**Mesothelial Splenic Cyst**

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A 29-year-old female was admitted because of thrombocytopenia and an abdominal mass which was palpated 5 finger breadths below the left costal margin. A computed tomographic scan of the abdomen revealed splenomegaly with a large calcified cystic lesion. The spleen was removed and the pathological examination disclosed that the cyst was monolocular and the wall was of mesothelial origin.

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**Key words:** thrombocytopenia, splenomegaly, true cyst, primary cyst

**Introduction**

Splenic cysts are uncommon. Such lesions are usually classified as parasitic or non-parasitic, depending on the etiology, and as true (primary) or false (secondary, pseudo), depending on the presence or absence of a cellular lining (1–3). Most benign, non-parasitic true (primary) cysts of the spleen are endothelial or epidermoid; mesothelial cysts are very uncommon (4, 5). Mesothelial cysts have a trabeculated wall consisting of hyalinized connective tissue and a simple or stratified epithelial lining.

We report a case of mesothelial splenic cyst and discuss its significance with the relevant literature.

**Case Report**

A 29-year-old female was admitted to our hospital in February 1991, because of thrombocytopenia and an abdominal mass. The patient had no history of trauma, anemia, fever, or infection other than colds. There had been no weight loss or jaundice. She denied symptoms referable to the mass. The family history was non-contributory. Her platelet count was 8.5x10^4/µl, when she was seen in another hospital at the time of her second pregnancy in November 1990.

On admission (February 1991), her height and weight were 165.5 cm and 64.0 kg, and her body temperature was 37.2°C. Her blood pressure was 118/80 mmHg, pulse 88, and respiratory rate 18. No pallor or jaundice was found. No lymphadenopathy or a bleeding diathesis were noted. The head, neck, lungs, and heart were all normal. The abdomen was slightly distended where a mass was palpated 5 finger breadths below the left costal margin. The liver was not palpable. The neurologic examination showed no abnormality.

Laboratory studies showed that the platelet count decreased to 9.2x10^4/µl with a slightly increased platelet-associated IgG (PA IgG) of 78.8 ng/10^7 cells; (normal <25.0). The white blood cell count was 5,100/µl, with 63% neutrophils, 35% lymphocytes, and 2% monocytes. The hemoglobin was 13.2 g/dL. The platelet count fluctuated between 9.0x10^4 and 16.0x10^4/µl after admission. No abnormalities were seen in the routine serum biochemical and serologic tests. The urine and stool tests for occult blood were negative. An electrocardiogram was normal. The chest X-ray was normal.

An ultrasonographic examination of the abdomen revealed an enlarged spleen containing an anechoic well-marginated lesion with enhanced sound through transmission. Both kidneys, liver, gallbladder and pancreas appeared normal. A computed tomographic scan of the abdomen (Fig. 1) also demonstrated splenomegaly including a 17x18 cm low density mass with calcified components in the wall. However, the liver appeared normal in size, and the pancreas, adrenal glands, and kidneys were normal. ^67^Ga and ^99m^Tc-MDP scan (Fig. 2) showed a filling defect in the same area as the abdominal mass noted on ultrasonography and computed tomography.

The spleen was resected in March 1991, and was found to have a large splenic cyst. The platelet count had increased to 86.8x10^4/µl after splenectomy, and then returned to between 40.0x10^4 and 45.0x10^4/µl. The PA IgG, incidentally, decreased to 17.4 ng/10^7 cells. She did not have a fever and the postoperative course was uneventful.

The spleen weighed 2,370 g (Fig. 3-A, B). The cyst measured 17x18 cm and was filled with brown fluid which was not analyzed. The cyst had a monolocular wall which was situated in the parenchyma. On microscopic examination (Fig. 4-A, B),
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Fig. 1. Computed tomography of the abdomen reveals a large cystic lesion in the spleen.

Fig. 2. $^{67}$Ga (left) and $^{99m}$Tc-MDP (right) scan showing a filling defect in the left abdomen.

Fig. 3. A) Freshly resected specimen demonstrating suppression of the spleen (arrow) by a large cystic lesion. B) The inner surface of the splenic cyst was attached to the spleen showing the monolocular wall.

Discussion

The moderate thrombocytopenia on admission might have been brought about by an increased sequestration mechanism, the oppression of splenic veins by the cyst causing splenomegaly, because the pathological examination of the resected spleen revealed the large cyst and thrombocytopenia disappeared after removal of the cyst.

Splenic cysts are uncommon and are generally classified as parasitic and non-parasitic. The most common cysts contain larval forms of metazoal parasites (e.g.: echinococcus) or post-traumatic. Most of the benign non-parasitic true (primary) cysts of the spleen are endothelial or epidermoid. Mesothelial cysts of the spleen are especially uncommon (4–7).

Qureshi and Harfner noted that there were no epithelial
Fig. 4. A) Low power light micrograph of the cyst wall (HE stain, x20). B) High power light micrograph shows that the cyst wall is lined by a layer of cuboidal cells with round nuclei (Cytokeratin stain, x200).

Spleenic cysts among their 75 cases of non-parasitic splenic cysts (5). Doolas et al reported 651 cases of non-parasitic splenic cysts. Eighty-two of these cases were studied histologically by taking multiple sections through the cyst wall, and it was revealed that 30 cases were false, 21 endothelial, 17 epidermoid, and only 4 cases (4.9%) were mesothelial (4).

The subclassification of true cysts is confusing. The confusion arises because Fowler’s classification (1), McClure and Altemier’s classification (2), and Rappaport’s modification (3) include endothelial-lined cysts, such as lymphangiomas and hemangiomas. The true cysts are subclassified into endothelial, epidermoid, dermoid, and mesothelial types. Mesothelial cysts contain a trabeculated wall consisting of hyalinized connective tissue with simple or stratified epithelial lining. Epidermoid cysts, which are the most common epithelial cysts, are lined by stratified squamous epithelium. Dermoid cysts, which are considered to be cystic teratomas, contain hair follicles, bony structures, and sebaceous glands.

The histogenesis of true (primary) splenic cysts is unclear. Some authors have suggested that epithelial cysts of the spleen are due to developmental misplacement of epithelial tissue from adjacent structures, such as gonads (8) and dorsal mesogastrium (9, 10). By immunohistochemical and morphologic investigation, including electron microscopy, epidermoid cysts seem to be derived from squamous metaplasia of the mesothelium, possibly arising from chronic irritation of the inner surface of the splenic cyst (11, 12).

Ough et al (12) showed that the human splenic capsule is lined with mesothelium as in other intraabdominal visceral organs. Thus, it is postulated that invagination of the capsular surface mesothelium may occur during development, and then cystic disorder can be expanded by the retention of fluid. However, the mechanism of fluid production remains to be elucidated.

**References**