

**Research Article****Benign Tertian Malaria: “Really Benign”**

Dawra Saurabh\*, Satyanand K, Dawra Romika, Nair Rajesh, Radhakrishnan AP

Dept. of Medicine, Military Hospital Jaipur, India

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**ABSTRACT**

There has been a recent trend to brand vivax malaria as a complicated one. A number of case reports are being published enumerating complications of vivax malaria. Although there is no doubt that complications can occur with any disease, however in comparison to falciparum malaria, complications in vivax malaria are only exceptions and not the rule. Besides a number of co-existing viral infections may also give rise to these complications, a number of which, we are unable to diagnose with the present level of investigations

**1. Introduction**

Malaria is a major public health problem in India[1]. It has been increasingly noticed that plasmodium vivax also causes a number of complications[2-6]. The term complicated malaria is used classically only in cases of falciparum malaria. Although emphasis on *P. falciparum* is appropriate, the burden of vivax malaria should be given due attention. We studied 60 cases of plasmodium vivax at a tertiary care centre at Jaipur, India during the period March 2013- Nov. 2014.

**2. Materials and Methods****Inclusion criteria**

All cases of acute febrile illness with positive *Plasmodium vivax* infection confirmed by microscopy and positive serology for malarial antigen. All patients were less than 50 years of age.

**Exclusion criteria**

Patients with any past history of chronic medical illness, prolonged drug intake, viral haemorrhagic fever like Dengue, Hepatitis B, Hepatitis C or HIV infection.

**Course during hospital**

I. Complete clinical evaluation

II. Investigations based on a standard protocol including complete blood counts, peripheral blood smear examination, blood glucose levels, renal and liver function tests, HbsAg, Anti HCV, HIV, Dengue Serology (IgM, IgG, NS1 antigen for dengue), ECG, chest radiograph and ultrasound abdomen. Coagulogram including prothrombin time, activated Partial Thromboplastin time (aPTT) was done.

**3. Results**

- I. A total of 60 patients were included in the study.
- II. This included 55 males and 05 females. The mean age of patients was 34.2 ( $\pm$  7.376) yrs (Range 20-50 yrs.).
- III. Mean duration of stay at hospital was 05days.
- IV. The complications noted included thrombocytopenia, deranged Liver function tests and acute renal failure.
- V. There was no death because of vivax malaria, no case of ARDS, no neurological complications or DIC.
- VI. Maximum events (66.4%) occurred at the time of presentation to the hospital. The mean duration within which the complications improved was 3 days following hospitalization.
- VII. A total of 30patients had thrombocytopenia (confirmed by peripheral blood smear examination). Out of these 30 patients, 22 also had deranged liver functions (max rise in serum bilirubin being 4.5 mg/dL, and liver enzymes, were all below 500IU/L). 15 patients had only raised liver enzymes.

\*Corresponding author: Saurabh Dawra, M.D (General Medicine) Dept. of Medicine, Military Hospital Jaipur, India; Tel.: 0928671464; E-mail: [romika123@gmail.com](mailto:romika123@gmail.com)

- VIII. 10 patients had raised serum LDH levels and half of them had tested positive for urine bile salts and bile pigments. However PBS did not show evidence of haemolysis in any one of them.
- IX. Only 05 had deranged renal function tests (profile in all 05 suggestive of pre renal azotaemia).
- X. Mean haemoglobin level was 15.14(SD  $\pm$  1.63) g/dl (range 12.4 – 18.8). Average haematocrit (hct) was 45.20 (SD  $\pm$  3.15).
- XI. Platelet count showed mean of 1, 90,000/ul (SD  $\pm$  71).
- XII. Prothrombin time and aPTT was normal in all patients. C- Reactive protein level (qualitative) was raised in 20 patients.
- XIII. USG evidence of Hepatosplenomegaly was present in a total of 28 patients.

#### 4. Discussion

In this study of 60 patients with plasmodium vivax malaria, we assessed the nature of so called complications.

- I. Thrombocytopenia was the commonest finding
- II. Followed by combination of thrombocytopenia and deranged LFT.
- III. There was none of the life threatening complications like ARDS or neurological complications or secondary bacterial sepsis.

Compared to earlier studies , the frequency of complications was less in our study group[3-6]. Hyun-Jung Lee *et al.*, [3] state 'Since the reemergence of indigenous vivax malaria in 1993, cases of severe malaria have been steadily reported in Korea. Herein, we report a case of vivax malaria complicated by adult respiratory distress syndrome (ARDS) that was successfully managed with extracorporeal membrane oxygenation (ECMO).

According to Dhanpat K. Kochar *et al.* [4]: Among patients malarial infection with severe manifestations, 40 had evidence of mono-infection of *P. vivax* malaria diagnosed by PBF, RDT, and PCR. Complications observed were hepatic dysfunction and jaundice in 23 (57.5%) patients, renal failure in 18 (45%) patients, severe anemia in 13 (32.5%) patients, cerebral malaria in 5 patients (12.5%), acute respiratory distress syndrome in 4 patients (10%), shock in 3 patients (7.5%), and hypoglycemia in 1 (2.5%) patient. Thrombocytopenia was observed in 5 (12.5%) patients, and multi-organ dysfunction was detected in 19 (47.5%) patients

Antonio M. Quispe *et al.*, [5] reported of these 81 individuals with vivax malaria, 28 individuals were critically ill (0.4%, 95% confidence interval = 0.2–0.6%) with severe anaemia (57%), shock (25%), lung injury (21%), acute renal failure (14%), or cerebral malaria (11%). Two potentially malaria-related deaths occurred. Compared with uncomplicated cases, individuals critically ill were older (38 versus 26 years old,  $P < 0.001$ ), but similar in other regards. Severe vivax malaria

mono-infection with critical illness is more common than previously thought.

Kaushik R *et al.*, [6] state that among patients of vivax malaria AKI occurred in 63 patients (32%), with maximum RIFLE class R (Risk), class I (Injury) and class F (Failure) in 27 (43%), 23 (37%) and 13 (21%) patients, respectively. AKI was associated with oliguria/anuria (48%), anaemia (70%), thrombocytopenia (84%), hepatic dysfunction (48%), gastrointestinal manifestations (33%), acute respiratory distress syndrome (ARDS) (14%), cerebral malaria (6%), disseminated intravascular coagulation (8%) and shock (11%).

#### 5. Limitations of this study

- I. Restricted study population involving predominantly young males.
- II. There is no data available in the unaffected control population in the same region.
- III. Role of exposure to underlying/ co-existent viral infections needs further evaluation with a prospective study.

#### 6. Highlights of study

- I. This study highlights the low incidence of complications in vivax malaria in comparison to other studies.
- II. Though various haematological/ biochemical abnormalities may be occurring with increased frequency in vivax infection, life threatening complications are rare as compared to falciparum infection. Thus more study is needed to nail the coffin on vivax producing complicated malaria, including more funding[7].
- III. The increased availability and over emphasis on lab investigations as compared to clinical picture by physicians may have a role to play in the diagnosis of so called 'complicated vivax malaria' [08].
- IV. We also need to rule out other co-existent infections in the patients.e.g viral infections, before we can conclusively point out that vivax malaria is the only cause of these abnormalities.
- V. It is no secret that gastroenteritis, viral fevers are also prevalent in the summer/ monsoon season in India which coincides with the peak incidence of malaria in our country.

Thus we should still treat vivax infection as "benign malaria" unless the clinical picture suggests complications. Over diagnosis can also lead to conflicting clinical picture[09].

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