

SPLENIC ABSCESS DUE TO SALMONELLA IN A CHILD*

Mehmet Oğuz MD**, Nihat Z. Utkan MD***, Mustafa Dülger MD**
Rifat Yalın MD****

Key words: splenic abscess, salmonella

Splenic abscess is a rare occurrence. In large autopsy series its incidence has been reported to vary between 0.14 and 0.70 percent^{1,2}. Between 1960 and 1980 only 34 cases have been reported³. Untreated cases of this condition are fatal. Salmonella splenic abscesses are also rare. In this article, a case of splenic abscess due to salmonella is reported which may be of interest to the pediatrician.

Case Report

A twelve year-old child was admitted to the hospital with the complaint of general abdominal pain of two days duration. He had no nausea, vomiting or fever. On physical examination a generalized abdominal tenderness and muscular rigidity were present. White Blood Cell count was 7000 per mm³. The chest roentgenogram was normal. Two hours after hospitalization the patient was taken to the operating room with the diagnosis of perforated acute appendicitis. Cephazolin 4g per day in four doses was administered preoperatively. On exploration by McBurney incision, the appendix was found to be normal. A Meckel diverticulum was searched for but could not be found. The intestinal lymph nodes were neither large nor hard. His appendix was removed and two lymph node biopsies were taken. The appendix and lymph nodes were considered to be normal after pathologic examination. Eight hours after the operation the patient developed a temperature of 41 °C. To determine the etiology of the fever, throat and urine cultures were obtained, but no organism was found. The child's lung and Water's roentgenograms were normal and White Blood Cell count was 6000 per mm³. There was no wound infection. Two days later an abdominal

* From the Department of General Surgery, Cumhuriyet University Faculty of Medicine, Sivas

** Associate Professor of General Surgery, Cumhuriyet University Faculty of Medicine

*** Resident in General Surgery, Cumhuriyet University Faculty of Medicine

**** Professor of General Surgery, Cumhuriyet University Faculty of Medicine

ultrasonography was performed, which revealed a splenic abscess (Fig. 1). The patient was taken to the operating room and by means of a left paramedial incision, exploratory surgery was performed. There were necrotic areas and multiple abscesses in the splenic parenchyma. The patient was subjected to splenectomy. Cultures were taken from the splenic tissue. The splenic bed was irrigated with a normal saline solution and drained through a separate stab incision. Clindamycin, gentamicin and procaine penicillin were administered postoperatively. The child's fever decreased postoperatively. On pathologic examination, there were multiple necrotic areas and abscesses in the splenic parenchyma. Culture specimens isolated from the spleen, stool and blood displayed a growth of *Salmonella paratyphi B* which in cultures were sensitive to ampicillin, gentamicin and trimethoprim with sulfamethoxazole. The antibiotics were replaced by ampicillin in a dosage of 8 g per day. The patient's recovery was uneventful. The Gruber Widal test performed postoperatively was negative. Ten days later the child was discharged. A month later his health returned to normal.

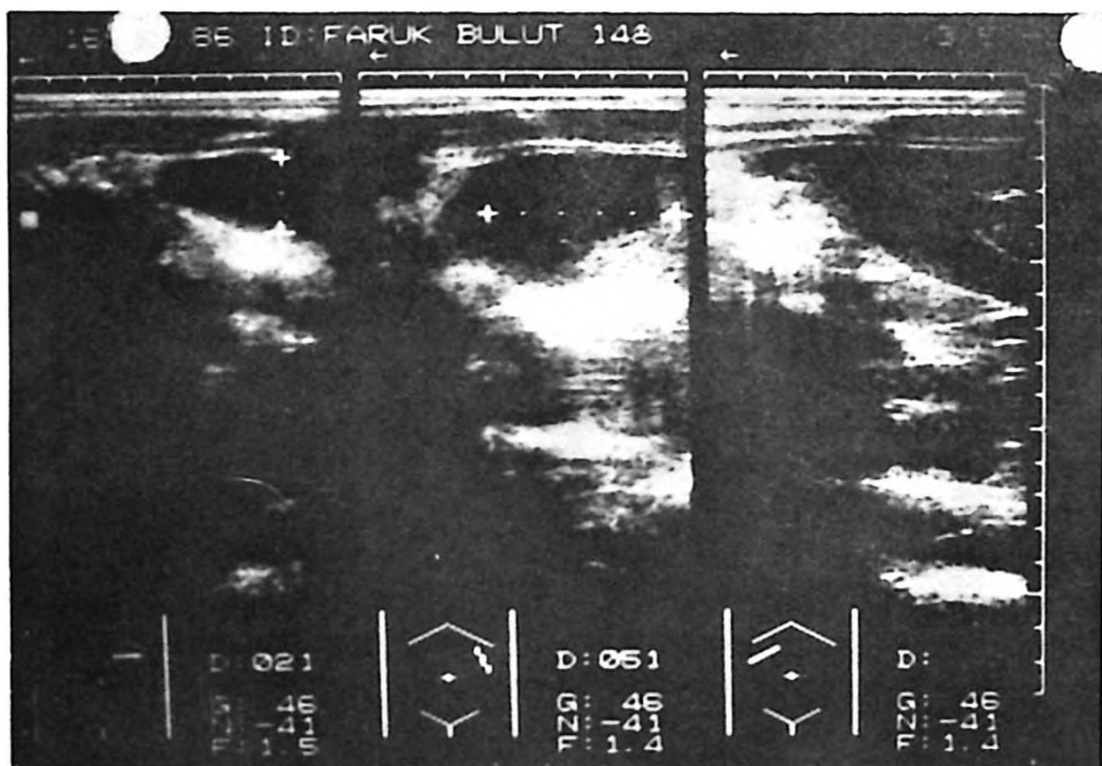


Fig 1 : Ultrasonography of the patient indicating the abscess in the spleen.

Discussion

Mortality from splenic abscess ranges between 40-60 percent with antibiotic treatment alone, but when combined with splenectomy, it decreases to 10-17 percent^{1,2,4}. A three-fold increased incidence of splenic abscess has been found

among patients dying of typhoid fever⁵. Rest et al⁶ have stated that the incidence of Salmonellosis in the United States has risen steadily since 1977, but found no previous reports of Salmonella infection as a cause of pathologic splenic rupture. Early diagnosis and treatment of this condition results in a good prognosis. However the diagnosis of splenic abscess is difficult^{1,3}. Its symptomatology is not specific but rather variable. In our case the diagnosis could not be made preoperatively.

Splenic abscess more commonly occurs in the fifth and sixth decades of life¹. The earliest and most frequently seen symptoms are fever and abdominal pain^{1,3,5}. Abdominal pain is the main complaint in 60 percent of cases^{1,3}. 95-100 percent of the patients have fever. Splenomegaly is present in 40 percent of the patients. Our patient's chief complaint was abdominal pain. He also had fever, but no splenomegaly.

Although the spleen is frequently in contact with blood-borne bacteria, it rarely becomes infected⁴. However, the spleen becomes infected especially when inadequately treated or as a result of a decrease in the host resistance⁵.

The most common causes of splenic abscess are hematogenous bacterial seeding, non-penetrating trauma to the spleen with hematoma formation and secondary infection, hemoglobinopathies, and hemolytic anemias in which there are a great number of splenic infarctions followed by abscess formation^{1,4}. However these predisposing factors were not encountered in our case.

After making a definitive diagnosis of splenic abscess, surgical intervention should be undertaken; the choice being a splenectomy with drainage of the splenic bed through a separate stab incision and administration of antibiotics^{1,5}. Our case was subjected to splenectomy and administered antibiotics. Adequate antibiotic protection is also essential during splenectomy²⁻⁵. In highly selected cases, percutaneous drainage can be successful².

Generally, roentgenograms may be of little use in making a definitive diagnosis. Findings such as an elevated left hemidiaphragm and left pleural effusion suggestive of splenic abscess are present approximately in one third of patients^{2,4}. The roentgenograms were not of much use in this case preoperatively. Radioisotope scanning, CAT scan and ultrasonography render a better evaluation of the spleen^{2,5,7}. CAT scan and/or ultrasonography are the most useful tests, because of their sensitivity and non-invasiveness³. CAT scan has fewer technical problems and also seems to be more effective in differentiating the tissue densities, and subsequently may allow for earlier diagnosis of splenic abscess. On the other hand, ultrasonography is noninvasive and inexpensive and should be considered as a first order diagnostic study because of its enhanced specificity⁴. Sonography proved to be effective in the diagnosis of our case.

Summary

A twelve-year-old child with splenic abscess caused by a *Salmonella paratyphi B* infection is presented, and the relevant literature reviewed. The diagnostic and therapeutic modalities are discussed.

REFERENCES

1. Caspi Y, Safadi T, Merin G, et al. Rupture of splenic abscess through the diaphragm. *Isr J Med Sci* 21:370, 1985.
2. Gadacz TR. Splenic abscess. *World J. Surg* 9:410, 1985.
3. Moosa MR, Pillans PI. Solitary abscess of the spleen. A report of two cases. *South Afr Med J* 68:46, 1985.
4. Stringel G, Anderson N, Martin D. Splenic abscess. *Can J Surg* 28:269, 1985.
5. Vishwanathan KA, Sarma PS, Pahwa J, Mukherjee MM. *Salmonella* splenic abscess (a case report). *J Assoc Physicians India*. 32834, 1984.
6. Rest JG, Seid AS, Rogers D, Goldstein EJ. Pathologic rupture of the spleen due to *Salmonella dublin* infection. *J Trauma* 25:366, 1985.
7. Tredoux JG, Hough FS, Adams G, et al. Chroniese miltabses; 'n Gevalbespreking. *South Afr Med J* 66:68, 1984.