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Laparoscopic treatment of retroperitoneal cystic mesothelioma. Two cases reported

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ABSTRACT

Retroperitoneal cystic mesothelioma is a very rare lesion. The pathogeny is unclear and establishing a preoperative diagnosis versus others retroperitoneal cystic lesions is difficult.

Thus, with increasing experience in laparoscopic retroperitoneal surgery, the use of this approach for exploration of a retroperitoneal mass of unknown origin may provide an alternative to classic open surgery and all the benefits of laparoscopy. We present two cases treated laparoscopycally and review the literature.

1. Introduction

When identifying retroperitoneal cystic lesions, differential diagnosis must include mesenteric, omental and splenic cysts, enteric duplication cysts, and lesions originated in retroperitoneal organs, such as pancreas, kidneys or adrenal glands. Retroperitoneal cystic mesothelioma (CM) is a very rare lesion, usually originated in the peritoneal lining of pelvic organs, whose natural history differs from that of malignant mesothelioma [1,2].

Pathogenesis of the CM is controversial, as it has been traditionally considered a benign lesion, but has a potential risk of malignancy [2,3,4]. It is more frequent in middle aged women and clinical features are non-specific [2,5]. In spite of the development of multiple imaging techniques, preoperative diagnosis is difficult to achieve. Treatment of choice is complete surgical resection, either through laparoscopy or laparotomy, to avoid the risk of local recurrence. We present two cases laparoscopycally treated, and a review of the literature.

2. Clinical cases

2.1. Case 1

49 year old man, mentally retarded, admitted in hospital after a hip fracture. Marked leucocytosis is identified in blood analysis, so the department of Haematology studies the patient in search of a lymphoproliferative disease. The patient has neither fever nor digestive symptoms; the abdominal exam shows a palpable mass in the right flank. Computed tomography (CT) scan identifies a large cystic, lobulated lesion (19 × 13.5 × 30 cm) in the right abdomen, with thin septa and no calcifications or solid areas inside (Fig. 1) in close contact with the liver and the inferior renal pole, displacing the right colon and intestinal loops forward and to the left. A simple hepatic cyst is suspected preoperatively and surgery is indicated for the risk of rupture. The abdomen is accessed laparoscopically, with the patient in the French position, using a Veress needle, a 30° optics and three trocars (two 5 mm and one 10 mm). No intraperitoneal masses are seen and a very large, multiloculated retroperitoneal cyst is identified, in contact with the right adrenal gland, the VI hepatic segment and the ascending colon. After reducing the size of the cyst by percutaneous puncture and aspiration, it is dissected from adjacent structures with the harmonic ultrasound device; endoclips are used to separate it from fibrotic posterior adhesions, probably corresponding to the cystís origin. The specimen is extracted in a plastic bag. A suction drain is left and removed on the second postoperative day. Surgical time is 90 min. The patient has a favourable course and is discharged on the third day.

Pathologic study reveals a cystic structure, coated with mesothelial flat cells, focally reactive and without malignancy. The specimen is walled by a dense fibrous tissue, with hyaline areas and lymphocytes.

Two years after surgery the patient remains asymptomatic and there is no recurrence on CT scan.

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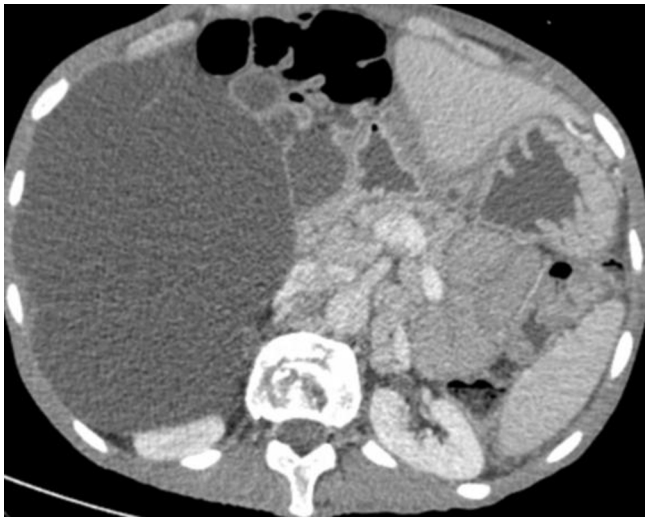

Fig. 1. Abdominal CT scan. A septated cystic lesion of 19 cm on the abdominal right flank, displacing the intestinal loops, contacting with the hepatic right lobe and gall bladder.

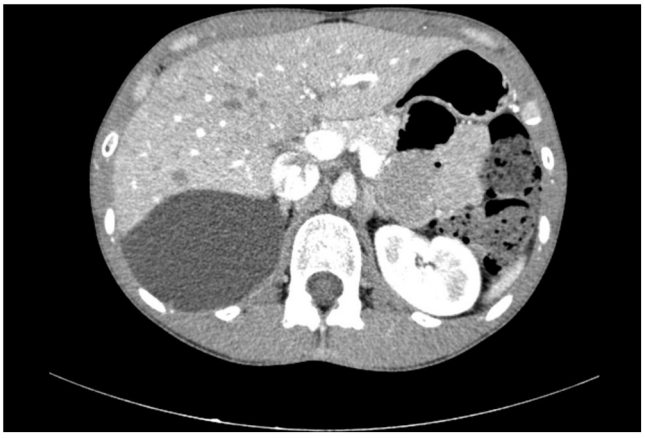

Fig. 2. Abdominal CT scan. A septated cystic tumor of 9,4 cm with apparent no visceral relation.

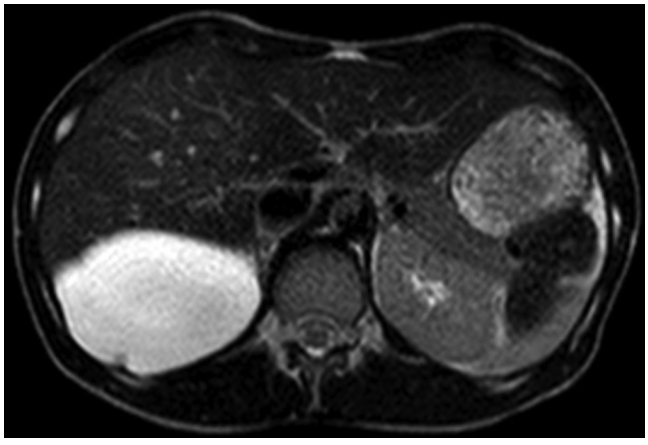

Fig. 3. Abdominal MRI. Homogenous cyst of 11 cm on the subphrenic right retroperitoneum.

2.2. Case 2

28 year old woman attended on outpatient clinic for profuse nocturnal sweating, without other symptoms. She has no history of previous surgery. There are no palpable masses on abdominal examination. On blood analysis, high levels of lactate dehydrogenase (LDH) are found, so an abdominal ultrasound is performed and a cystic retroperitoneal subhepatic, well delimited cystic mass is found, measuring 8 cm in diameter. The CT scan shows a cystic retroperitoneal lesion of 9, 4 cm, non-enhancing after venous contrast, with a short septum and without malignancy criteria (Fig. 2). The organ of origin (liver, right kidney or adrenal gland) cannot be established. On MRI, a $11 \times 9 \times 5$ cm retrohepatic septated cystic lesion with homogeneous fluid content, without nodular enhancement or solid intralesional component, with low signal intensity on T1 and high signal intensity on T2 is found (Fig. 3). Given the lack of diagnosis after imaging studies, surgery is planned. Laparoscopic approach is similar to previously described in case 1 and complete excision of a large retroperitoneal right subphrenic cyst, with firm adhesions to the diaphragm, is performed. As no malignant signs were found on preoperative studies, percutaneous controlled needle aspiration is done before removal of the specimen inside a plastic bag. A suction drain is left in place for two days. Operative time is 140 min.

The patient has an appropriate postoperative course and is discharged on the fourth day. Pathological study reveals a cystic lesion walled with fibrous tissue, with a cuboidal epithelial benign lining, consistent with a mesothelioma. On twelve monthsí follow up she remains symptom free and no recurrence is found on CT scan.

3. Discussion

Retroperitoneal neoplasms are usually malignant and solid in nature (70–80%) [5]. Retroperitoneal cysts are rare, usually benign, and account for the 14.5% of cystic abdominal lesions [6]. According to Kurtz et al., incidence of retroperitoneal cysts is two cases for every million hospital admissions [6].

Primary retroperitoneal cystic lesions (PRCL) need to be differentiated both from cysts arising from retroperitoneal organs, such as pancreas, kidneys or adrenal glands, and from intraabdominal cysts, such as mesenteric, omental or splenic cysts, and duplication enteric cysts. Malignant PRCL such as mucinous cystadenoma and cystadenocarcinoma, pseudomyxoma retroperitonei and solid neoplasms with cystic transformation (leiomyosarcoma, paraganglioma), are rare [5,7–10]. On the contrary, a wide variety of benign retroperitoneal cystic lesions has been described [5,8–15], such as müllerian cyst, hydatid cyst, lymphangioma, cystic mesothelioma, cystic teratoma, tailgut cyst, epidermoid cyst, post-traumatic pseudocyst, lymphocele following abdominal surgery, urinoma, hematoma and bronchogenic subdiaphragmatic cyst.

Cystic mesothelioma is rare among retroperitoneal cystic lesions. Mesotheliomas arise from the serosal lining of pleura, pericardium and peritoneum [2]. Around a third of all mesotheliomas are located in the abdomen [16], where two different clinicopathologic variants have been described: well-differentiated papillary mesothelioma and multicystic mesothelioma [2]. Although traditionally considered as benign lesions, they have a low degree of malignancy and unlike malignant mesothelioma, they have no relation with asbestos exposure [4,5,10]. Peritoneal multicystic mesothelioma (CM) was first described by Mennemayer and Smith in 1979 [1]. From then on, around 150 cases have been reported in literature, although most reports refer to isolated cases or short series, the majority of them intraabdominal in location, what makes the precise incidence of retroperitoneal lesions difficult to establish [10,17]. In a review of 25 peritoneal mesotheliomas, Ross et al., reported that 16% of them where retroperitoneal [18].

Pathogenesis of CM remains controversial. Some authors consider it an inflammatory reactive lesion, because 30% of the patients have a history of abdominal surgery or abdominal inflammatory