

Huge Pseudocyst of the Spleen

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Splenic cysts are classified as parasitic or nonparasitic based on etiology. Nonparasitic hemorrhagic pseudocyst of the spleen is rare. A 19-year-old woman presented with a non-tender mass over the left upper quadrant of her abdomen. The patient reported having the mass for three weeks, stating that she had noted progressive growth and dysphagia recently. She did not remember any previous chest or abdominal trauma. Computed tomography showed a huge splenic cyst 16 cm × 13 cm × 11 cm in size. Laboratory data showed high serum cancer antigen CA 19-9. Percutaneous drainage reduced CA 19-9 level to within normal range. Alcoholic injection therapy was performed three times and cyst recurrence was noted. Laparoscopic cyst unroofing was recommended to provide symptom relief and to preserve spleen function. Pathology result showed a hemorrhagic pseudocyst of the spleen. The patient recovered uneventfully and experienced no recurrence during follow-up.

Key words: hemorrhagic pseudocyst of spleen, CA 19-9, laparoscopic unroofing.

INTRODUCTION

Splenic cysts are classified as parasitic or nonparasitic based on etiology, and divided into true cysts and pseudocysts according to the presence or absence of an epithelial lining. Hemorrhagic cyst of the spleen is rare and is primarily caused by previous trauma.

Serum level of CA 19-9 is elevated in pancreatic cancer, upper gastrointestinal malignancy, and biliary tract inflammation¹. Serum CA 19-9 is elevated in some true cysts of the spleen², but only rarely in hemorrhagic pseudocysts. Here we present a case with huge hemorrhagic pseudocyst of the spleen with elevated serum CA 19-9 that was treated successfully with laparoscopic cyst unroofing.

CASE REPORT

A 19-year-old woman presented with a non-tender

mass over the left upper quadrant of her abdomen. She had first noted the tumor three weeks prior and reported experiencing progressive growth and dysphagia recently. She did not remember any previous chest or abdominal trauma. CT showed a huge splenic cyst of 16 cm × 13 cm × 11 cm in size (Fig. 1). Laboratory data showed high serum CA 19-9 (108.5 units/ml), although carcinoembryonic antigen (CEA) was within normal limits. After CT-guided drainage, the CA 19-9 level decreased to normal range (33.2 units/ml). Alcoholic injection therapy was performed three times and cyst recurrence was noted.

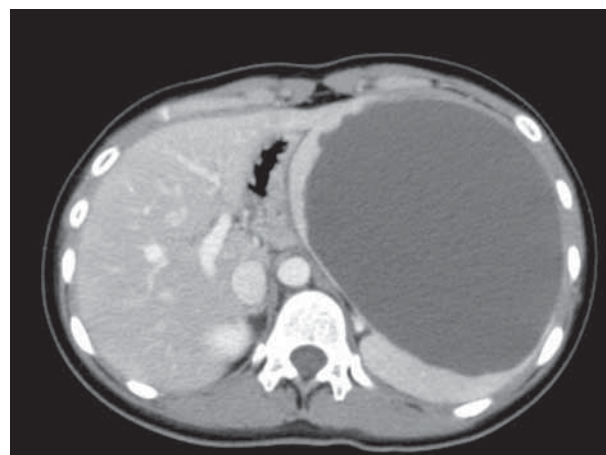


Fig. 1 CT showed a huge splenic cyst with 16 cm × 13 cm × 11cm in size.

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Fig. 2 Intraoperative photograph demonstrated a huge splenic cyst over upper pole of spleen

The decision was made to perform laparoscopic unroofing and the patient was placed in the right decubitus position under general anesthesia. A pneumoperitoneum was created using the Hasson procedure and three trocars (one 10 mm and two 5 mm) were inserted. On exploratory laparoscopy (5 mm, 0 degree), a huge splenic cyst was found over the upper pole of the spleen (Fig. 2). Initially 1000 ml clear fluid was aspirated the cyst and unroofed by using a monopolar diathermy hook. Hemostasis was achieved easily and the inner lining of the residual cyst was ablated by using monopolar diathermy ball. We inserted an omentum plug to cover the remaining portion of cyst wall contiguous with the splenic parenchyma in situ.

Pathology result showed hemorrhagic pseudocyst of the spleen (Fig. 3). The patient recovered uneventfully and was discharged on the third post-operative day. There was no recurrence during follow-up.

DISCUSSION

Hemorrhagic cyst of the spleen is classified as a secondary (pseudo) nonparasitic cyst and is frequently caused by previous trauma. Symptoms correlate with the size and location of the cyst³. Large cysts (> 5 cm) may exert a mass effect and cause early satiety, nausea, vomiting, or constipation⁴.

CA 19-9 is produced by both normal and tumoral epithelial cells. True splenic cysts with epithelial lining may produce CA 19-9 cancer antigen; its production depends on the degree of proliferation of the epithelium⁵.

To our knowledge, serum CA 19-9 levels are high in

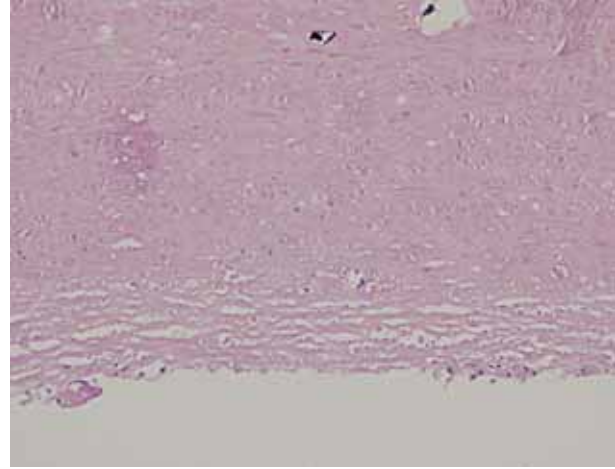


Fig. 3 Medium power view showed cystic lesion and lack of true lining epithelium (H&E, 200 ×)

most epidermoid cysts (true cysts)², but are rarely high in hemorrhagic pseudocysts because of the absence of an epithelial lining. The reason serum CA19-9 level declined to normal range in our patient after CT-guided drainage may be that cystic fluid containing high levels of CA 19-9 had been released into systemic circulation. Due to loss of the cystic fluid sample, we could not measure the CA19-9 level present in the cystic fluid to confirm the finding. However, we suspected the residual splenic cyst may contain an epithelial lining and produced CA 19-9 even no epithelial lining was recognized in the cyst specimen removed. However, in a case reported by van Lacum et al.,⁶ a histological diagnosis of pseudocyst was revised, because CA 19-9 serum level was high preoperatively and returned to normal after cyst resection. It seems that in some cases the epithelial lining of the cyst wall is partially^{7,8,9} or completely destroyed⁶. This may result from hemorrhage, distension, and increased pressure within the cyst that causes atrophy of the epithelial lining.

Several treatments are described for splenic cysts. Percutaneous drainage with or without injection of a chemical agent may decrease the size of large cysts, but this procedure is associated with a high rate of recurrence^{10,11}. When a benign splenic cyst is considered as a pre-operative diagnosis, preservation of spleen tissue is the aim of surgical treatment and can prevent risk of overwhelming post-splenectomy sepsis, especially in children and young patients¹².

Laparoscopic partial splenectomy or complete cyst resection ensures against cyst recurrence, but the procedure requires a high level of technical expertise and may be

not suitable for all patients¹³.

Laparoscopic cyst unroofing is a safe, easy procedure with a short operative time and low blood loss. Cyst unroofing has been described using a monopolar diathermy hook, electrocautery scissors, a harmonic scalpel, and a Ligasure device¹⁴. Cyst recurrence seems to be the major problem after laparoscopic unroofing, but most residual cysts are small and asymptomatic and therefore no further management is required¹³. To reduce the risk of recurrence, as much of the cyst should be resected as possible¹⁵, and an omentum plug should be used in the residual cavity of the cyst¹⁶.

In summary, we present a case of hemorrhagic splenic pseudocyst with elevated serum CA 19-9, a condition only rarely described in published articles. Laparoscopic cyst unroofing is a simple procedure with low complications, high cure rate, and preservation of splenic immunologic function.

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