despite the more conservative approach of aspiration and sclerosants injection, which has already been abandoned.[2] Recurrence constitutes a common problem and various surgical techniques have been used in the past.[5-7] The recent advance of effectived laparoscopic surgery has opened new horizons and concentrating a great interest.[8-10]

However, the acquired experience with open conventional procedure retains its value leading to better knowledge and better ways of dealing with difficulties in treatment. In this paper our cumulative experience of such a case, over almost a three-decade period is described.

PATIENTS AND METHODS

Since 1970 25 patients with non-parasitic cysts of the liver were operated on in our surgical department. There were sixteen females and nine males with a mean age of 43 years (range from 28 to 67). The most important presenting symptoms included right upper quadrant or epigastric pain and discomfort or bloating after meals. The

Second Surgical Department of Medical Faculty of the Aristoteles University of Thessaloniki, "G. Gennimatas" Hospital, Thessaloniki, Greece

Author for correspondence:

Theodoros E. Pavlidis, 23, A. Samothraki, 542 48 Thessaloniki, Greece, Fax: 003-031-992563

preoperative diagnosis was mainly based on an isotope scan of the liver showing a filling defect, in the seventies, and more precise, modern imaging techniques *Ultrasound or Computed Tomography Scanning), afterwards. There were 21 patients with a solitary cyst up to 5cm reaching at maximum 15cm in diameter, located on the right lobe, and 4 patients with multiple cysts on both lobes. The performed procedure was fenestration in 18 cases of solitary cyst accompanied by omentoplasty in 6 cases with enormous cyst of up to 12cm in diameter, and total excision of the lesion in 3 cases of solitary cyst, moderate in size, located on the anterior surface of the liver. In the remaining 4 patients, the multiple communicating cysts were unified initially, and then partial cystectomy plus omentoplasty in 2 cases, and fenestration in the other 2 cases were carried out. In all cases a drain in the sub-hepatic region was placed and kept in for several days.

After the discharge, the patients were followed-up clinically and by US- or CT- Scanning every six months for at list a two-year period.

RESULTS

All patients recovered well and experienced an uneventful postoperative course. In two patients, however, an excessive serous fluid excretion from the drain was observed resulting in delayed discharge. The mean hospital stay was 11 days (range from 6 to 22).

During the follow-up period, recurrence occurred in 2 cases with multiple cysts and re-operation was necessary. In the first case, removal of the omenthoplasty preceded, and then in both cases unification of the cysts and de-roofing of the cyst wall ensuring adequate wide communication with the peritoneal cavity was performed. The outcome was successful in both cases.

DISCUSSION

Non-parasitic cysts of the liver are often revealed incidentally at ultrasound, operation or autopsy. Despite their presumed congenital origin, they commonly fail to present during childhood and adolescence. The induced symptoms are vague and non-specific, due to compression or displacement of adjacent structures by enlarged size mass including right upper quadrant dull pain or discomfort, abdominal distension, and supine dyspnea. In complicated cases (haemorrhage, infection, rupture, biliary obstruction) the clinical presentation is manifested accordingly, as a severe situation, and urgent management is required. None of our patients presented as an emergency. Acute pain usually indicates intracystic haemorrhage.[1,8,10]

The diagnosis is nowadays based on modern imaging techniques (USS, CTS, Magnetic Resonance Imaging), which confirm the cystic nature of the lesion. The differentiation from hepatic hydatid disease may be difficult in some instances and the detection of echinococcal antibodies could be helpful. Liver function tests are seldom abnormal.

The cysts are commonly unilocar and located on the inferior surface of the right lobe. The adiacent liver tissue shows fatty change or periportal inflammation. Their cuboidal lining semembles with bile duct epithelium suggesting the origin from intrahepatic ductules, which fail to involute and progressively become dilated without any communication with the biliary tract. However, some other types of epithelium (serous, squamous, columnar, ciliated) may occasionally be found.[1]

In half of the cases, there is only one cyst, while in the other half, there are two or more cysts. There is a female to male predominance of 1.5:1. In general, congenital cysts are more frequent in females and acquired cysts are more frequent among males. Most of them are found in patients up to the fourth decade of life, as in our patients with mean age of 43 years. At clinical examination only the large cysts were palpable, whereas cysts of less than 10cm in diameter rarely cause symptoms. Only of 5-10% of cysts may produce symptoms and require treatment.[9]

Although, polycystic kidney disease often causes progressive loss of renal function, a polycystic liver rarely affects liver function and even more rarely induces portal hypertension.

Percutaneous aspiration has been proposed, but recently abandoned, because of high recurrence rate. Ultrasound-guided alcohol sclerotherapy could be performed alternatively to surgery.[11,12]

The fenestration technique was introduced by Lin in 1968 and relies on the re-absorption of the persistent fluid by the peritoneal serosa.[4] However, the major problem with fenestration is the enormous fluid loss, as was observed in two of our patients. In the vast majority of our cases, cystic tissue was treated by de-roofing and fenestration, whereas total excision was performed on the rest of the small suitable cysts. The latter constitutes the ideal solution, ensuring a definite cure, but the technical difficulties often restrict its performance. In contrast

to the minimal risk associated with de-roofing, complete resection of the cyst carries a high risk of injury of adjacent blood vessels and bile ducts. The omentum placement in the large cavity may restrict its size, preventing recurrence.[10] Today the goal of fenestration can be achieved safely by the laparoscopic approach, which could become the standard treatment for this condition.[8-10]

For large complicated cysts, hepatectomy may be necessary. In polycystic liver disease resection of the liver is rarely indicated,[13,14] while even combined hepatic resection and fenestration have been reported.[15]

In conclusion, based on our own experience, we postulate that fenestration at open surgery is a safe and effective treatment for simple liver cysts.

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