

Spontaneous Rupture of the Spleen Due To Malaria A Case Report

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Abstract

Background: Malaria is of the commonest diseases in Sudan and a major cause of morbidity and mortality. Its transmitted by Anopheles mosquito bite. It has well described and common complications that most of the clinicians in Sudan are familiar with its presentation and how to deal with it. However, Malarial splenic rupture (MSR) is uncommon even in highly endemic areas Malaria and is a dramatic complication demanding prompt recognitions and surgical treatment.

Case presentation: We report on a 51-year-old male who was diagnosed with severe malaria infection and presented with an acute abdomen due to spontaneous splenic rupture.

Conclusion: This case emphasizes the importance of maintaining a high index of suspicion for this insidious condition in addition to closely monitoring such patients.

Background

Malaria is a mosquito borne illness that can infect human. Malaria infection ranges from febrile illness that can be easily treated to a life-threatening condition that can be deadly. According to the WHO Malaria is endemic in Sudan and there is over 1.8 Million cases has been reported in 2019 [1]. Spleen is the main organ utilized by the body while fighting malaria infection by producing antibodies and to do that it undergoes structural changed characterized by enlargement, which is responsible for the development malarial splenic complications. Even in in endemic area MSR is a rare complication of Malaria [2].

Case Presentation

We present a 51 years old who presented to the emergency room with 5 days history of dull aching pain in the left upper quadrant that radiates to the left shoulder (Kehr's sign) and abdominal examination showed tenderness and rigidity in the

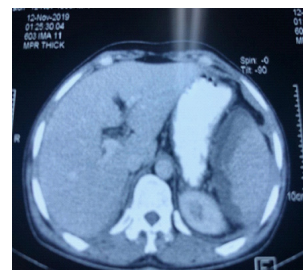


Figure 1: Computed Tomography (CT) scan of the abdomen and pelvis.

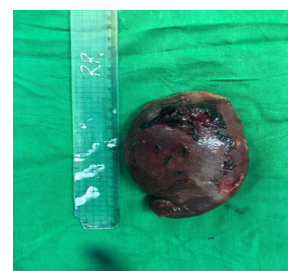


Figure 2: Exploratory laparotomy.

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upper quadrant. He denied any history of trauma. Patient received anti malaria treatment 2 days ago after he diagnosed as malaria infection. Computed Tomography (CT) scan of the abdomen and pelvis demonstrated a 4 cm subscapular splenic hematoma with free peritoneal fluids indicating grade III splenic rupture [Figure 1]. No active bleeding or contrast extravasation was visualized. The liver appearance was remarkably normal. There was no ascites, and the splenic, mesenteric, and portal veins were patent. Exploratory laparotomy and splenectomy was performed [Figure 2-3]. The patient had an uneventful postoperative recovery.



Figure 3: Exploratory splenectomy.

Discussion

The exact mechanism responsible for the development of this complication is not known but there are three mechanisms that were hypothesized: (1) Cellular hyperplasia and venous sinusoidal engorgement leading to congestion and increased tension and stress on the capsule, (2) vascular occlusion of the reticuloendothelial cells and hyperplasia resulting in thrombotic/ischemic phenomena, and (3) through the episodic increase in intra-abdominal pressure with coughing, sneezing, laughing which would put stress on the diseased and friable spleen. These factors combined cause a subscapular hematoma to form and a capsular tear which eventually causes rupture and free intraperitoneal hemorrhage. Spontaneous splenic rupture is more common in the acute infection because in chronic or recurrent malaria the splenic enlargement is less pronounced and healing by fibrosis from previous attacks makes it less frequent [3]. Splenic rupture has been reported with all malaria species infections but *Plasmodium vivax* has been more associated with this complication because it produces more pronounced splenomegaly [4]. Clinical features of Malaria splenic rupture are due to abdominal symptoms caused by rupture (abdominal pain radiating to the left shoulder and peritonitis) and circulatory collapse from on-going bleeding and the main cause of the death in these patients is shock [5]. Abdominal ultrasound can be helpful in finding subscapular hematoma, perisplenic collection and free fluid (blood) in the peritoneal cavity [6]. However, the Abdominal CT scan is the gold standard for the confirmation of diagnosis with a sensitivity and specificity of 95% [7]. Management of the case is dependent entirely upon the patient and to a lesser extent the availability of resources. Conservative management involves administration of antimalarial medication and observation in the hospital for 14 days with strict bed rest and giving fluid and blood as needed, a CT scan or ultrasound of the abdomen should be done within two to three weeks to assess the

spleen. Splenectomy is indicated in a patient who presents with shock which does not respond to treatment. Embolization of the splenic artery can be done but it requires well-equipped facilities [8]. There is growing evidence that favors the use of conservative management in managing MSR even in endemic areas, but the lack of resources in these areas might.

Conclusion

We reported a rare case of a 51-year-old male presenting acutely with spontaneous rupture of the spleen secondary to Malaria infection, subsequently requiring removal. This case emphasizes the importance of maintaining a high index of suspicion for this insidious condition in addition to closely monitoring such patients. This allows prompt recognition and management of this rare cause of the deteriorating surgical patient, optimizing patient outcomes.

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