Global Journal of Medicine and Medical Sciences

ISSN: xxxx-xxxx Vol. 1 (1), pp. 040-043, December, 2013. © Global Science Research Journals

Case Report

Giant benign non-traumatic splenic pseudo cyst: An atypical cause of left upper quadrant abdominal pain

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Accepted 08 October, 2013

Splenic cysts remain an unusual pathology in surgical practice. Traditionally, splenic cysts are classified into two main categories. (1) True cysts which are also referred to as primary cysts, these contains epithelial lining and (2) pseudo cysts which are basically devoid of the epithelial lining and mostly are of post-traumatic origin. Majority of splenic cysts are asymptomatic, often they are inadvertently revealed during physical abdominal examination or following use of various abdominal imaging techniques. However, splenic cysts may produce pressure symptoms to the adjacent organs and manifest as an unusual pain and heaviness in the left hypochondriac region. We herein, present a 35-year-old lady with a giant non-traumatic splenic pseudo cyst. Her main presenting symptom being long standing history of intervallic left upper quadrant abdominal pain. Splenic cystic lesions remain a rare pathology in our sub region. Therefore, this report serves as a reminder to clinicians in our setting to consider splenic cyst as a differential diagnosis when evaluating patients with left upper quadrant abdominal pains. Several surgical therapies have been recommended for management of splenic cysts. However, today where feasible, minimally invasive and spleen-salvaging alternatives are highly regarded as standard approaches.

Key words: Spleen, splenic cyst, splenic pseudocyst, non-parasitic splenic cysts, non-traumatic splenic pseudo cyst, left upper quadrant abdominal pain.

INTRODUCTION

Splenic cyst lesions have been comparatively documented, however hitherto remains a relatively seldom disease entity encountered in surgical practice. Fowler and Martin classified splenic cysts into two main categories. (1) True cysts which are also referred to as primary cysts, these contains epithelial lining and (2) pseudo cysts which are basically devoid of the epithelial lining. The latter subgroup is also alluded to as secondary cysts (Garima et al., 2011; D'souza et al., 2012; Macheras et al., 2005).

True cysts can be either of parasitic or non-parasitic origin. The non-parasitic true cysts can be further subdivided into congenital or neoplastic cysts. Congenital cysts can be epidermoid, dermoid or mesothelial whereas common neoplastic splenic cysts include hemangiomas and lymphangiomas (Macheras et al., 2005). Predominantly splenic pseudo cyts are of traumatic origin however some may be secondary to infection or degenerative changes. Splenic cysts exhibit a gradual growth course and remain asymptomatic prior to their discovery. Often, they are fortuitously divulged during physical abdominal examination or following use of various abdominal imaging techniques. Cysts which have

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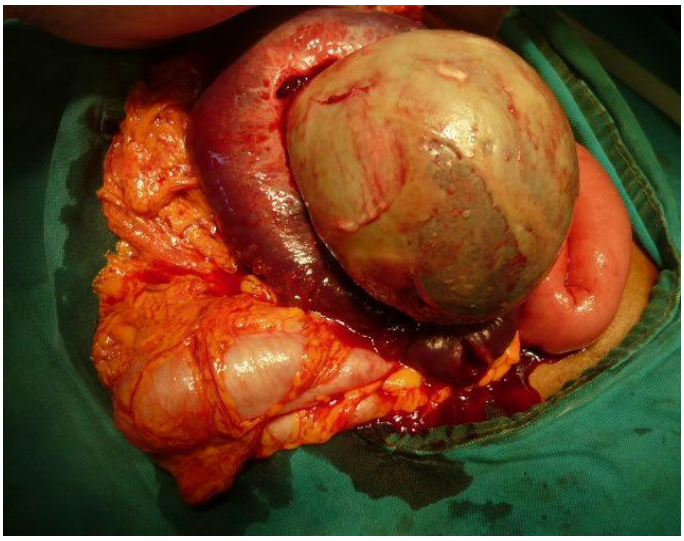

Figure 1. Intra-operative view: Initial mobilization of the spleen revealed an enlarged spleen with giant spleenic cyst which displaced contiguous structures around it.

attained a considerable size may produce pressure symptoms to the contiguous organs and manifest as an atypical pain and heaviness in the left hypochondriac region (Garima et al., 2011; D'souza et al., 2012; Macheras et al., 2005; Ward et al., 2010). We herein present a 35-year-old lady with a giant non-traumatic splenic pseudo cyst. Being in a less endemic echinococcosis environment, splenic cystic lesions remain a rare pathology in our sub region. Our report is therefore intended to remind clinicians in our setting that splenic cysts do exist and should be cogitated when evaluating patients with left upper quadrant abdominal pains.

CASE REPORT

A 35-year-old female presented to our hospital with long standing history of intervallic left upper quadrant abdominal pains for about five months. Patient reports that she had been relatively well until about five months prior to admission when she started experiencing an intermittent abdominal pain. Pains were dull and drugging in nature, more marked on the left hypochondriac region and occasionally radiating to the left shoulder. She gave no history of trauma preceding the pains and sited no specific aggravating or relieving factors. However she occasionally experienced sensation of fullness in her left hypochondriac region. Patient gave no history of associated fever, nausea, vomiting or diarrhea. There was no history of previous surgery or similar illness or chronic diseases in her family. She was a primary school teacher by profession and lived in urban setting most of the time, she has had very limited contact with domestic animals.

On examination, major findings were on the abdominal examination, however on general examination we saw a young lady in good nutritional status, well oriented, well hydrated, afebrile, not pale and had no pedal oedema. Per abdomen examination revealed slightly distended abdomen on the left upper quadrant, however the abdomen was moving normally with respiration. There was a palpable mass on the left hypochodrium, the mass was firm in consistency, non-tender, with smooth surface. It was spherical in shape, moderately mobile in horizontal plane with rather ill-defined margins. The mass was located about 12 cm below the left costal margin. Dull note was elicited on percussion; generally it was difficult to precisely differentiate the mass from enlarged spleen. There was no fluid thrill or any other palpable masses. Bowel sounds were present and normal. Digital rectal examination revealed normal findings. The rest of systemic examination had nil of note.

Patient had both specific and baseline investigations done; these included haematological, biochemical and radiological investigations. She had complete blood count (CBC), serum electrolytes, liver function tests (LFTs), blood grouping and cross matching, abdominal ultrasonography, as well as chest X-rays done. Her haematological and biochemical parameters were within normal range. Whereas, abdominal ultrasonography revealed an enlarged spleen with large roundish hypo-echoic cystic lesion. The cyst had internal echoes and regular thin wall surrounded by a peripheral rim of splenic tissue. No similar cysts were noted on the liver or kidneys. The chest radiograph showed slight elevation of the left hemidiaphragm. Therefore in view of the history, physical examination and investigations, a diagnosis splenic cyst was made. Patient was planned for elective exploratory laparotomy; a relatively large splenic cyst was found on the superior surface of the spleen (Figure 1), displacing the stomach medially and pancreas inferiorly. The superior surface of the cyst slightly pushed up the left hemidiaphgram.

The cyst was globular in shape, well circumscribed with rather thin and smooth wall. The cyst was about 16 cm × 10 cm in size. A cluster of daughter cysts of different sizes were noted on the lateral edge of the spleen (Figure 2). A consensus decision to perform total splenectomy was reached. Our decision was grounded on the fact that the spleen was abnormally enlarged and at that juncture the actual underlying aetiology of the cyst was uncertain. Further more, the presence of daughter cysts deterred us from employing any spleen salvaging procedures. Thus total splenectomy was successfully performed. Specimen

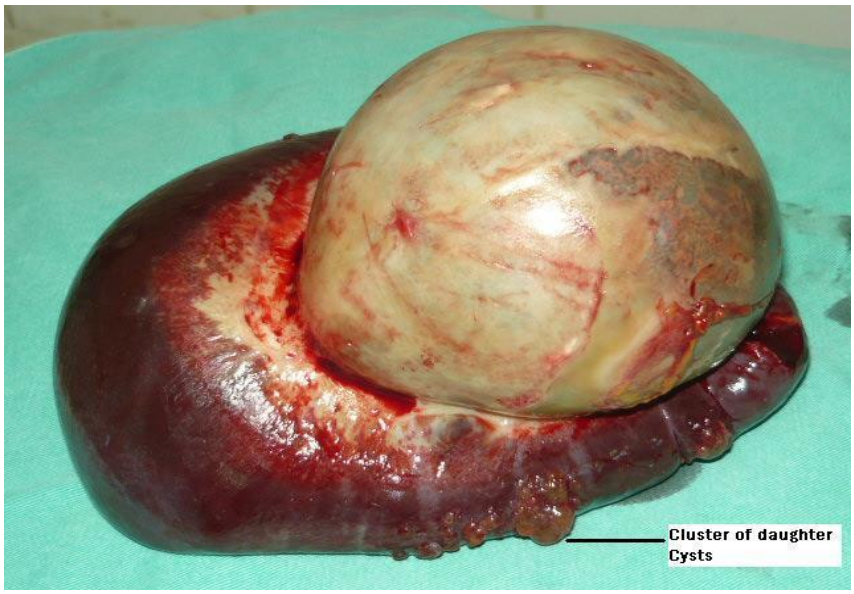

Figure 2. Gross specimen showing an enlarged spleen with an intact giant globular shaped spleenic cyst. Note, a cluster of daughter cysts of different sizes on the lateral edge of the spleen (black arrow).

which weighed 870 g was submitted for histological examination. Fluid from the cyst showed cellular debris but there was no neoplastic cells found. Inner surface of the cyst showed no epithelial lining. Bacteriological cultures of the fluid yielded no growth. Therefore a final diagnosis of benign non-traumatic splenic pseudo cyst was established. Post operatively, patient had quick and uneventful recovery. She was commenced on chemoprophylaxis; oral penicillin for a period of 6 months. Patient was in excellent condition with no complaints in serial follow-up visits and at final visit one year after surgery.

DISCUSSION

Splenic pseudocysts account for about three quarters of all the non-parasitic splenic cysts. They are unanimously deemed to develop as a result of splenic trauma with intraparenchymal or sub capsular splenic hematoma formation. Sometimes they may arise after splenic infarcts, degenerative changes or infections such as malaria, mononucleosis and tuberculosis (Garima et al., 2011; D'souza et al., 2012; Macheras et al., 2005; Ward et al., 2010; Ma Jin-ping et al., 2011). Our reported patient had none of the aforementioned risks.

Currently, there has been an upsurge of the overall diagnosed number of splenic cysts due to advancement and increase utilization of various abdominal imaging techniques. However, establishing actual underlying aetiology for the most splenic cyst lesions prior to surgery and histological examination has always been challenging. Regardless of their aetiology, majority of the splenic cysts do not produce any specific symptoms, more often they remain latent until they attain a sizable dimensions. Splenic cysts may produce pressure symptoms to the contiguous organs and manifest as an unusual pain and heaviness in the left hypochondriac region (Garima et al., 2011; D'souza et al., 2012; Macheras et al., 2005; Ward et al., 2010). Symptoms such as flatulence, early satiety, nausea, vomiting, diarrhea and hydronephrosis may as well be observed. At times, referred pain which is postural oriented may be induced by the cyst. Presentation of splenic cysts with dreadful complications such as rupture, peritonitis, hemorrhage, infection and abscess formation has been reported (Garima et al., 2011; D'souza et al., 2012; Macheras et al., 2005; Ward et al., 2010; Ma Jin-ping et al., 2011).

Diagnosis of splenic cysts entails a wide spectrum of investigations, both baseline and specific tests may be employed. Some of the baseline investigations include haematological, biochemical, bacteriological and serological profiles. Specific investigations are mainly dominated by radiological studies and histology. Serological tests such as an indirect hemagglutination antibody (IHA) test and enzyme-linked immunosorbent assay (ELISA) are targeted to rule out splenic cysts due to echinococcus granulosus infection. Ultrasonography is useful in determining the site, size and nature of splenic cysts. Usually cysts appear as anechoic or hypoechoic

masses with smooth thin walls. Whereas, solid tumors are either isoechoic or hypoechoic (Garima et al., 2011; D'souza et al., 2012; Macheras et al., 2005; Ward et al., 2010; Ma Jin-ping et al., 2011; Melissas et al., 2004; Murat et al., 2008). When ultrasonography findings are equivocal then computed tomography (CT) scan is warranted. CT scan is very sensitive and far much superior to ultrasonography. CT scan furnishes more detailed and precise information regarding the location, architecture and composition of the cystic fluid. Also this defines the position of the cyst and its relationship with the adjacent structures. MRI may be engaged when both ultrasonography and CT scan findings are inconclusive. Histology remains a crucial investigation in ascertaining whether the cyst is a true cyst or pseudo cyst and generally rules out possibility of malignancy (Garima et al.,2011; D'souza et al.,2012; Macheras et al.,2005; Melissas et al., 2004; Murat et al., 2008).

There are numerous surgical options for treatment of splenic cysts. However, primary therapeutic goal is aimed at abolition of the cyst, averting complications and precluding recurrence. Hitherto, literature remains rather indistinct regarding the precise indications for interventions in patients with splenic cyts. By far, most series highlight factors like location of the cyst, patient age, presence of unrelenting symptoms, nature of the cyst, size of the cyst and patient's general condition as being the basic criteria for patients' selection in relation to available surgical interventions (Macheras et al.,2005; Ma Jin-ping et al., 2011; Elias et al., 2009).

Different surgical modalities may be employed for treatment of non-parasitic splenic cysts; these includes, total splenectomy, partial splenectomy, partial cystectomy (deroofing, fenestration), marsupialization of the cyst and percutaneous drainage (Elias et al., 2009). The aforementioned modalities may be carried out through conventional open laparotomy, laparoscopically or by simple ultrasonography/CT scan guided percutaneous aspiration (Garima et al., 2011; D'souza et al., 2012; Macheras et al., 2005; Ward et al., 2010; Ma Jin-ping et al., 2011; Melissas et al., 2004; Murat et al., 2008; Elias et al., 2009). Nevertheless, it should be noted that different surgical therapies have their own pros and cons. Hence, their application is on case merit basis and can not be extrapolated to each and every patient with splenic cyst. When total splenectomy is envisaged, it is a good practice to ensure that patient has been vaccinated against *Streptococcus pneumonia*, meningococcus, and hemophilus influenza B prior to surgery so as to reduce the risk of post-splenectomy sepsis. Cognizant of the fact that spleen is an important immunologic intra-abdominal organ that functions in bacterial clearance, antibody formation, and phagocytosis has made minimally invasive and spleen-salvaging procedures safer, relevant and optimal surgical approaches today (Andy and David, 2007; Chin et al., 2007; Héry et al., 2008).

Conclusion

Splenic cysts remain one of the rare lesions encountered in surgical practice. Majority exhibit a gradual growth course and remain asymptomatic until they attain a considerable size to cause pressure symptoms. Therefore, high index suspicion, comprehensive clinical history taking and appropriate utilization of laboratory and diagnostic radiological imaging are mandatory in achieving accurate and promptly diagnosis. Where applicable, minimally invasive and spleen-preserving procedures should be highly recommended for their treatment.

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