Splenic cysts are rare disease that are diagnosed incidentally during imaging studies. In recent years, through the development of diagnostic methods the detection of their are increased, although documented and described in the literature of cases is still low. The disease can be asymptomatic – this concerns mainly small cysts, but greater changes cause unspecific symptoms resulting from oppression of enlarged spleen on adjacent organs. Due to the etiology of cysts, they are divided into primordial and false. Primordial cysts have an epithelial lining which distinguishes them from false and they are divided into parasitic and nonparasitic. Because of the possibility of complications cysts usually treated surgically, with the aim to preserve the splenic parenchyma. We present a case of a 28-year-old woman who has revealed the presence of epidermal cysts of the spleen.

**Key words:** epidermal cyst, spleen
logical examination. In this study, very rare case of epidermal cyst has been presented.

CASE REPORT

28-year-old women was admitted in 2012 to the 1st Department of General and Endocrinological Surgery according to recognized in 2004 splenic cyst. Three months before the admission, the patient started to suffer from abdominal pain radiating to the left scapula. The pain was increasing while leaning and after lavish meals. It suggests that the cause of pain is connected with pressure of the cyst on the stomach. The patient did not report any other complaints. Case history did not reveal any abdominal injuries, neoplasms, blood and infectious disorders. Serological examination in order to exclude Echinococcus granulosus was conducted which allowed to eliminate parasitic etiology. Palpation proved tuberous formation localized in epigastrium in the left upper quadrant of the abdomen.

At the admission day, the patient had increased body temperature to 37.4°C. Blood morphology proved slight anemia (erythrocytes – 3.77x10^6/µL, hemoglobin – 11.6 g/dL, hematocrit – 35.4%), white blood cell count was normal – 7x10^3/µL, the number of thrombocytes was decreased to 94 000 and other biochemical examinations showed no anomalies. Ultrasonography, performed after the admission to the hospital, demonstrated cyst measuring 10.5x8.2x6.5 cm, filled with homogeneously echogenic fluid, placed in upper part of the spleen (fig. 1). Remaining splenic parenchyma measuring 16x12x7 cm was regular. No changes have been stated in other organs. Abdominal computer tomography allowed to describe more precisely the localization of the cyst in regard to other abdominal organs (fig. 2). The patient was qualified to laparoscopic surgery.

Laparoscopic spleen puncture and splenectomy have been conducted. Small incision in periumbical area with Veres needle was performed in order to create pneumoperitoneum. Near epigastric and iliac area, 2 trockars were introduced and as a result hyperemic spleen with the cyst was revealed. After releasing adhesions of the recess, splenic and gastric short blood vessels were prepared, clipped and cut (fig. 3). Puncture of the cyst was conducted – 180 ml serous fluid was aspirated. Peritoneal cavity was rinsed and aspirated. Excision of the spleen was conducted after additional incision in left iliac area (fig. 4). To the splenic cavity Redon drain was introduced.

No postoperative complications have been observed. According to severe pain, radiating to the back, the patient required application of additional analgetics. Two days after the surgery, Redon drain has been removed, pain gradually decreased and at least disappeared 4 days after the surgery. 6 days after the operation patient was dismissed home in good general state with properly healed postoperative wounds.

Postoperative material consisted of fully resected spleen weighing 420 g with macroscopically visible cyst. During histopathological examination, cyst covered with stratified squamous nonkeratinized epithelium was

Fig. 1. Ultrasonography. Splenic cyst filled with homogeneously echogenic fluid

Fig. 2. Computer tomography. Clear image of splenic cyst covering almost total volume of the organ
observed in hematoxylin and eosin stained preparations (fig. 5). The layer of epithelial cells was unequally thick. Under organ capsule, spleen parenchyma sclerosis has been stated in the form of wide band of fibrous connective tissue. Final recognition of epithelial cyst took place after statement of positive pancytokeratin (panCK) expression in external layer of the cyst wall cells which were similar to stratified squamous nonkeratinized epithelium cells observed in H+E slides (fig. 6). Microscopic examination of fluid absorbed from the cyst proved the presence of numerous lymphocytes, erythrocytes and macrophages loaded with hemosiderin.

Epidermal splenic cysts are still extremely rare cases in clinical practice. Although they were described at the beginning of 1930s 20th century, still many aspects are the subject of speculations regarding their possible origins. On the basis of described by Fowler in 1953 classification of cysts, including presence of epidermal capsule, we may differentiate primordial – with epidermal layer and false (secondary) cysts – without epidermal layer. False cysts occur 10 times more frequently than primordial ones. Described in this article case is classified as primordial cyst with cancerous etiology according to the presence of stratified squamous epithelium in cyst pattern. Such epithelium probably derives from endoderm similarly to epithelium covering the organs of gastrointestinal tract which suggest its participation in spleen embryonic evolution (4).

According to Morgenstern, stratified squamous epithelium covering epidermal cyst develops as a result of mesothelial metaplasia connected with high blood pressure and tensile force during the development of the cyst (5). It suggests that mesothelial metaplasia is the basis for the development of all cells investing primordial cysts.

Another theory explaining pathomechanism of epidermal splenic cyst creation is connected with the possibility of ectopic localization of stratified squamous epithelium in spleen. It is suggested that ectopic epithelium may be the subject of implementation during extensive
abdominal or thoracic injuries or during laparoscopic and traditional surgeries (6). Regardless of the causes of epidermal splenic cyst creation, full recovery of the patient is possible only after excision of the organ along with the cyst. It allows to avoid the risk of epidermal dysplasia and in result malignancy of the changes and development of squamous cell carcinoma.

The description of rare case of epidermal splenic cyst aims at focusing on huge diagnostic issue which is the presence of primordial cyst in the spleen. The lack of specific and unambiguous changes in laboratory and imaging examinations should force to taking into consideration different pathologies and possibilities of therapeutic treatment other than antiparasitic chemotherapy in possible hydatid cyst. Described pathological-clinical division of splenic cysts is supposed to help in differentiating diagnostics of this type of morphological changes in the spleen. It has to be highlighted that the only efficient treatment is splenectomy with cyst. Laparoscopic surgery is advised.

REFERENCES


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