

A rare cause of acute abdomen; rupture of spleen due to malarial infection

Akut batının nadir bir sebebi: sıtma enfeksiyonuna bağlı dalak rüptürü

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Abstract

Acute abdominal pain is an important part of the emergency department admissions, and although it has many benign etiologies, it can be difficult to diagnose, manage, and may be fatal if it is omitted. Malaria may present with mild symptoms such as fever, myalgia, headache and fatigue and severe symptoms such as seizures, acute renal insufficiency, intravascular hemolysis, shock, etc. If it is complicated, it could be one of the most dangerous diseases of mankind. We would like to report a patient who was diagnosed with pathological splenic rupture due to malarial infection, admitted to the Emergency Department.

Keywords: Emergency medicine, Malaria, Splenic rupture

Öz.

Akut karın ağrısı acil servis başvurularının önemli bir parçasıdır ve birçok iyi huylu etiyolojik sebebe sahip olmasına rağmen, teşhis edilmesi ve yönetilmesi oldukça zordur ve ihmal edilmesi durumunda da ölümcül olabilir. Sıtma; ateş, miyalji, baş ağrısı ve yorgunluk gibi hafif semptomlarla ortaya çıkabileceği gibi, nöbetler, akut böbrek yetmezliği, intravasküler hemoliz, şok gibi şiddetli semptomlarla kendini gösterebilir. Eğer komplike hale gelirse, insanlar için en tehlikeli hastalıklarından biri olabilir. Bizler acil servise başvuran ve sıtma enfeksiyonuna bağlı patolojik dalak rüptürü tanısı konan bir hastayı sunmak istiyoruz.

Anahtar Kelimeler: Acil tıp, Sıtma, Dalak rüptürü,

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Case Report

A 50-year-old male patient admitted to our Emergency Department (ED) with complaints of fever, nausea, vomiting and abdominal pain. The patient stated that the fever and headache started 5 days ago, and for the last two days fever was accompanied by abdominal pain, nausea and vomiting. In the anamnesis of the patient we have learned that; he has lived in Ethiopia for 19. He had no past medical history and also family history, and no history of substance use.

On the physical examination; there was diffuse tenderness, rebound and splenomegaly in the abdomen. No other pathologic systemic examination findings were found. Vital parameters were; fever: $> 38.5^{\circ}\text{C}$, heart rate: 96 / min, respiratory rate: 18/min, blood pressure: 110 / 60mmHg. On the Point of Care Ultrasound (POCUS) in ED, we observed intraabdominal diffuse free fluid, and the hemorrhagic fluid was determined from paracentesis sample. Fluid sample, blood culture and complete blood count and biochemical tests were performed. The results were; WBC: $3.200 \times 10^3/\mu\text{L}$ % 61 PNL, PLT: $64.000 \times 10^3/\mu\text{L}$, Hb: 9,1g/dl, AST: 35 U/L, ALT: 39 U/L, LDH: 360 U/L, INR: 1,07, PTZ: 14,1. It was stated that; Plasmodium Vivax was observed in the paracentesis and peripheral smear samples from the laboratory. Then intravenous contrast-enhanced abdominal tomography was performed and it was reported as; spleen size has increased by 16.5 cm, and liver size by 17 cm, multiple hypodense linear-like infarct-compatible areas seen on spleen, possible splenic rupture-induced perisplenic and intraabdominal free fluid (Figure 1). The patient has been consulted to general surgery and infectious diseases with the diagnosis of splenic rupture related to malarial infection, and then transferred to the infectious disease clinic with conservative treatment decision.

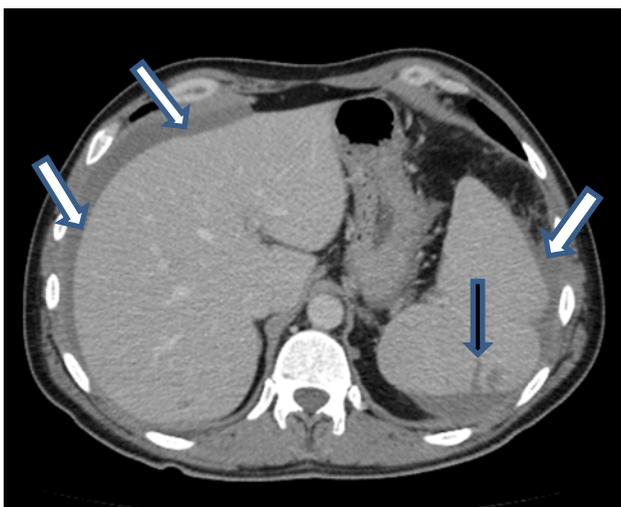


Figure 1. Axial view of CT; free fluid around the spleen and liver (white arrows), areas consistent with linear infarct in the spleen (black arrow).

Discussion

Malaria is a protozoan disease caused by the bite of an anopheles fly and is an endemic disease in tropical and subtropical regions, especially in Africa (1). But it is not common in our region. According to the World Health Organization 2017 Malaria Report (2); there were 216 million new cases worldwide, and 445 thousand related deaths were observed in 2016. In Turkey, for the last three consecutive years the number of new domestic cases are zero, malaria cases were due to contact at foreign countries. Although splenic injuries are a common pathology due to trauma, atraumatic splenic ruptures are rare. It is generally related to the infections such as; malaria, infectious mononucleosis and also hematological malignancies play an important role and vascular, genetic, drug and treatment-related reasons can be seen in the etiology (3, 4). The incidence and mechanism of spontaneous splenic rupture due to malaria are not fully known; 66 cases compiled by Hershey (5) from 1917 to 1945.

The analysis of the 55 cases between 1958 and 2008 by Imbert et al. (6) determined that; the mean age of the patients was 31 years. The majority of cases were African origin and almost three times more common in men. Seventy one percent of the cases have experienced the first malaria attack; similarly in our patient rupture of the spleen occurred in the first attack. Eighty percent of the patients had abdominal pain, 70% had more than 38°C fever and 41% had splenomegaly. Our patient also had fever and widespread abdominal pain. The mean time of duration between the onset of fever and splenic rupture was 5 days.

Siqueira et al. (7) reported that; in an untreated *P. Vivax* infected patient, splenectomy was performed due to splenic rupture and, a detailed immunohistopathological examination of the spleen was performed; white pulp expansion, diffuse hypercellularity, follicle hyperplasia associated with acute infection, splenic capsule and parenchymal strain were observed. It has been shown in the studies that; *P. Vivax* has more prominently increased spleen compared to other organs (6,7). It may be related to acute stage due to fast hyperplasia of non adaptive soft and thin spleen capsule (8). Secondly; concerns the abdominal muscles such as; turning in bed, coughing, sneezing, defecation, bend over and get up, depending on the physiological activities splenic compression by abdominal muscles (5). As a third theory; by reason of reticuloendothelial hyperplasia and venous congestion, thrombosis and infarct processes caused subcapsular hemorrhage induced splenic capsule wall stretching and splenic rupture. (5).

The general clinical symptoms and findings of the patients are; diffuse or left quadrant localized abdominal pain, splenomegaly, collapse, or rebound findings, findings of multiple organ damage, periodic fever, nausea, vomiting, myalgia. Mild tachycardia and hypotension may accompany (5,6). Ultrasonography, computerized tomography

and arteriography can be used in the diagnosis. Computerized Tomography may be preferred as superior to angiography, especially in patients with conservative treatment (9). It has a sensitivity, and specificity of at least 95% in detecting splenic injury (10). Depending on technical difficulties in endemic areas, with portable ultrasound or paracentesis or surgery diagnosis can be made (6).

Splenectomy; is the fastest and most effective treatment method of the patients with life-threatening findings. The spleen plays an important role in immunization with the antibodies against the malaria (9). Considering the role of spleen in the immune system, if hemorrhagic shock, recurring hemorrhages and uncontrollable hemorrhage are not present; conservative treatment is preferable to protect the spleen. (10). Although there is a case with the transcatheter embolization of the splenic artery has been used successfully as a different treatment method, it is a difficult treatment method which high technical knowledge and technology are required (11).

Conclusion

Patients with fever and especially to the left upper quadrant pain and a history of traveling to countries with a high risk of malaria transmission; It must be considered that; there may be splenic pathologies even if there is no history of trauma. The use of appropriate diagnostic tools with detailed anamnesis, have great importance in the diagnosis and treatment of this disease whom outcome can be fatal.

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