

Laparoscopic Decapsulation Using a Harmonic Scalpel of a Giant Splenic Cyst with a Raised Serum CA-125

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Citation

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Abstract

Non-Parasitic splenic cysts are rare. Some of these cysts have been noted to produce tumour markers: CA-19.9, CEA and CA-125. Treatment has progressed from open splenectomy to minimally invasive, spleen-preserving techniques. We report the case of a 39 year old builder who presented with epigastric discomfort and a large left upper quadrant mass. CT revealed 20 x 25cm unilocular cystic lesion arising from the spleen. This was treated by laparoscopic aspiration and decapsulation using a harmonic scalpel which allowed for the secure maintenance of haemostasis throughout the operation. Histological examination of the cyst wall revealed a benign epithelial cyst. Pre-operative CA-125 levels were raised but returned to normal post operatively. Immunohistochemical staining for CA-125 was positive in the cyst wall epithelium. We suggest that laparoscopic decapsulation using a harmonic scalpel should be the preferred treatment modality for such splenic cysts and monitoring of tumour markers is helpful pre & postoperatively.

INTRODUCTION

Non-Parasitic splenic cysts are rare and contribute to around one third of all cystic lesions of the spleen₁. In a review of 4,327 autopsy records, 32 incidental benign non-parasitic lesions were identified₁. It is postulated that these cysts can be either congenital, neoplastic, degenerative or traumatic in origin. Congenital cysts are distinguished by the fact that they have an epithelial cell lining. Previous reports suggest that benign splenic epithelial cysts have the capability to produce a variety of tumour markers; CEA, CA - 19.9 & CA- 125_{2,3,4,5}.

We report a case of a huge splenic cyst with a raised serum CA-125 that was managed laparoscopically with spleen conserving surgery. Laparoscopic aspiration and decapsulation has been described in a small number of previous cases to successfully treat this condition_{6,7,8,9}. We suggest that laparoscopic decapsulation, particularly using a harmonic scalpel, should be the preferred treatment modality for such splenic cysts and monitoring of tumour markers is helpful pre & postoperatively.

CASE REPORT

A 39 year old male presented with an eighteen month history of burning and discomfort in his epigastrium, bloating and early satiety. He also complained of polyuria and discomfort of his left testicle. His past medical history was

unremarkable and he was working as a full-time builder. Six years previously he had fallen thirty feet from scaffolding and had landed on his left side without sustaining any major injury.

On examination of his abdomen it became clear that there was a large mass in the left upper quadrant (Fig. 1,2.) extending from the costal margin to beyond the midline. The only other finding was a left sided varicocele.

Figure 1

Figure 1: Pre-operative lateral view of abdomen



Figure 2

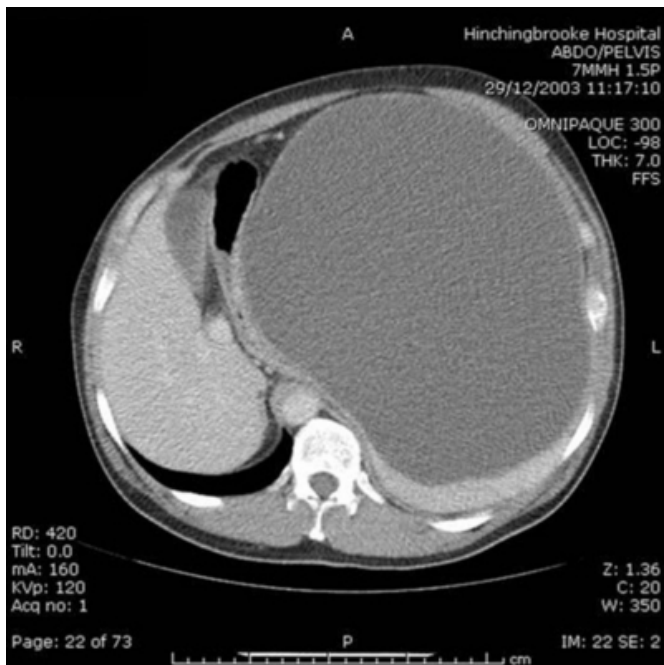
Figure 2: Pre-operative cranio-caudal view of abdomen



Haematological investigation revealed a persistent thrombocytopenia and a raised CA- 125 tumour marker, 36 u/ml (normal range 0-25 u/ml). Contrast CT scan of the abdomen and pelvis showed a massive 20 x 25cm unilocular cystic lesion arising from the spleen (Fig 3.) that was also compressing the stomach.

Figure 3

Figure 3: CT scan demonstrating the 20 x 25cm unilocular splenic cyst



The patient underwent laparoscopic drainage and decapsulation of the cyst using a harmonic scalpel. ‘See additional file 1:Laparoscopic view’. 6.8 litres of fluid were first drained from the cyst which was adherent to the chest wall laterally. ‘ See additional file 2:Cyst Drainage’. The

harmonic scalpel was used to excise the anterior and medial walls of the cyst thus preserving the spleen. ‘See additional file 3:Cyst decapsulation’. Most of the posterior and inferior cyst walls were left in situ. ‘See additional file 4:Preserved Spleen’ There was minimal blood loss and the patient made an uncomplicated recovery being discharged 2 days after surgery.

Cytology of the fluid aspirated from the cyst revealed a bloodstained sample with inflammatory cells present. There were no definite epithelial or mesothelial cells recognised. Histology of the cyst wall showed a thick, fibrous wall with areas of attenuated splenic tissue and lined by a single layer of cuboidal epithelial cells. A diagnosis of a benign epithelial cyst was made. Immunohistochemical staining showed the lining cells to be positive for CA - 125 but not CEA or CA 19 - 9.

Post-procedure serum levels of CA125 and platelet count were returned to normal. At six month follow-up the gentleman was asymptomatic with no evidence of recurrence on repeat CT scanning.

DISCUSSION

Benign Epithelial cysts of the spleen while rare, may grow to a massive size. The cuboidal epithelial lining demonstrated by histology indicates that the cyst, according to most current classifications¹⁰, is congenital in origin. A purely traumatic cyst would have no such epithelial lining and usually be from a non-resolving subcapsular haematoma. Therefore the history of trauma in the past history may be insignificant in the aetiology of the cyst. However it remains possible that there may exist a putative mechanism by which trauma may have led to accelerated growth of the cyst, while not being the sole cause of its origin.

In our case, neither CEA nor CA-19.9 was detected by immunohistochemistry of the cyst lining, with normal levels of both also being found in the serum. CA – 125 though, was found to be both present in the lining and raised in the serum. CA – 125 is a well known tumour marker classically raised in ovarian carcinoma. However, a number of other conditions are also known to cause elevated levels, explaining its poor specificity as a diagnostic tool. Breast carcinoma, hepatocellular carcinoma, pregnancy, cirrhosis and peritonitis have all been shown to increase levels of the marker¹¹. The demonstration of positive immunohistochemical staining for CA – 125 in the cyst epithelial lining, a raised pre-operative serum level, a normal

post-operative serum level and lack of other known causes that may result in elevated levels indicate that the source of the raised CA – 125 in this case is likely to have been the splenic cyst itself. Therefore, serial measurements of tumour markers may prove useful in patient follow-up.

The first attempt at excision of a splenic cyst was reported by the French surgeon, Jules Péan in 1867¹². Unfortunately his attempt failed and due to excessive bleeding a total splenectomy had to be performed. Our use of a harmonic scalpel with its ultrasonic shock wave powered technology to maintain haemostasis, ensured that a spleen-preserving procedure could be safely undertaken. The use of a harmonic scalpel offers substantial benefits; minimal lateral thermal tissue damage, minimal charring and dessication, a reduced need for ligatures with simultaneous cutting and coagulation, fewer instrument changes and an overall greater precision near vital structures.

The clear benefits of a spleen-preserving approach cannot be understated. The avoidance of potential complications as a result of splenectomy such as post-splenectomy sepsis is an important advantage. Most recent reports have demonstrated that the laparoscopic approach now appears to be the most widely adopted as a means for dealing with these cysts^{6,8,13,14,15}. Further more, the initial report employing decapsulation as the treatment modality showed no signs of recurrence after five years of observation⁷. A further study showed no recurrence at a mean 2.2 years follow up in eight cases, managed by laparoscopic decapsulation with a harmonic scalpel⁸. In the light of the growing evidence, we suggest that laparoscopic decapsulation using a harmonic scalpel should become the treatment modality of choice for benign epithelial splenic cysts.

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