

CYSTS OF THE SPLEEN

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UNLIKE cysts of the ovary, liver, kidney or other abdominal organs, cysts of the spleen are very rare. Only four cases were reported by Pemberton² in approximately 800 splenectomies, an incidence of 0.5 per cent. Up to January 1, 1939, Fowler¹ collected a total of 137 reported cases. We have found 11 more reported in the literature,²⁻¹¹ up to February 1, 1941, making a total of 148. We wish to report an additional case seen recently at the Henry Ford Hospital.

Cysts of the spleen have been classified as single or multiple, unilocular or multilocular, parasitic or nonparasitic, true or false, primary or secondary, and hemorrhagic, serous, or lymphatic. Most of these classifications are not entirely satisfactory. The following classification (Table I) is a modification of those submitted by Moynihan¹² and Fowler.¹³ True cysts of the spleen have a specific secreting lining which may be epithelial, endothelial, or parasitic. False cysts possess only a dense hyaline fibrous tissue wall or a layer of condensation of adjacent splenic tissue.

TABLE I

CYSTS OF THE SPLEEN

- I. True cysts—lined by specific secreting membrane:
 - A. Epithelial:
 1. Dermoids
 2. Epidermoids
 - B. Endothelial:
 1. Lymphangioma
 2. Hemangioma
 3. Polycystic disease
 4. Some serous cysts
 - C. Parasitic—lined by protoplasmic matrix containing numerous nuclei
 1. Hydatid cyst caused by echinococcus
- II. False cysts—no specific secreting lining:
 - A. Hemorrhagic
 - B. Serous
 - C. Inflammatory
 1. Acute necrosis in infection
 2. Chronic tuberculosis
 - D. Degenerative liquefaction of infarcted areas caused by embolism or arterial thrombosis

According to Fowler,¹ echinococcus cysts occur about twice as frequently as all of the various forms of nonparasitic cysts. False cysts are encountered approximately four times as often as the true type. Eighty per cent of the false cysts are large, solitary, and unilocular; two-thirds being of the hemorrhagic variety, and one-third of the serous type. An additional case report of a large, solitary, false serous cyst of the spleen is presented herewith.

CYSTS OF THE SPLEEN

Case Report.—J. S., white, male, age 11, was admitted to the Henry Ford Hospital, March 2, 1940, complaining of pain and fullness in the left abdomen. He had been well until three months previously, when a bulging of the upper left abdominal quadrant was first noted. There was no history of abdominal trauma preceding the appearance of this mass. Two weeks prior to his admission to the hospital, the bulging area became painful, following a blow by the handle of a snow shovel. The past history was essentially negative.

Physical examination revealed a well-nourished, white boy, who did not appear acutely ill. Temperature 99.2° F.; pulse 88; respirations 20. The head, neck and chest

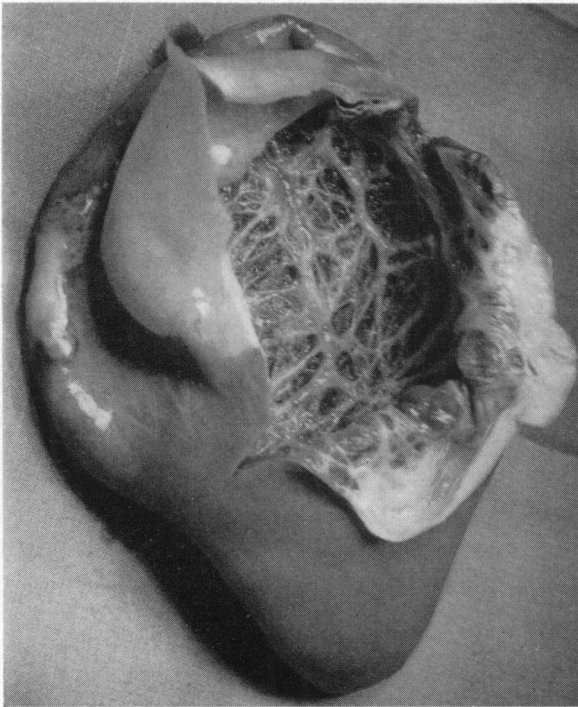


FIG. 1.—The gross appearance of the removed spleen.

were essentially normal. In the left upper quadrant of the abdomen a definite bulging was evident. Percussion note over this area was flat. A large mass was palpated extending inferiorly and medially from beneath the left costal margin. It was smooth, rounded, firm, slightly tender, and moved with respiration. No notch was palpable. Rectal examination was negative. Ureanalysis showed no abnormal findings, except a positive reaction for albumin. Hemoglobin 11.7 Gm.; R.B.C. 4,070,000; W.B.C. 5,250. Differential count showed no significant changes. The tuberculin and blood Wassermann tests were negative. A plain roentgenogram of the abdomen showed a large, soft tissue tumor in the left upper quadrant, which extended inferiorly and slightly to the right of the midline. Barium enema examination revealed downward and forward displacement of the splenic flexure of the colon by an extrinsic mass. Pyelograms showed upward displacement of the left kidney.

Operation.—March 7, 1940: A left subcostal incision revealed a large splenic cyst occupying the upper two-thirds of the spleen. It contained 1,620 cc. of straw-colored

fluid. After aspiration of the fluid, the spleen was mobilized by separating its adhesions to the diaphragm and posterior parietal peritoneum. Splenectomy was then performed after division of the gastrosplenic ligament and transfixion of individual vessels in the pedicle by black silk. The patient withstood the operative procedure very well, and his wound healed *per primam*.

Pathologic Examination.—Dr. F. W. Hartmann: The spleen weighs 270 Gm. (after aspiration of contents of cyst), and measures 17.5×12.0×7.0 cm. The lower third of the spleen is of normal consistency with light reddish-brown color, and distinct architectural markings. The upper two-thirds consists of a thin-walled cystic structure, with a maximum diameter of 13 cm. Trabeculations are present within the lumen (Fig. 1). On the cyst wall, enlarged cords of fibrous tissue run in all directions. Microscopic examination of sections of the spleen and cyst wall shows the latter to be devoid of epithelial lining. The wall consists of rather dense, pink-staining, fibrous tissue, beneath which there is considerable bloody extravasation. The adjacent splenic tissue appears normal. *Pathologic Diagnosis.*—Benign simple cyst of spleen.

Discussion.—The solitary nonparasitic cysts of the spleen is the type most frequently encountered by the surgeon. In the series of 137 cases, collected and reported by Fowler,¹ 79 per cent, or 108 cases, were of the false variety. Of these 108, 71 per cent, or 77 cases, were large solitary hemorrhagic cysts, and 29 per cent, or 31 cases, were large serous cysts. The present case falls into this latter group.

The etiology of solitary nonparasitic splenic cysts is still obscure. It has been repeatedly pointed out that too few cases have been reported to justify any extensive conclusions as to etiology. Women appear to be most often affected, particularly during the child-bearing age. Most cases occur between the ages of 20 and 50, although they have been noted in very young children and even in the newly born infant. Trauma seems to play an important rôle in the formation of large hemorrhagic or serous types. Many of these are more properly described as encysted hematomata due to an injury which fails to produce a laceration of the surface of the spleen, but which causes tearing of the vessels in the interior of the organ and gross hemorrhage. If the patient survives, a cyst with bloody-stained fluid and fibrous walls is formed in time. Intrasplenic hemorrhage, however, may also occur spontaneously without antecedent trauma and subsequently form a cyst.

It is believed by some that the complete absorption of blood results in the transformation of a hemorrhagic cyst to a serous type, although it is known that the majority of cases of serous cyst give no history of previous trauma. In Fowler's series only 16 per cent of the serous type were known to have been preceded by trauma.

The signs and symptoms of splenic cyst are not distinctive. Since no apparent function of the adult spleen is known, we are unable to recognize any symptoms attributable to the involvement of the splenic pulp itself. When the cysts are small, there are no symptoms; when they are large, symptoms may result secondarily from adhesions or pressure upon adjacent organs. The chief of such pressure symptoms is pain, characterized by a dragging sense of heaviness in the left hypochondrium and epigastrium. Occasionally the pain may be referred to the left shoulder. Digestive disturbances such as nausea,

vomiting, flatulence and constipation have been frequently observed. Rarely, a twisted splenic pedicle has resulted in collapse. Usually the surgeon is consulted, not because of symptoms, but because of a mass in the abdomen.

The diagnosis of splenic cyst is very difficult. The location of the tumor usually suggests splenomegaly, but the cystic nature is generally not recognized until the organ has been exposed. Cyst of the spleen must be differentiated from other causes of splenomegaly, and cystic disease of the pancreas, omentum, mesentery, left lobe of liver, ovary, or kidney. Roentgenologic examination is of great help. A large soft tissue mass may be seen on the plain film associated with elevation of the diaphragm, bulging of the left lower intercostal interspaces, obliteration of psoas shadow (Ostro and Makover¹⁴), and, occasionally, displacement of kidney. After a barium meal, the stomach may be seen pushed to the right. Barium enema examination will show downward displacement of the splenic flexure. If a preoperative diagnosis of splenic cyst is made, it must be differentiated from the echinococcal type. This differentiation may be possible by the precipitin test of Welch and Chapman, the complement fixation test of Weinberg and Parvu, and the cutaneous allergic test of Casoni.

Treatment.—Only cysts of relatively large size require treatment, and fortunately these are usually readily amenable to surgery. Splenectomy, which gives a mortality rate of only 4 per cent,¹ is the treatment of choice, and is usually possible in the nonparasitic solitary type. Enucleation of the cyst is rarely feasible, but has been accomplished. The difficulty in controlling hemorrhage makes it a more dangerous operation than splenectomy. Marsupialization results in a prolonged postoperative course and should be rarely necessary in this type of cyst. Incision and drainage, in one or two stages, has been performed, particularly in those instances when splenectomy was considered too hazardous or impossible.

SUMMARY

A short discussion of cystic disease of the spleen in general and of false cysts in particular is given. The case history and pathologic description of an additional case of a false serous cyst is reported.

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