

# Representation of Clinical Manifestation of Mosquitoes-Borne Diseases

Clinical  
Manifestation of  
Mosquitoes-  
Borne Diseases

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## ABSTRACT

**Objective:** To evaluate the clinical manifestations of patients with mosquitoes-borne diseases

**Study Design:** Cross Section Study

**Place and Duration of Study:** This study was conducted at the Department of Medicine, Al-Tibri Medical Hospital, Isra University Karachi Campus from April 2022 to October 2022.

**Materials and Methods:** Study protocol was written and approval was taken from IREC, Total 100 numbers of patients with both genders were selected from Medicine OPD of Al-Tibri Hospital and were briefed about the study; written informed consents were taken. Diagnosed cases of malaria, dengue and dual dengue and malaria infection confirmed by serological analysis, patients with age of >18 and above were included in the study. Patients with negative serological markers and <18 years of age excluded from the study. Patient data was collected. Proforma was used for recording data and SPSS version 22 was used for data analysis.

**Results:** Total 100 numbers of patients the 57 were male and 43 were females. Mean age was  $35.56 \pm 1.23$ . Out of 100 patients 44% were in Group A, and 38% were included in Group B and 18% patients were included in group C as a diagnosed with both malaria and dengue

**Conclusion:** According to the study, the symptoms related to mosquitoes-borne diseases in all groups like fever, chills, vomiting, and conjunctivitis were reported. The percentage of severity in symptoms was recorded in Malaria and dengue patients as compare with dual infection. Low level of hemoglobin and low platelet count were reported in all groups. Most of the symptoms and changes in hematological parameters were recorded in Malaria patients. In accordance with the results, mosquitoes-borne diseases need proper investigation and line of treatment along with preventive measures should be taken by Health care providers and ministry.

**Key Words:** Malaria, Dengue, Platelets, Geography, Virus, Signs, Symptoms, ELISA Test

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## INTRODUCTION

Malaria and Dengue are two uncontrolled diseases, found in the region of Pakistan. This is a parasitic disease transmitted by Anopheles mosquito and the latter is a viral disease transmitted by Aedes mosquito<sup>1</sup>. In geographical area the basic cause of the dual impact of the disease cannot be ruled out.

It's a challenging task to manage the dual presentation of the diseases and multiple symptoms<sup>2</sup>. The dengue virus is one of the common Flavivirus in human all around the world that creates the outbreaks of public health impacts. These mosquitoes-borne diseases can be happened simultaneously in human, so the differential diagnosis and management plan became so difficult to establish. Many of the reported cases about this concurrent disease were reported in Asia including Pakistan and India<sup>3</sup>. According to the studies the documented chills and high-grade fever are the common clinical presentation of the patients with associated symptoms like abdominal discomfort, vomiting and anorexia<sup>4</sup>. Most frequent findings for dengue are fever found in (100%) of the cases, myalgia (79-90%), rash (70-80%) along with the headache (68%) and in some of the cases nausea and diarrhea (37%)<sup>1</sup>. The management of mono effective patient and confections containing person are different, if they are not timely approachable then the condition can be fatal. The frequent documentation regarding the clinical presentation and the management are essential to spread the awareness among the public health workers before the uncontrolled endemic condition.

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The purpose of the study to established the fact and figures regarding the diagnosis and the management of the mosquitoes-borne diseases, especially the co-manifestation of the diseases.

## MATERIALS AND METHODS

Total 100 numbers of patients with both genders were included on the basis of non-probability convenient sampling from the department of Medicine at Al-Tibri Medical College and Hospital, Isra University Karachi campus. Ethical approval was taken by the concerned authority to conduct the cross-sectional study, the study was conducted from April 2022 to October 2022. All diagnosed cases of dengue and Malaria were included in this study, followed by the clinical representation, history and lab investigation including serology of dengue and, after taken a written consent the pre-designed proforma was filled by the investigators in OPD. Diagnosed cases of malaria, dengue and dual dengue and malaria infection confirmed by serological analysis, patients with age of >18 and above were included in the study. Patients with negative serological markers and <18 years of age excluded from the study. Proforma was used to document the symptoms similarly found in patients along with other associated complaints. For the purpose of data entry, we divided the patients into three groups:

Group A included Patients diagnosed with Malaria (IgM -ve and MP +ve)

Group B included Patients diagnosed with Dengue (IgM +ve and MP -ve)

Group C included patients had a dual manifestation of Dengue and Malaria (Dengue IgM +ve and MP +ve)

In some patients the ultrasound abdomen was done. CBC, LFTs, MP malaria and serology markers were done by ELISA test kit. The qualitative data was presented in the form of Frequency and percentage and data was analyzed through SPSS version 26.0.

## RESULTS

From 100 numbers of patients the 57 were male and 43 were females. Mean age was  $35.56 \pm 1.23$ .

About 52% of the patients were educated

Out of 100 patients 44% were in Group A, and 38% were included in Group B and rest of the 18% were diagnosed as a dual malaria-borne diseases

Table 1 shows the frequency and percentage of symptoms-based representation of the patient among three different groups.

Table 2 shows the presentation of hematological parameters of the patients among different groups.

**Table No.1: Shows the Frequency and Percentage of different pattern of clinical manifestations found among various groups**

	Group A(n=48)	Group B(n=32)	Group C(n=20)
Fever	48(100%)	32(66.6%)	20(41.6%)
Body Ache	46(95.8%)	28(58.3%)	18(37.5%)
Rigors and Chills	32(66.6%)	18(37.5%)	8(16.6%)
Vomiting	39(81.2%)	20(41.6%)	6(12.5%)
Abdominal Pain	18(37.5%)	16(33.3%)	5(10.4%)
Rash	8(16.6%)	10(20.8%)	3(6.2%)
Conjunctivitis	48(100%)	27(56.2%)	15(31.2%)
Anorexia	45(93.7%)	30(62.5%)	17(35.4%)
Hepatomegaly	6(12.5%)	5(10.4%)	2(4.1%)
Splenomegaly	3(6.2%)	2(4.1%)	0(0%)
Bleeding Manifestation	16(33.3%)	51(31.2%)	9(18.7%)
Pleural Effusion	1(2%)	0(0%)	0(0%)
Others	1(2%)	0(0%)	0(0%)

**Table No.2: Shows Frequency of Hematological parameters found in various**

Investigation	Range	Remarks	Group A(n=48)	Group B(n=32)	Group C(n=20)
Hemoglobin (gm/dl)	3.6-16.6	>10	32	25	15
		7-10	14	6	4
		<7	2	1	1
Platelet count/mm <sup>3</sup>	5000-100,000	50,000-10,000	30	5	2
		20,000-50,000	14	18	14
		<20,000	4	9	4

## DISCUSSION

The global advancement in clinical and laboratory infectious research vector-borne diseases continue to be a significant burden of disease worldwide<sup>6,7</sup>. Dengue and malaria are public health problems in mostly countries<sup>8</sup>. Actually water containers, storage places remains open or not fully covered so they serve as

mosquito breeding sites in areas. In urban areas the disposed of unwanted containers also served as breeding sites and became the cause of disease outbreaks<sup>9</sup>.

Hematologic abnormalities are well-known common clinical complications of these diseases and are frequently observed in patients with dengue and malaria infections. These complications also play important

roles in disease severity and fatality. It was reported that the risk of hematologic alterations, including thrombocytopenia, in dengue and malaria infections was associated with various clinical factors (e.g., immunity status, level of endemicity, demographic factors, individual hemoglobinopathy, and nutritional status of patients)<sup>10</sup>.

In this study, we investigated platelet and hemoglobin levels of the patients to illustrate alteration patterns in patients with dengue, malaria and both that could be implied as a prognostic clue in the clinical differential diagnosis.

The clinical presentations of patients with dengue and malaria may mimic and overlap those of many other common infectious tropical diseases<sup>11</sup>. Our findings were consistent with previous reports indicating that this complication might be associated with thrombocytopenia<sup>12</sup>. The highlighted figures were seen as in group A (Malaria) fever and conjunctivitis were found in 100% patients, group B (Dengue) fever and anorexia were found in 66.6% and 62.5% patients respectively, and in group C (Malaria + Dengue) fever and anorexia were found in 41.6% and 35.4% respectively. Other parameters as shown in Table 2 represent less Haemoglobin level in Group A (Malaria) <7 in 2 patients, Platelet count <20,000 in Group B (Dengue) patients.

So as per this study it was seen that fever and body pain are common feature in all the three (A, B and C) groups. High fever may be the indication sign for Malaria<sup>13</sup>, Dengue or both. By covering the water storage places and proper sewage systems may support in lowering the burden of these diseases in urban areas<sup>14</sup>.

## CONCLUSION

According to the study, the symptoms related to mosquitoes-borne diseases in all groups like fever, chills, vomiting, and conjunctivitis were reported. The percentage of severity in symptoms were recorded in Malaria and dengue patients as compare with dual infection. Low level of hemoglobulin and low platelet count were reported in all groups. Most of the symptoms and changes in hematological parameters were recorded in Malaria patients. In accordance with the results, mosquitoes-borne diseases need proper investigation and line of treatment along with preventive measures should be taken by Health care providers and ministry.

### Author's Contribution:

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**Conflict of Interest:** The study has no conflict of interest to declare by any author.

## REFERENCES

1. Abbasi A, Butt N, Sheikh QH, Bhutto AR, Munir SM, Ahmed SM. Clinical features, diagnostic techniques and management of dual dengue and malaria infection. *J Coll Physicians Surg Pak* 2009;1:19(1):25-9
2. Sahu PS, Sahu M, Ambu S. A review of concurrent infections of malaria and dengue in Asia. *Asian Pacific J Tropical Biomed* 2016;1;6(7):633-8.
3. Hati AK, Bhattacharjee I, Mukherjee H, Bandyopadhyay B, Bandyopadhyay D, De R, et al. Concurrent dengue and malaria in an area in Kolkata. *Asian Pacific J Tropical Med* 2012; 5(4):315-7.
4. Raut CG, Rao NM, Sinha DP, Hanumaiah H, Manjunatha MJ. Chikungunya, dengue, and malaria co-infection after travel to Nigeria, India. *Emerging Infectious Diseases* 2015;21(5):908.
5. Hisam A, Khan MB, Kadir E, Azam N. Frequency of co-existence of dengue and malaria in patients presenting with acute febrile illness. *J Pak Med Assoc* 2014;64:247-51.
6. Mushtaq MB, Qadri MI, Rashid A. Concurrent infection with dengue and malaria: an unusual presentation. *Case reports in medicine* 2013;3.
7. Sereno D. Epidemiology of Vector-Borne Diseases 2.0. *Microorganisms* 2022, 10, 1555. <https://doi.org/10.3390/microorganisms10081555>.
8. Naserrudin NA, Hassan MR, Jeffree MS, et al. A systematic review of asymptomatic Plasmodium knowlesi infection: an emerging challenge involving an emerging infectious disease. *Malar J* 2022;21;373.
9. Afolabi OJ, Simon-Oke IA, Osomo BO. Distribution, abundance and diversity of mosquitoes in Akure, Ondo State, Nigeria. *J Parasitol Vector Biol* 2013;5(10):132-136.
10. Bayleyegn B, Asrie F, Yalew A, Woldu B. Role of platelet indices as a potential marker for malaria severity. *J Parasitol Res* 2021; <https://doi.org/10.1155/2021/5531091>.
11. Mon NTS, Tangpukdee N, Charunwatthana P, et al. Mimicking platelet indices in patients with malaria and dengue hemorrhagic fever: characteristics and clinical applications. *Trop Med Health* 2022;50:76.

12. Leowattana W, Tangpukdee N, Thar SK, Nakasiri S, Srivilairit S, Kano S, et al. Changes in platelet count in uncomplicated and severe falciparum malaria. *Southeast Asian J Trop Med Public Health* 2010;41:1035–41.
13. Pyar KP, Hlaing SW, Aung SM, Aung ZNH, Maung NL, Kyaw AP, et al. Mobile Worker Coming Back From Myanmar–India Border Presented With Septic Shock, High Fever, Confusion, Prostration, Anemia, Thrombocytopenia, Acute Kidney Injury and Transaminitis Due to Complicated Falciparum Malaria, Successfully Treated With Parenteral Artemisinin Followed By Artemisinin–Piperaquine Combination Therapy: COVID–19 Pandemics and Malaria Elimination. *Medp Case Rep Clin Image* 2022;1(1): mpcrci–202209005.
14. Mungall-Baldwin, C. Women’s participation in the prevention and control of dengue using environmental methods in the global south: a qualitative meta-synthesis. *Int J Equity Health* 2022;21:140.