

SPLENOMEGALY AS AN INDICATOR OF PLASMODIUM INFECTION

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ABSTRACT

Objective: To establish a correlation between splenomegaly and malaria in patients presenting with atypical symptoms.

Material and Methods: It is a cross sectional descriptive study done in a private clinic from Sep 2013 to April 2014 in Peshawar.

Results: Total of 150 patients were selected who were positive for malaria on ICT kit out of which 135 were positive for malaria on peripheral smear examination. Out of these 135 patients, 95 showed splenomegaly of variable size on abdominal ultrasound i.e. 70% malaria infected patients had splenomegaly.

Conclusion: Splenomegaly is a strong indicator of malaria in our area.

Key Word: Plasmodium Falciparum, Splenomegaly, Splenic rupture.

INTRODUCTION

Malaria which falls in the category of infectious disease is caused by an organism, plasmodia, which is a parasite of both blood and tissues. There are different types of plasmodia capable of causing infections in humans namely *P. vivax*, *P. malaria*, *P. falciparum*, *P. ovale* and *P. knowlesi*. Malaria ranks 5th among infectious diseases as cause of death world over and affects 300-500 million people worldwide with maximum burden bore by natives of tropical and subtropical regions¹. It causes approximately 2 million deaths per year in the world.

Splenomegaly is an important sign and result of malaria especially in case of *P. falciparum* and *P. vivax* infections. At times signs and symptoms of malaria are not very clear. In case of *P. falciparum* infections the initial symptomatology is similar to that of influenza². Patient is febrile and may present with headache and neck stiffness, which makes it difficult to distinguish from meningitis. These patients usually have jaundice that can lead to misdiagnosis of hepatitis. In addition, in *P. falciparum* malaria there is elevation of blood transaminases that can also lead to misdiagnosis of viral hepatitis. Mental confusion is another common feature of *P. falciparum* malaria that can make diagnosis even difficult.

The spleen is a complex organ. Based on its function, anatomically it can be divided into different zones which perform different functions. Red pulp, which is

a reticular mesh work plays the most important role in destroying senescent and damaged red blood cells as well as parasitized red blood cells.

MATERIAL AND METHODS

This is a cross sectional descriptive study. This study was conducted in a private clinic, equipped with facility of ultrasonography and a standard lab. In this study total of 150 patients of different areas of Khyber Pakhtunkhwa presenting with fever but not with typical symptoms of malaria were included. The study was conducted for eight months from September 2013 to April 2014. The available previous medical record was observed for previous ailments. Patients with chronic illnesses, that could lead to splenomegaly were excluded. All patients, falling in the inclusion criteria were examined. Their venous blood samples were taken and malaria was diagnosed first by using ICT kits. Those showing presence of malaria on ICT kits were confirmed by peripheral smear examination under the microscope. All those patients were then subjected to abdominal ultrasound to find out the size of spleen.

RESULTS

A total of 150 patients were included in this study. 130 were males and 20 were females. Age and gender-wise distribution is shown in Table 1. All the patients were positive for malarial parasite infection on ICT kit. On smear examination 56 patients were positive for *P. vivax* and 79 were positive for *P. falciparum*.

Out of these 135, on ultrasonography 95 patients showed splenomegaly of varying sizes. Out of those 95 patients with splenomegaly, 70 patients were of *P. falciparum* malaria and 25 patients were of *P. vivax* malaria. About 70% of the patients positive for malaria parasite on smear and ICT kit showed splenomegaly and it was

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Table 1: Age and gender wise distribution of patients

Age in years	Male	Female
5-25	15	3
26-46	60	15
46-60	35	02
61 and above	20	—

more common in patients suffering from *P.falciparum* malaria.

DISCUSSION

Although detection of malarial parasite on blood smear by direct microscopy is still the most advocated and preferred method. However, certain factors like time of taking the blood sample, technique of slide preparation, staining and expertise of the microscopist affect the result of microscopic diagnosis. Ultrasonography reveals splenomegaly much more accurately than palpation. In many areas in general hospitals and in medical practices, ultrasonography is much more easily available than an expert on microscopy of thick and thin films³.

In a study done in China on 128 children suffering from *P.falciparum* malaria, 93% showed splenomegaly.⁴ In a study done in Shorkot Garrison, Pakistan, 55% of the patients suffering from malaria, had splenomegaly.⁵ Splenic size directly corresponds with the duration of fever, parasite load and the pace at which disease proceeds.⁶ Splenomegaly is most common in areas of intense transmission where repeated infection is common.⁷ In huge splenomegaly, the common presenting complaint is abdominal distension with dragging left sided abdominal pain.

Splenic rupture with hemoperitoneum is a serious and life threatening emergency which needs prompt surgical intervention. Splenic rupture is most commonly caused by malaria, in malaria endemic countries.⁸ In a study conducted in India on possible causes of splenomegaly, in 31% of patients the cause was malaria.⁹ In Uganda an ultrasound study was done on patients diagnosed as a case of *P.falciparum*, 48% showed sple-

nomegaly on ultrasonography.¹⁰ In a study conducted in Civil Hospital Karachi on malaria patients, 74% patients showed splenomegaly.

CONCLUSION

Patients presenting with fever and splenomegaly, should always be suspected of having malaria, until proved otherwise.

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