

CASE REPORT

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Spontaneous splenic rupture in *Plasmodium knowlesi* malaria

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Abstract

Background: *Plasmodium knowlesi*, a malaria parasite typically found in long-tailed and pig-tailed macaques, is the most common cause of human malaria in Malaysian Borneo. Infections in humans result in a spectrum of disease, including fatal outcomes. Spontaneous splenic rupture is a rare, but severe complication of malaria and has not been reported previously for *knowlesi* malaria.

Case presentation: A 46-year-old man presented with fever and acute surgical abdomen with concomitant *P. knowlesi* malaria infection at Kapit Hospital. He was in compensated shock upon arrival to the hospital. He had generalized abdominal tenderness, maximal at the epigastric region. Bedside focused abdominal ultrasonography revealed free fluid in the abdomen. He underwent emergency exploratory laparotomy in view of haemodynamic instability and worsening peritonism. Intraoperatively, haemoperitoneum and bleeding from the spleen was noted. Splenectomy was performed. Histopathological examination findings were suggestive of splenic rupture and presence of malarial pigment. Analysis of his blood sample by nested PCR assays confirmed *P. knowlesi* infection. The patient completed a course of anti-malarial treatment and recovered well post-operation.

Conclusions: Spontaneous splenic rupture is a rare complication of malaria. This is the first reported case of splenic rupture in *P. knowlesi* malaria infection. Detection of such a complication requires high index of clinical suspicion and is extremely challenging in hospitals with limited resources.

Keywords: Malaria, *Plasmodium knowlesi*, Splenic rupture, Splenectomy

Background

Malaria in humans was thought to be caused by four species of *Plasmodium* (namely *Plasmodium falciparum*, *Plasmodium vivax*, *Plasmodium ovale* and *Plasmodium malariae*) until a large focus of human infections with *Plasmodium knowlesi* was reported in 2004 in the Kapit Division of Sarawak, Malaysian Borneo [1]. *Plasmodium knowlesi* infections in humans have subsequently been reported throughout Southeast Asia and result in a spectrum of disease from very mild to fatal outcomes [2]. Malaria has been associated with various complications including liver or renal impairment, cerebral malaria and acute respiratory distress syndrome. Spontaneous rupture of spleen is a rare complication of malaria, occurring

in only 0–2% of patients [3]. Most of the cases of spontaneous splenic rupture in malaria are associated with *P. vivax* although there have been rare cases associated with other *Plasmodium* species [4]. Of the 22 malaria cases with spontaneous splenic rupture reported in the literature since 1960, *P. vivax* was the most common (15 patients), followed by *P. falciparum* (5 patients) and *P. malariae* (2 patients) [5]. There has been no reported case of spontaneous splenic rupture due to *P. knowlesi*.

Case presentation

A 46-year-old man, previously well, presented at Kapit Hospital, Sarawak, Malaysian Borneo with fever, chills and rigors for 2 days. It was associated with severe epigastric and left hypochondrium pain and loose stool. There was no preceding history of trauma. Upon arrival to the emergency unit, his general condition was stable. Physical examination revealed blood pressure of 123/86 mmHg, pulse rate of 114 beats/min and

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