

# Splenic Infarct: A Rare Complication of Plasmodium Vivax

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## ABSTRACT

Malaria is associated with various complications, with splenic infarction being a rare occurrence. The exact number of splenic infarction cases remains unclear due to misdiagnosis or underreporting. While *Plasmodium falciparum* is notorious for severe complications, *Plasmodium Vivax*, generally considered benign, can lead to serious issues such as severe anemia, respiratory collapse, splenic complications, and shock. This report describes a case of splenic infarction as a complication of *P. Vivax* infection. In malaria-endemic areas, clinicians should pay special attention to patients with splenomegaly and left upper quadrant pain, as these symptoms may indicate splenic infarction.

**Keywords:** *Splenic Infarct, Malaria, splenomegaly, intestinal obstruction, female patient.*

## INTRODUCTION

Malaria stands as one of the most severe public health challenges globally, causing over 600,000 deaths annually, predominantly among children [1, 2]. In Pakistan, where malaria is a significant cause of morbidity and mortality, with over three million suspected cases reported in the first half of 2022, *P. Vivax* has been identified as a major culprit [3]. Despite being considered benign, *P. Vivax* can manifest with splenic complications, and cases of splenic infarcts are often underdiagnosed, potentially leading to life-threatening conditions. This report details a case of a young female presenting with multiple splenic infarctions in acute *P. Vivax* malaria.

## CASE REPORT

### Clinical Presentation

In the Emergency room, a 26-year-old female sought medical attention due to a two-day history of high-grade fever, accompanied by dull-aching abdominal pain and absolute constipation. Initial admission to the surgical department was prompted by a physical examination revealing a distended and tender abdomen, particularly in the epigastric and left hypochondriac regions. Notably, hepatosplenomegaly was evident on further clinical scrutiny. Percussion yielded a hyper-resonant note, and although gut sounds were audible, they exhibited a sluggish pattern.

### Diagnostic Journey

Upon excluding surgical causes of acute abdomen, the patient was promptly referred to the medicine department. Results from the rapid antigen test on ICT for *P. Vivax* were positive, while the test for *P. falciparum* on ICT returned negative. The subsequent administration of parenteral artesunate elicited a positive response,

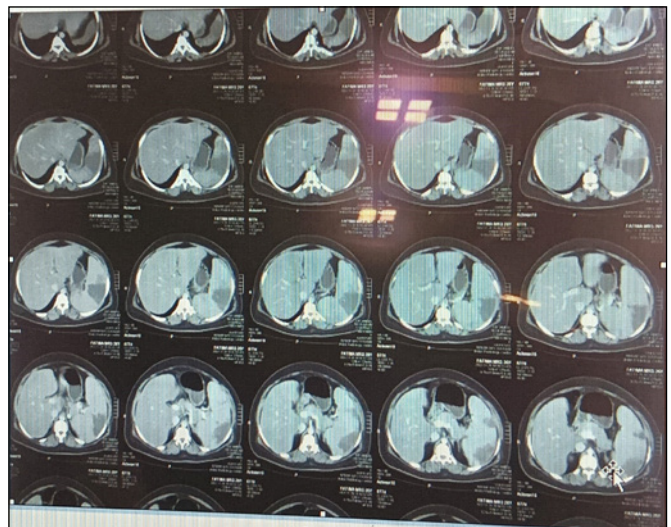
leading to the resolution of fever after a 3-day treatment course.

### Imaging and Laboratory Findings

Ultrasound examination unveiled a spleen measuring 19.2 cm, accompanied by a distinctive wedge-shaped hypoechoic area measuring 5.5×4.5 cm. Complementary imaging through a computed tomography scan of the entire abdomen with contrast (**Fig. 1**) depicted a mildly enlarged spleen with multiple ill-defined wedge-shaped hypodense lesions in its periphery. The larger lesion, situated along the upper pole, was indicative of multiple splenic infarctions. Peripheral blood smear analysis revealed hypochromic microcytic elliptocytes, while Hb electrophoresis returned normal results. Blood culture remained unremarkable (sterile) across three separate occasions. Furthermore, echocardiography produced normal findings.

### Management and Follow-up

The approach to managing splenic infarction involved vigilant clinical monitoring and the administration of



**Fig. (1):** CT Scan Abdomen.

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analgesia. Subsequent ultrasound examinations of the abdomen during follow-ups indicated a gradual reduction in the size of the splenic infarct, emphasizing the spontaneous resolution of the condition.

### DISCUSSION

Malaria, a vector-borne disease caused by Plasmodium parasites, presents a range of complications. While *P. falciparum* is commonly associated with severe complications, *P. Vivax* infections can also result in significant morbidity and mortality, including hematological abnormalities and splenic complications [4-6]. Splenic complications in malaria cases often range from asymptomatic splenomegaly to splenic rupture and shock. Although splenic infarction cases are more commonly linked to *P. falciparum* malaria, clinically overt splenic infarction remains a possibility in *P. Vivax* cases. A systematic review found that the majority of reported splenic infarction cases were attributed to *P. Vivax* [7].

Radiological imaging is not routinely performed in cases of splenomegaly, especially in resource-scarce regions. However, in suspected cases of splenic infarction, prompt diagnosis can be achieved through CT scans or ultrasonography [8]. While splenic infarction itself may not result in serious complications, the potential for splenic rupture or abscess formation emphasizes the need for thorough evaluation in malaria-infected patients presenting with abdominal pain and splenomegaly.

### CONCLUSION

In conclusion, this case report illuminates the infrequent yet substantial occurrence of splenic infarction as a complication arising from Plasmodium Vivax malaria. Contrary to the conventional perception of *P. Vivax* as a milder form of the disease, this case underscores the potential for severe complications, demanding heightened awareness among healthcare providers, especially in regions where malaria prevails.

The diagnostic trajectory, encompassing rapid antigen testing, imaging modalities, and prompt initiation of targeted antimalarial treatment, exemplifies a judicious and efficacious management approach. Furthermore, the report adds valuable insights into the often overlooked instances of splenic infarctions associated with *P. Vivax*, accentuating the necessity for a nuanced comprehension of malaria complications.

In brief, this report stresses the imperative of recognizing unconventional complications in malaria cases and advocates for sustained research and awareness endeavors to deepen our insights and elevate the standard of patient care.

### CONSENT FOR PUBLICATION

Written informed consent was taken from the participants.

### CONFLICT OF INTEREST

The authors declare no conflict of interest.

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### AUTHORS' CONTRIBUTION

All the authors contributed equally to the publication of this article.

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