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Spontaneous rupture of the spleen: Think about malaria

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Abstract
Despite advances in diagnosis and treatment, malaria remains deadly. One of the potentially lethal complications of malaria is the spontaneous rupture of the spleen. We report a case revealing a malarial access to palsmodium ovale in a 34 year old male admitted for fever at 40°C evolving for 2 weeks accompanied by distension and diffuse abdominal pain. The computed tomography revealed peripheral fracture of the spleen with infarction and collection of fluid in abdomen. Spontaneous splenic rupture is a severe but fortunately rare complication of malaria infections. The clinical picture varies from pain in the left hypochondrium to a state of haemorrhagic shock. Conservative treatment may be considered in cases of haemodynamic stablility and under tight supervision.

Keywords: spontaneous splenic rupture, malaria, ovale

Introduction
A malaria is endemic in several countries. Despite advances in diagnosis and treatment, malaria remains deadly [1]. Apart from the classic complications, especially neurological, renal or coagulopathy, the spontaneous rupture of the spleen is increasingly reported in the literature. We present a case revealing a malarial access secondary to oval plasmodium

Case report
We report the observation of a young Moroccan; aged 34 years admitted for management of a fever at 40 ° C evolving for 2 weeks accompanied by distension and diffuse abdominal pain without disturbance of transit. In his antecedents, we find a stay in Ivory Coast. The examination found a febrile patient at 40.1 ° C, pale, tachycarded at 120 beats per minute with blood pressure at 110 / 60mmHg. The abdominal examination showed a delicate abdomen with mattness of the flanks.
The biological assessment found a pancytopenia with hemoglobin at 10.2 g / dl, thrombocytopenia at 71 000 elements per mm3 and leucopenia at 3970 elements per mm3 with lymphopenia at 790 elements per mm3. Other labo-ratory investigations found an inflammatory syndrome with CRP at 115,14 mg / l. There was no abnormal liver or kidney function. The ultrasound abdomen showed enlarged spleen at 14 cm homogeneous with collection of fluid in abdomen. The computed tomography revealed peripheral fracture of the spleen with infarction and collection of fluid in abdomen (Figure 1).

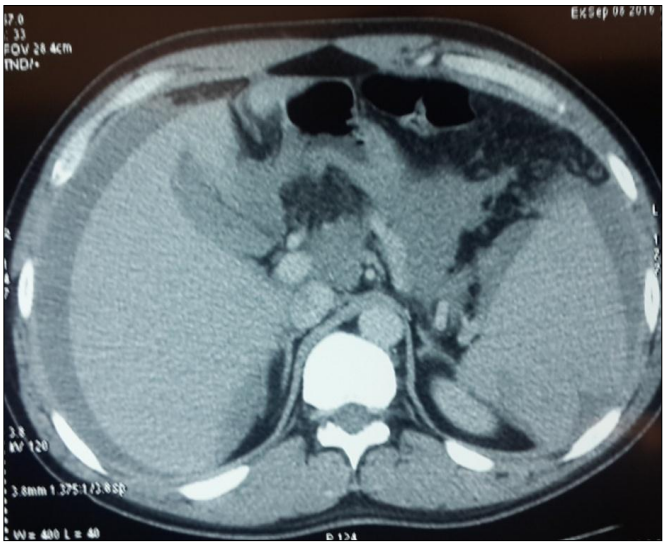

Fig 1: peripheral fracture of the spleen with infarction and collection of fluid in abdomen

The diagnostic peritoneal tap revealed frank blood. Due to the history of stay in malaria endemic area, a thick drop was confirmed the diagnosis of ovale plasmodium malaria. On antimalarial treatment with transfusion of 2 units of red cells and supportive care, the evolution was favorable. After a follow-up of 3 months, clinical and radiological control was favorable. (Figure 2)

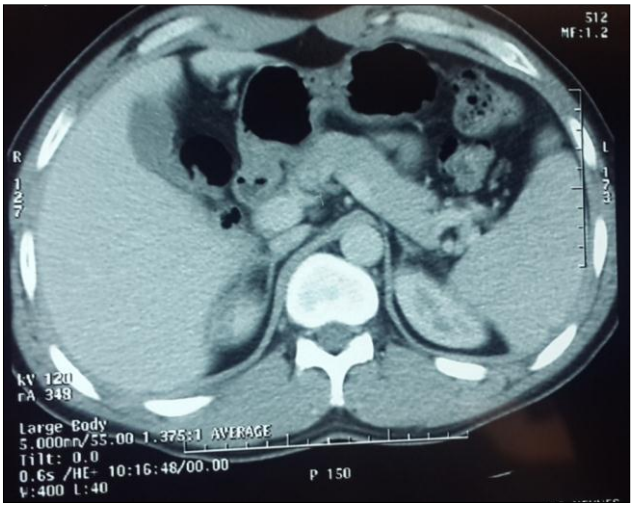

Fig 2: CT scan of the normal spleen

Discussion

Spontaneous splenic rupture is a severe but fortunately rare complication of malaria infections. The actual incidence of splenic rupture regarding all malaria cases is not known [2, 3]. The estimated rate is approximately 1:50000. The first case of spontaneous rupture of spleen was reported by Atkinson, an English Surgeon in 1874 [4]. These are mostly caused by Plasmodium falciparum and Plasmodium Vivax infection [5].

The exact mechanism of the rupture is not clearly established. Three mechanisms seem to play a role in this process:

- increased intrasplenic tension related to cellular hyperplasia and venous-sinusoidal congestion;
- increased intra-abdominal pressure during sneezing, coughing or defecation; and compression by abdominal muscles
- Vascular occlusion by hyperplasia of the endothelial reticulum responsible for infarction, associated or not with subcapsular hematoma [6].

The process starts as subcapsular haematoma and ultimately intra-abdominal haemorrhage after tearing of the splenic capsule [7, 1]. Spontaneous splenic rupture are mostly caused by Plasmodium falciparum and Plasmodium vivax infections. The other species are likely to produce splenic rupture [2, 8].

In travelers, mortality rates of malaria related to splenic rupture reach approximately 38 % [2]. Spontaneous splenic rupture, is the second leading cause of malaria-related deaths, and the only fatal complication in travellers with non-falciparum malaria in US travellers [9]

Clinically, the occurrence of even moderate abdominal pain, especially at left hypochondrial pain, and or without radiating to the left shoulder (Kehr's sign), occurring during or following treatment of malaria should attract attention [8]. The shock with acute anemia constitutes the dramatic picture of the rupture. Abdominal ultrasound usually allows rapid diagnosis. Abdominal CT is the baseline examination [10, 11].

splenectomy remains the first-line therapy in case of with haemorrhagic shock and uncontrolled bleeding. In other cases, splenic conservation has been recommended in spontaneous splenic rupture as was observed in this case [12]. However, the morbidity of splenectomy, improved surgical techniques and intensive care, and the role of the spleen in the immune response, allow us to propose a conservative treatment consisting of clinical and hematological monitoring, in hospital with strict bed rest and blood transfusion as needed [13]

Conclusion

In response to any abdominal pain associated with hemodynamic instability in patients treated for malaria, spontaneous splenic rupture should be considered. Its therapeutic management involves the selection of patients who can benefit from conservative treatment with ap-propriate monitoring.

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