ACCESSORY SPLEEN – INCIDENCE, LOCALIZATION AND CLINICAL SIGNIFICANCE

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The aim of the study. Assesment of prevalence, localization and clinical significance of an accessory spleen in own research material.

Material and methods. Retrospective analysis of medical records of 8 patients managed in the Department of Endocrine and General Surgery of Medical University of Łódź between 1st January 2006 and 31st December 2009 with an accessory spleen recognized in the perioperative period. 7 splenectomies were performed (5 due to hematological indications) while one patient was operated on due to the recurrence of hematological disorders after previous splenectomy 3 years earlier.

Results. In the early postoperative period complications requiring surgical reintervention occured in 2 patients. 5 patients underwent splenectomy for hematological indications and in 4 of them parameters of complete blood count improved. In one female patient operated on due to idiopathic thrombocytopenic purpura postoperative thrombocytopenia occured after splenectomy and excision of an accessory spleen.

Conclusions. An accessory spleen is identified during 10% of splenectomies. This anomaly is most often localized in the area of vascular splenic hilum and is usually single. Complications after excision of the accessory spleen are attributable to splenectomy and typical for this procedure. The presence of the accessory spleen is significant only when excision of entire splenic tissue is necessary due to hematological indications.

Key words: accessory spleen, splenectomy, idiopathic thrombocytopenic purpura
Table 1. Patients with an accessory spleen identified during splenectomy

<table>
<thead>
<tr>
<th>Sex</th>
<th>Age (years)</th>
<th>Indication for splenectomy</th>
<th>Intraoperative appearance</th>
<th>Performed procedure</th>
<th>Histopathological diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>23</td>
<td>suspicion of postmumatic splenic pseudocyst attributable to a car accident</td>
<td>spleen containing cystic mass; an accessory spleen within the splenic hilum</td>
<td>excision of the spleen together with the accessory spleen that could not have been separated from the spleen</td>
<td>splenic epidermoid cyst, the accessory spleen with a size of 1.5x1x0.6 cm and with a normal structure</td>
</tr>
<tr>
<td>F</td>
<td>37</td>
<td>hypersplenism associated with splenomegaly</td>
<td>spleen of a huge size filling over the half of an abdominal cavity</td>
<td>splenectomy, excision of four masses identified as accessory spleens; two from the area of the vascular splenic hilum, one from the greater omentum and one from the small bowel mesentery</td>
<td>infiltration of hairy cell leukemia in the spleen, the accessory spleen from the greater omentum and lymph nodes from the splenic hilum, the necrotic lymph node from the small bowel mesentery without lymphoid structure</td>
</tr>
<tr>
<td>F</td>
<td>20</td>
<td>idiopathic thrombocytopenic purpura</td>
<td>spleen of a normal size</td>
<td>splenectomy, excision of an accessory spleen with a size of grain of pea from the greater omentum</td>
<td>hyperplasia of the red pulp of the spleen, the accessory spleen with a diameter of 1 cm and with normal structure</td>
</tr>
<tr>
<td>F</td>
<td>52</td>
<td>hemolytic anemia</td>
<td>significantly enlarged spleen</td>
<td>splenectomy, excision of an accessory spleen localized within the vascular splenic hilum</td>
<td>hypertrophy of the red pulp and passive hyperaemia of the spleen, the accessory spleen 2 cm in diameter</td>
</tr>
<tr>
<td>F</td>
<td>68</td>
<td>mass of the left adrenal gland with a diameter of approximately 3 cm</td>
<td>numerous adhesions after previous three surgical procedures (appendectomy, cholecystectomy, panhisterectomy)</td>
<td>attempt of laparoscopic adrenalectomy, conversion to open surgery due to numerous adhesions and hemorrhage from the splenic capsule, splenectomy, excision of mass together with the adrenal gland</td>
<td>adrenocortical adenoma, hyperplasia of the red pulp of the spleen, hemorrhagic focuses in the accessory spleen with a diameter of 0.5 cm and localized in the area of the splenic vascular hilum</td>
</tr>
<tr>
<td>M</td>
<td>60</td>
<td>thrombocytopenia and leukopenia secondary to hypsersplenia associated with splenomegaly</td>
<td>significantly enlarged spleen</td>
<td>splenectomy, excision of an accessory spleen from the area of the vascular splenic bud</td>
<td>preserved architectonics, hyperplasia of the red pulp, dilated sinusoids and passive hyperaemia in the spleen and in the accessory spleen with a size of 1x1x1 cm</td>
</tr>
<tr>
<td>F</td>
<td>25</td>
<td>idiopathic thrombocytopenic purpura</td>
<td>spleen slightly enlarged of a normal colour and consistency</td>
<td>splenectomy, excision of an accessory spleen localized in the splenorenal ligament</td>
<td>microscopic appearance of the spleen and the accessory spleen (with a diameter of 1.8 cm) can be attributable to idiopathic thrombocytopenic purpura (slightly dilated sinusoids, infiltration formed by neutrophils and macrophages observed in the red pulp, lymph follicles – some of them with nuclei of division)</td>
</tr>
</tbody>
</table>
Table 2. A patient with an accessory spleen recognized due to the recurrence of hematologic disorders after previous splenectomy

<table>
<thead>
<tr>
<th>Sex</th>
<th>Age (years)</th>
<th>Indication for splenectomy</th>
<th>Performed procedure</th>
<th>Histopathological diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>50</td>
<td>chronic lymphocytic leukemia, autoimmune thrombocytopenia</td>
<td>excision of an encapsulated mass identified as an accessory spleen from the area of the splenic vessels and of the pancreatic tail (fig. 1), excision of mass without a capsule identified as splenosis from the area of the upper pole of the left kidney and also lymphadenectomy in this region</td>
<td>infiltration of small lymphocytic lymphoma (SLL)/chronic lymphocytic leukemia (CLL) observed in the lymph nodes, the focus of splenosis and the accessory spleen with the size of 2x1,8x2 cm</td>
</tr>
</tbody>
</table>

The accessory spleen is rarely symptomatic, usually due to rupture (7), an abscess (1) or torsion presenting as an acute abdomen (2, 3). It sometimes mimicks in radiological examinations neoplasms of the abdominal organs, for example the pancreas (8-12), the stomach (13) and the left adrenal gland (14) or neoplasms of the retroperitoneal space (15). In 16-21.8% of cases the accessory spleen is located near or in the pancreatic tail so differentiation it from splenectomy. He was discharged in a satisfactory general condition and qualified to further hematological and oncological treatment. After surgery improvement of complete blood count was achieved. In this case of chronic lymphocytic leukemia surgical intervention had also a diagnostic role because the lymph nodes were excised and sent to histopathological examination.

DISCUSSION

The accessory spleen is rarely symptomatic, usually due to rupture (7), an abscess (1) or torsion presenting as an acute abdomen (2, 3). It sometimes mimicks in radiological examinations neoplasms of the abdominal organs, for example the pancreas (8-12), the stomach (13) and the left adrenal gland (14) or neoplasms of the retroperitoneal space (15). In 16-21.8% of cases the accessory spleen is located near or in the pancreatic tail so differentiation it from

![Fig. 1. A CT scan of an accessory spleen localized near the pancreatic tail in a patient after previous splenectomy 3 years earlier – marked with a arrow](image-url)
pancreatic neoplasm can be very difficult in a situation like that (4, 5, 6).

The presence of the accessory spleen and its activity become significant when entire functional splenic tissue should be removed for hematological indications. The therapeutic effect of splenectomy performed due to hematological disorders (for example idiopathic thrombocytopenic purpura) depends on the complete removal of splenic tissue and missing the accessory spleen can cause the recurrence of the disease (16, 17, 18). Intraoperative implantation of splenic tissue may be another reason for failure of splenectomy (17). Targaron et al. found accessory spleens in 6 of the 48 patients (12.5%) undergoing laparoscopic splenectomy (17). After the operation hematological disorders were still present in 9 patients. In 3 of them scintigraphy and CT confirmed the presence of persistent splenic tissue presenting as the accessory spleen in 2 patients and splenosis in the third patient. However, the authors did not perform these examinations before surgical interventions. Velanovich and Shurafa performed scintigraphy and CT in all 5 patients undergoing the operation due to the recurrence of hematological disorders. In 4 patients the presence of the accessory spleen was confirmed. In spite of the fact that after laparoscopic excision of the accessory spleen the disorders were still present in 2 patients, radiological study confirmed successful removal of entire splenic tissue.

If a patient is operated on due to the recurrence of hematological disorders after previous splenectomy, identification of the accessory spleen during the surgical procedure is easier due to usually performed preoperative CT or scintigraphy (16, 18). Besides, the accessory spleen can enlarge its size after splenectomy (7). Preoperative radiological examinations undertaken before splenectomy could be worth considering to seek the eventually present accessory spleens and to reduce the risk of missing them during surgery. However, it is necessary to remember that even excision of all accessory spleens does not ensure the recovery (16, 17). Besides, in patients with the recurrence of hematological disease, the accessory spleen can be removed successfully laparoscopically using a less invasive method (16, 18).

It is also important to pay attention to the fact that leaving the accessory spleen intact during splenectomy performed due to indications other than hematological can result not only in obvious benefits in the future, but also sporadically in life-threatening complications. Leon et al. (7) presented a case of a 45 year old woman with spontaneous rupture of the accessory spleen that had been identified and intentionally left during splenectomy performed 25 years earlier for splenic rupture due to a traffic accident. On the other side, Habib et al. (1) presented a case of an abscess of the accessory spleen in a 25 year old patient that had underwent splenectomy for hereditary spherocytosis 18 years earlier and in spite of missing the accessory spleen the complete recovery occurred.

**RECAPITULATION**

The real prevalence of the accessory spleen is difficult to be defined because of a few reasons. First of all, the accessory spleen is searched only during splenectomies, especially performed for hematological conditions. It is not looked for during other abdominal operations due to the lack of indications and this anomaly is then usually found incidentally. Furthermore, it may be difficult to find the accessory spleen or identify it as splenic tissue due to its similar appearance to the lymph nodes. The accessory spleen can be also entirely surrounded by fatty tissue and difficult to be detected radiologically prior to surgery (17). The small accessory spleen can be missed, especially if an operating field is full of blood coming from the lacerated spleen and a surgeon tends immediately to perform unplanned splenectomy. The risk of removing the accessory spleen unintentionally and identifying it only on histopathology is increased when this anomaly is located within the splenic hilum. This situation occurred in one of our patients who had been operated on due to mass of the left adrenal gland.

CT or scintigraphy performed in patients after previous splenectomy can detect persistent splenic tissue presenting as splenosis or the accessory spleen or rule out its presence and relation with the recurrence of disorders (16, 17, 18). However, in patients undergoing splenectomy for hematological conditions, before surgical intervention these examinations are not undertaken routinely to search accessory spleens. The evaluation of potential
benefits attributable to preoperative radiological examinations requires further research.

In our research material the accessory spleen was present in 10% patients undergoing splenectomy (7/70) and its more common location was the splenic hilum (5 of 8 cases), then the greater omentum (2 of 8 cases) and the splenorenal ligament (1 of 8 cases). In all patients the accessory spleen was a single anomaly. During one operation focal lesions macroscopically similar to splenic tissue were removed, but on histopathology they were identified as the lymph nodes. Intraoperative identification of the accessory spleen can be difficult due to its similarity to the lymph nodes and a small size. However, finding the accessory spleen is significant only in patients undergoing splenectomy due to hematological indications. Complications after the surgical procedure during which the accessory spleen was removed are attributable to usually performed splenectomy, not to excision of the accessory spleen.

REFERENCES


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