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CASE REPORT

Abscess of the Spleen

Nil ÇULHACI, Ibrahim METEOĞLU, Füruzan KACAR, Serdar ÖZBAŞ[1]

Adnan Menderes University Medical School, Department of Pathology and [1]Surgery Aydın, Turkey

Abscess of the spleen is a very rare lesion. In this study, 4 cases of splenic abscess are presented and discussed along with the literature. The cases were between 16 and 55 years-old and two of them had hematologic malignancy. All of them had been operated on because of acute abdomen, and in two cases splenic rupture was present. Only in one of the cases was salmonellosis detected by microbiological methods. By histological examination, expansion and congestion in splenic sinusoids, and foci of abscess including wide areas of necrosis and inflammatory infiltration by neutrophils were seen in all cases. The most frequent cause of splenic abscess is septic embolism arising from bacterial endocarditis. There are also a few splenic abscess cases seen with malignancies. While splenic abscess is seen rarely, it has a high rate of mortality when it is diagnosed late. (Pathology Oncology Research Vol 10, No 4, 234–236)

Keywords: abscess, spleen, immunosuppression

Introduction

Abscess formation in the spleen is seen quite rarely. It mostly occurs after trauma or as a result of systemic bacteremia arising from infective endocarditis.[1] It has a high rate of mortality when it is diagnosed late. In this study, 4 cases of splenic abscess are presented and discussed along with the literature.

Cases

Case 1. A 54-year-old male patient who applied to the emergency room had nausea, vomiting and abdominal pain complaints, and with physical examination, tenderness was present around the umbilicus. It was established that the patient had been undergoing treatment for multiple myeloma and chronic renal failure for three years. The laboratory values were as follows: hemoglobin 8 mg/dl, hematocrit level 23.1%, leukocyte 10,300/mm^3, thrombocyte 170,000/mm^3, sedimentation rate 65 mm/hour, BUN 160 mg/dl, urine creatine 54 mg/24 hours. No pathological changes were observed with abdominal ultrasonography (USG). He did not have splenomegaly. He was urgently taken to the operating theater and splenectomy was carried out, since there was a purulent appearance of the spleen. The spleen was 130 g in weight and 11×8×3 cm in dimension. It was also noticed that there were cyst-like structures on the cross-sectional surface. Central necrotic debris, as well as intense inflammatory infiltration consisting of polymorphonuclear cells and hemosiderin-laden macrophages, vascular dilatation and fibroblastic proliferation at the periphery were observed (*Figure 1*). Ciprofloxacin, vancomicin and meropenem treatment was given after the operation.

Case 2. A 16-year-old male patient was admitted to our hospital, complaining of weakness, trembling and vomiting. The spleen was 13 cm palpable below the left costal margin. His heart rate was 110/minute, and his temperature was 38.5°C. The following values were obtained from the laboratory tests: hemoglobin 11.2 g/dl, hematocrit level 25.2%, leukocyte 23,700/mm , thrombocyte 278,000/mm , sedimentation rate 85 mm/hour. A 9 cm diameter cystic formation in the spleen was determined by the abdominal USG. The patient was then operated on. The capsule of the resected spleen was partially purulent and fibrotic. The spleen was 560 g in weight and 18×13×7 cm in dimension. An abscess formation including intense

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Correspondence: Nil ÇULHACI, MD; Adnan Menderes University Medical School, Department of Pathology, 09100 Aydın, Turkey; Tel: +90 256 2120020/227, fax: +90 256 2148395, e-mail: nculhaci@hotmail.com

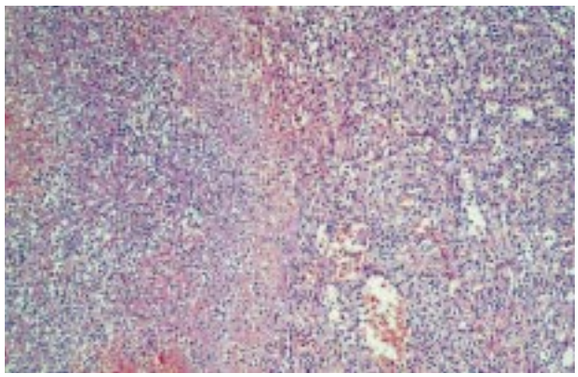

Figure 1. *Splenic abscess, case no. 1 (x100, HE)*

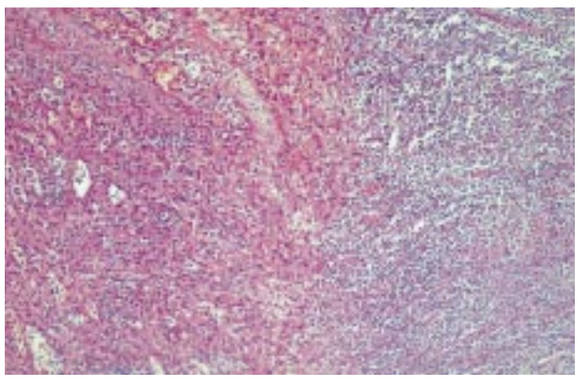

Figure 2. *Splenic abscess, expansion and congestion in splenic sinusoids and abscess formation (x200, HE)*

polymorphonuclear cell infiltration was observed with histological examination. 1/160 titrated Salmonella O antigen was detected by the microbiological examination.

Case 3. A 51-year-old female patient, who had been diagnosed with diabetes mellitus ten years earlier, applied to the emergency room, complaining of severe abdominal pain and vomiting. Severe sensitivity was found on the left hypochondriac region, and the following values were determined by laboratory tests: hemoglobin 8.7 g/dl, hematocrit level 24.6%, leukocyte 26,500/mm , thrombocyte 206,000/mm . Radiological examination revealed a cystic area in the spleen. The case was determined as being acute abdomen, and splenectomy was performed. It was noticed that there were rupture, hemorrhage, fibrinopurulent material and an abscess focus in the splenic tissue. It was macroscopically 82 g in weight and 10×9×3 cm in dimension. Intense polymorphonuclear cell infiltration in these areas and fibroblastic proliferation, as well as sinusoidal expansion and congestion were observed (*Figure 2*). Gentamycin treatment was begun after the operation.

Case 4. A 55-year-old male patient, who had been diagnosed with chronic lymphocytic leukemia and fever two years earlier, was admitted to our hospital with abdominal pain. On physical examination, tenderness was present at the upper left quadrant and a 3 cm palpable splenomegaly was found. The laboratory values were: hemoglobin 11.2 g/dl, hematocrit level 25.2%, leukocyte 23,700/mm , thrombocyte 278,000/mm , sedimentation rate 85 mm/hour, pulse 110/minute, temperature 38.5°C. The patient's clinical course worsened, so splenectomy was performed. Splenic rupture and purulent material inside the abdomen were determined. A ruptured cyst formation of 4 cm in diameter was found on the splenectomy material, which was macroscopically 978 g in weight and 19×14×7 cm in dimension. Abscess formation was observed in these areas with histological examination. No specific infection was detected. After ten days, the patient had sepsis and died.

Discussion

Splenic abscess is a relatively rare lesion. It is reported to be found at a rate of 0.14-0.7% in the autopsy series. Out of the 41 splenectomy materials that came to our department between 1997-2004, four were diagnosed with splenic abscess, and the splenic abscess frequency was determined 0.9%. However, its frequency of detection has increased with developments in radiological techniques.[2] The most frequent factors are pyogenic infections, trauma, diabetes mellitus, hemoglobinopathies such as sickle-cell anemia and thalassemia, and heart diseases.[3-5] Septic embolism following bacterial endocarditis and embolism arising from other septic foci cause the reactivation of the existing infection.[6] No septic focus was found in any of our cases. The most frequent agent found in the splenic abscess is Streptococcus. Staphylococcus and microorganisms from the Enterobacteriaceae family are less frequent factors. Besides, several cases of splenic abscess are also reported to be caused by Chlamydia pneumoniae, Brucella, Clostridium, or even other microorganisms such as fungi.[6-10] For all of the four cases presented here we applied PAS stain, and no specific microorganism was detected. Moreover, no infectious factor was found with the serological tests in the three cases, apart from the case in which the existence of salmonellosis was determined. However, determining the etiological factors is not always easy, since the conventional microbiological techniques are limited.[6] New techniques in molecular diagnostic methods will help to solve this problem.

Patients are mostly admitted to the hospital with nonspecific complaints such as upper quadrant pain, fever, feeling cold and trembling. For this reason, diagnosis of splenic abscess is not always easy. This entity, which has been found mostly in autopsies and progresses rather fatally, can be diagnosed and treated earlier with the help

of recently developed radiological techniques.[2] USG and computerized tomography (CT) are the most useful research techniques. The most frequently observed laboratory finding of the cases with splenic abscess is leukocytosis.

While splenectomy is the most preferred method of treatment, today conservative methods such as percutaneous drainage are also applied, especially in solitary, thick-walled cases of abscess.[4,6] It is a preferable method for protecting the tissue, which is important especially in childhood, because of the fact that there is less morbidity compared to surgery and shorter hospitalization time. However, this method must be avoided in cases of hemorrhagic diathesis, multiloculated abscess and acid presence.[4] It should not be forgotten that the infected tissue may remain and relapse may occur after drainage. The combination of surgery and medical treatment is considered to be a more suitable method of treatment.[6] However, wide-spectrum antibiotic treatment should be given to patients that cannot be operated on.[8] It is reported that only antibiotic treatment could be sufficient in splenic abscess cases that occur during acute Brucella infection.[2]

All of the 4 cases presented here were admitted to our hospital with complaints of abdominal pain and vomiting, as described in the literature. It is noticeable that three of the cases had chronic disease. Leukocytosis was the most remarkable laboratory finding in all cases. In two of the cases abdominal USG revealed cystic structure in the spleen. All the cases were operated on urgently because of acute abdomen, and splenectomy was performed. Gross examination showed splenic rupture in two cases. All of the cases had purulent cystic structures on the cross-sectional sides of the material. In one case, thickening of the capsule and calcification were noticed. Histological study of all cases showed the presence of central necrosis and an intense inflammatory infiltration consisting of polymorphonuclear cells and hemosiderin-laden macrophages, vascular dilatation and fibroblastic proliferation at the periphery. However, no microorganisms were yielded in any of the cases, except one. In one case, sepsis occurred ten days after splenectomy and the patient died. The other cases are still healthy and being observed.

Splenic abscess is a lesion that is hard to diagnose because of its nonspecific symptoms, and is usually diagnosed postmortem. Earlier diagnosis has been made possible by the use of CT, and mortality rates have decreased. There are immune system problems in most of the cases with splenic abscess. For this reason, it should be considered, especially in cases with malignancy, persistent fever, and left upper quadrant pain.

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