SPLENIC ABSCESS IN SALMONELLOSIS
Salmonellozisde splenik abse

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Summary: *There is, though little, a risk of abscess formation in the spleen during systemic salmonella infections. A nine-year-old boy presented with a four-week history of fever, malaise and anorexia. Investigations revealed systemic salmonella infection and initial treatment was started with intravenous ampicillin. As the patient did not respond to initial therapy, further investigations were needed and the patient was shown to have a splenic abscess. To avoid postoperative immunologic complications, especially in children, it is essential to preserve spleen during treatment. We report an unusual form of a solitary splenic abscess associated with salmonella infection and its successful treatment with antibiotics and percutaneous drainage.*

Key Words : *Salmonella infections, Splenic diseases*

Özet: *Sistemik salmonella enfeksiyonlarında, düşük de olsa dalak absesi oluşma riski mevcuttur. Dokuz yaşındaki bir erkek çocuk dört haftadır süren ateş, halsizlik ve iştahsızlık şikayetleri ile müracaat etti. Araştırma sonuçları sistemik salmonella enfeksiyonunu ortaya çıkardı ve ilk tedaviye intravenöz ampisilin ile başlandı. Hasta, bu ilk tedaviye yanıt vermediği için ileri araştırmalara ihtiyaç duyuldu ve hastada bir dalak absesinin varlığı gösterildi. Özellikle çocuklarda postoperatif immunolojik komplikasyonlardan kaçınmak için tedavi esnasında dalak dokusunu korumak gereklidir. Bu makalede; sistemik salmonella enfeksiyonuna bağlı olan ve antibiyotikler ve perkutan drenaj ile başarılı olarak tedavi edilen nadir bir soliter dalak absesi olgusu sunulmaktadır.*

Anahtar Kelimeler*: Salmonella infeksiyonları, Dalak absesi*

Although little, there is still a risk of abscess formation in the spleen during systemic salmonella infections (1). Salmonella infections with bacteriemia may affect many systems including cardiovascular and central nervous systems, and may cause splenic abscess formation by producing infarction and hematomas (2,3). On autopsy based studies, the incidence of splenic abscess was reported to be between 0.14 - 0.22 % (3,4). On the other hand, the incidence of splenic abscess due to salmonellosis was reported to be 10.7 - 10.9 % (5,6).

Mortality from untreated splenic abscesses is nearly 100 per cent (5,7). The mortality rate usually depends on several factors including patient's age, delay in diagnosis and treatment, and the number of foci with abscess (5,7,8). This case report describes an unusual form of a solitary splenic abscess associated with salmonella infection and successful treatment with antibiotics and percutaneous drainage.

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CASE REPORT

A nine-year-old boy presented with a four-week history of fever, malaise and anorexia. On

admission, he had a body temperature of 38.6 °C. Complete blood count, blood chemistry profile, stool, urinalysis and cultures of blood, urine, stool and nasopharynx were all unremarkable but erythrocyte sedimentation rate (ESR) was 95 mm/h and C-reactive protein (CRP) was 96 UL. As *Salmonella paratyphi B* H agglutinin titer was ≥ 1200, intravenous ampicillin 50 mg/kg, six hourly was initiated following the diagnosis of *Salmonella paratyphi B* infection. On the fifth day of this treatment, since the patient continued to spike temperatures to 39 °C and complained of pain in the left shoulder and upper abdominal quadrant, an abdominal ultrasonography (US) was performed which revealed a heterogeneous, irregular contoured, hypoechoic splenic defect consistent with an abscess. The abdominal computerized tomography (CT) scan on the same day disclosed a lobulated, contoured, cystic lesion with dimensions of 7x5x4 cm in the spleen confirming the diagnosis of splenic abscess (Fig. 1). Treatment was changed to intravenous cefotaxime 50 mgkg q6h. On the 14 th day of this treatment, despite the reduction in the size of the abscess, percutaneous drainage of the abscess was carried out under ultrasound guidance and 30 ml of purulent fluid was withdrawn. Examination of the material revealed neutrophils and scanty Gram-negative bacilli and *Salmonella paratyphi B* grew on culture. Since the microorganism was susceptible to chloramphenicol in the antibiogram, intravenous chloramphenicol 25 mg/kg, six hourly was substituted for the cefotaxime. An angiocatheter was inserted over a guide wire into the abscess cavity which was aspirated and irrigated daily with saline. Five days later, the amount of the aspirated fluid decreased and the catheter was withdrawn after ten days. Following four weeks of parenteral treatment, a CT scan showed excellent regression in the abscess cavity with no fluid (Fig. 2). Nine weeks after completion of treatment, a US showed complete resolution of the hypoechoic splenic defect. The patient was alive and well 12 months later.

Figure 1. CT scan showing lobulated, contoured, cystic lesion of the abscess in the spleen

Figure 2. CT scan showing regression of the abscess cavity after treatment

DISCUSSION

The rarity and unimpressive nature of the splenic abscess cause the diagnosis to delay and to increase the mortality and morbidity because of the complications such as recurrent bacteremia and intestinal obstruction (5). The most frequent clinical and laboratory findings of splenic abscess, though not specific, are fever, pain in the left hypochondrium or left shoulder, splenomegaly, leucocytosis, elevated ESR and CRP (1-5,8,9). In

the present case persistance of clinical symptoms on the fifth day of the ampicillin treatment led us to search for a focus of infection that is resistant to treatment.

The most useful investigations used in diagnosis and follow-up of the splenic abscess are CT, US and isotope scanning (7,9-11). Of these, CT is reported to be most sensitive (1,6,8). In our case, we confirmed the diagnosis by US and CT. Later by growing of *Salmonella paratyphi B* on culture of the abscess fluid, it was established that splenic abscess was due to salmonellosis.

Previous reports stressed that the correct management of splenic abscess was early splenectomy in addition to antibiotics (1-3,5,7,8). *Sharr (12)* treated the splenic abscess due to *Salmonella agona* with splenectomy. Some other reports, however, have described successful treatment with antibiotics alone (10,13,14). Firstly, *Cheesbrough et al.* (9) treated a salmonella splenic abscess with medical treatment. Later, *Crosse* (15) treated three salmonella splenic abscesses with medical treatment alone under serial ultrasound examinations.

Sepsis and other immunologic complications seen after splenectomy have evolved the idea that the spleen should be conserved during splenic abscess treatment (16,17). Recently, it has been suggested that, provided the response to antibiotics are monitored by scanning imaging techniques, splenic abscess can be successfully treated with antibiotics alone, and if an abscess progresses despite optimal antibiotic treatment a drainage procedure or splenectomy can be recoursed (6,9,11,18). We also successfully treated the splenic abscess due to *Salmonella paratyphi B* with antibiotics and percutaneous drainage in order to decrease the morbidity and hospitalization period and to preserve the immunologically valuable splenic tissue.

We conclude that splenic abscess can develop during salmonella infections in a previously healthy child and diagnosis highly depends on the clinical suspicion. In children, percutaneous drainage together with antibiotics can be used with less morbidity and mortality, provided the indications, the effectiveness and the safety are evaluated well.

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