

Clinical Spectrum of Malaria In Children

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SUMMARY

Malaria is one of the most prevalent diseases of the tropical countries, causing significant morbidity and mortality. Classic presentation is with fever, nailbed pallor and splenomegaly although it is a disease with protean manifestation, and its ability to masquerade other infectious diseases makes its clinical diagnosis elusive at times. In order to study the clinical presentation of malaria, we evaluated 50 cases of children aged 2 months to 13 year with blood-film proven malaria. Of the 50 cases, 26 (52%) were male and the mean age was 6 years. Besides fever (100%) other significant findings were rigors (87.4%) headache (57%) and abdominal pain (26%). Only 34% had hepatomegaly, splenomegaly, alone or both, while 66% there were no localizing signs. A high percentage (65%) of cases had thrombocytopenia. Although a positive blood film is diagnostic, fever, rigors and headache in a school going children seems reasonable to be used as indicators of malaria.

INTRODUCTION

Malaria is one of the most prevalent diseases of the tropical countries, causing significant morbidity and mortality. The global incidence of malaria is estimated to be nearly 120 million cases each year, with about 300 million people carrying the parasite¹. Of these 2 million prove fatal each year, and approximately 500,000 deaths occur in children. Worldwide, malaria ranks number 7 amongst the leading causes of mortality as a whole, and in children is responsible for 7.7% of total estimated mortality, being ranked number 6².

In the region of Asia, West of India, among the 538,000 malaria cases reported, 59% (317000) were recorded in Afghanistan, 15% (80,000) in Pakistan and 14% (77000) in Iran, while from Middle South Asia, of the 2.14% million cases reported in 1990, more than 80% (1.78 million) were from India¹. Out of the 4 species of human malaria, plasmodium vivax and plasmodium falciparum are more common in the Indo-Pakistan subcontinent^{1,3}.

Malaria is a disease with protean manifestations. Its ability to masquerade as other infectious diseases makes its clinical diagnosis all the more elusive, and leads to delay in establishing

the diagnosis, especially in an area where other infectious diseases are also endemic. In the classic presentation, after a prodromal period of one to few days (low grade fever, malaise, headache, nausea) a typical proxysm presents with severe shaking chill, lasting 1 to 2 hours, followed by a phase of high fever. Then, after 3 to 6 hours, the temperature falls with profuse sweating accompanied by fatigue and sleep. Examination reveals fever, pallor, and splenomegaly. Laboratory findings include a normochromic normocytic anemia, leucopenia or leucocytosis, thrombocytopenia, and mild impairment of renal or liver functions. A definitive diagnosis can only be made on direct detection of the parasite on thick blood film⁴.

Characteristic as this clinical picture may be, in many instances, there may not be any specific signs and symptoms associated with malaria, except fever⁵. Most children with fever without any other obvious focus of infection therefore are treated with antimalarials empirically in areas of high malaria endemicity.

In order therefore to determine the currently prevalent clinical spectrum of malaria in infants and children we evaluated 50 blood film positive cases of malaria.

PATIENTS AND METHODS

Infants and children between the ages of 2 months to 13 years reporting to the children's emergency room of Shaikh Zayed Hospital Lahore, with acute fever of 101°F or above and with clinical suspicion of malaria, had thick and thin smear blood films for malarial parasites (Giemsa stain). One hundred thick film fields were examined under oil immersion before a film was declared negative^{5,6}.

Detailed history was followed by a complete physical examination. Hematological investigations like hemoglobin, hematocrit, red cell count, red cell indices (MCV, MCH, MCHC) platelet count and total WBC count were done⁶. Other laboratory studies included liver function tests, urea and creatinine estimation as needed.

RESULTS

Of the 50 children included in the study, (positive blood smear for malarial parasite) the male to female ratio was almost equal (26 male, 24 female). Mean age was 6 years (Table-1), a majority of children (56%) belonged to age group of 5 year - 13 year age, followed by 40% in the 1 to 5 year age group while only 4% were less than 1 year age. Besides fever (100%) rigors were seen in 41 (82%), headache in 30 (60%) vomiting in 27 (54%) and abdominal pain in 10 (20%) cases.

Table 1: Age and sex distribution in cases of malaria (n=50).

Age (years)	Male	Female	Total
0-1	2	0	2
1-4	8	12	20
5-13	16	12	28
Total	26	24	50

Hepatosplenomegaly was seen only in 7 (14%) while isolated splenomegaly documented in 5 (10%) and isolated hepatomegaly in 5 (10%). Thus, in 33

(66%) of the cases, there was no organomegaly. The commonest malarial parasite found was plasmodium vivax (46=92%) followed by plasmodium falciparum (3=06%). One patient showed mixed infection. Mean Hemoglobin was found to be 10.2%gm (range 6.9 to 15gm), mean total WBC was 6400/cumm (range 2000 to 12700/cumm). A high percentage (32=65%) of the cases had thrombocytopenia. Of these 3 (9.4%) patients had platelets count less than 50,000/10⁹/L 16 (50%) children had platelet count between 50,000 to 100,000/10⁹/L and 13 (40.6%) children between 100,000-150,000/10⁹/L. Mean platelet count was 138,000/10⁹/L (range 38000 to 388000). Liver function tests, urea and creatinine on the average remained within normal limits.

Table 2: Haematological investigations.

Investigations	Mean Value	Range
Hb (G/dl)	10.2	7.5-13.4
RBC millions/mm ³	3.974	3.0-4.9
TLC/10 ⁹ /L	6.4	2.1-12.7
Platelets/10 ⁹ /L	138.000	34,000-388,000

DISCUSSION

The presence of fever, headache, chills, abdominal pain, anemia, and hepatosplenomegaly was similar to that reported in literature. Majority of children in our study (66%) however, had only fever and no other localizing sign of infection suggestive or indicative of cause. This is similar to another report where 63% of the children with acute fever without localizing signs of infection had malaria⁷. Rigors and headache stand out as other common accompanying symptoms as had been reported in literature^{8,9}.

Low platelet count (<150,000) found in a majority has been reported in other studies¹⁰. In Anwar's study⁹ the mean platelet count in plasmodium vivax was 171000 ± 2232/10⁹/L, while in plasmodium falciparum it was 230,00 ± 3740/10⁹/L. None of these children had symptomatic thrombocytopenia though.

CONCLUSION

The ideal method of diagnosing malaria continues to be a well-prepared thick and thin smear blood film. Where this is not available, fever, headache and chills stand out as prominent symptoms of malaria specially in school-going age. The value of asymptomatic thrombocytopenia in the diagnosis of malaria needs, to be evaluated.

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