

## Original Articles

### Study on Malaria Cases in Outdoor Patient Department Laboratory in A Tertiary care Hospital at Rajkot

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**KEY WORDS** : Malaria, Plasmodium falciparum, Plasmodium vivax.

#### ABSTRACT:

##### INTRODUCTION

Malaria is a mosquito-borne infectious disease that affects humans. Malaria causes symptoms that typically include fever, tiredness, vomiting, and headaches. In severe cases it can cause yellow skin, seizures, coma, or death. If not properly treated, people may have recurrences of the disease months later. In those who have recently survived an infection, reinfection usually causes milder symptoms. This partial resistance disappears over months to years if the person has no continuing exposure to malaria.

##### AIMS AND OBJECTIVES

To evaluate prevalence of various plasmodium species in clinically suspected cases of malaria and their demographic study.

##### MATERIALS AND METHODOLOGY

The present study was conducted at Outdoor Patient Department (O.P.D.) Laboratory, in a tertiary care Hospital, Rajkot on a sample size of 70 patients (May 2018 TO April 2019) in all age group. Routine haematological investigations including peripheral blood smear examination, rapid card test, thick and thin smear preparation, and complete hemogram were done.

##### RESULTS & CONCLUSION:

Males (81%) were affected more with infection compared to females (19%). patients in the age group of 21-40 years (50%) were affected most amongst all age groups. Plasmodium vivax (P.vivax) cases were 88.57% and Plasmodium falciparum (P. falciparum) cases were 11.43% respectively. In this study it was found that incidence of malaria was higher in monsoon season in compare to other seasons. Overall incidence of malaria was observed throughout the year.

#### INTRODUCTION

It is caused by single-celled microorganisms of the Plasmodium group. The disease is most commonly spread by an infected female Anopheles mosquito. The mosquito bite introduces the parasites from the mosquito's saliva into a person's blood. The parasites travel to the liver where they mature and reproduce. Five species of Plasmodium can infect and be spread by humans<sup>2</sup>.

Most deaths are caused by P.falciparum because P.vivax, P.ovale, and P.malariae generally cause a milder form of malaria. The species P.knowlesi rarely causes disease in humans. Malaria is typically diagnosed by the microscopic examination of blood

using blood films, or with antigen-based rapid diagnostic tests. Methods that use the polymerase chain reaction to detect the parasite's DNA have been developed, but are not widely used in areas where malaria is common due to their cost and complexity<sup>2</sup>.

Several medications are available to prevent malaria in travellers to areas where the disease is common. Occasional doses of the combination medication sulfadoxine/pyrimethamine are recommended in infants and after the first trimester of pregnancy in areas with high rates of malaria<sup>3</sup>. Despite a need, no effective vaccine exists, although efforts to develop one are ongoing.

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It is recommended that in areas where the disease is common, malaria is confirmed if possible before treatment is started due to concerns of increasing drug resistance. Resistance among the parasites has developed to several antimalarial medications; for example, chloroquine-resistant *P. falciparum* has spread to most malarial areas, and resistance to artemisinin has become a problem in some parts of Southeast Asia<sup>2</sup>.

### MATERIAL & METHOD

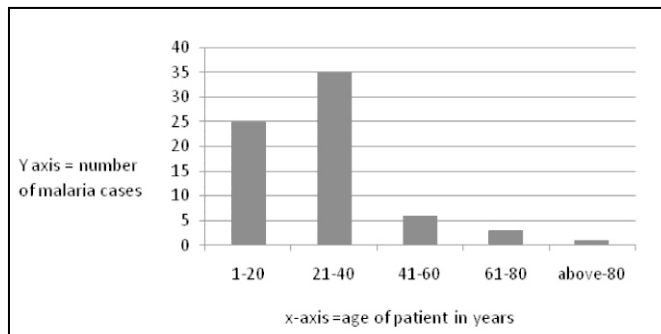
The study was conducted in outdoor patient department laboratory, Department of Pathology, PDU Medical College & Hospital, Rajkot. The studied blood samples consisted of patients investigated at PDU Hospital between all age group between May 2018 to April 2019 time period. The blood collected in Ethylene Diamine TetraAcetate (EDTA) vacutte was sent to laboratory and reporting was done based on readings from peripheral smear, rapid card test, thick and thin smear preparation.

### SAMPLE

A sample population of 70 patient was included in our study. as these cases were found having malaria in our laboratory.

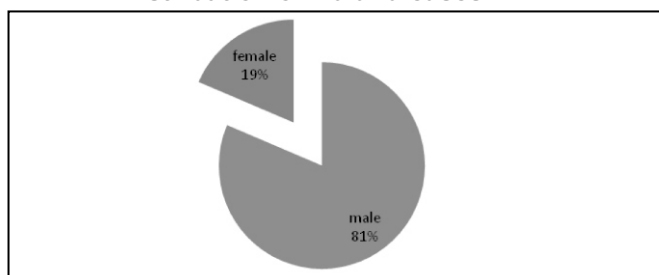
### OBSERVATION AND ANALYSIS

**Table-I : Age wise Distribution of Malaria cases**



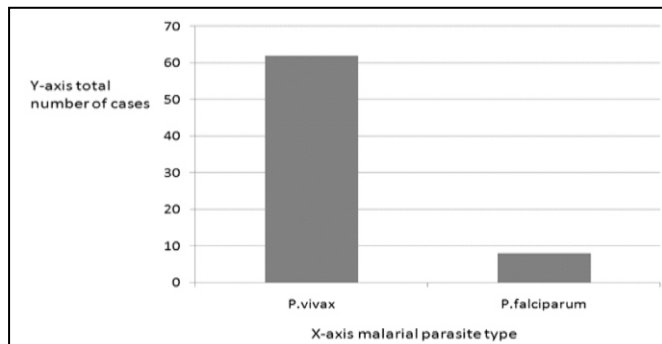
Age wise distribution of malaria positive cases was done by making of group of 20 years, Distribution showed that 21-40 years age group was affected maximum, and above 80 years were minimum reported cases.

**Table-II : Pie Diagram Representing Gender Wise Distribution of Malaria cases.**



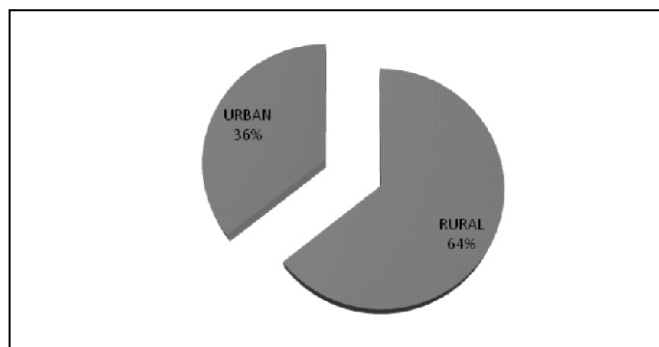
The above figure shows, 81% patient's were male and 19% were female out of total 100% malaria cases, In the present study for the period of one year.

**Table-III: P. vivax and P. falciparum Cases**



Out of the total 70 malaria positive cases, 62 cases were of Plasmodium vivax and 8 cases were of Plasmodium falciparum infestation.

**Table-IV: Urban-Rural Distribution of cases**



Pie diagram shows, rural population are affected more as compared to urban population.

### RESULT

A sample population of 70 malaria positive patient were included in our study. The majority of patient were males (88.57%). 21-40 years age group was affected maximum, and above 80 years were minimum reported cases. Out of the total 70 malaria positive cases, 62 cases were of Plasmodium vivax and 8 cases were of Plasmodium falciparum infestation. Rural population were affected more than urban population.

### CONCLUSION

In the present study incidence of malaria was higher in monsoon in comparison to other seasons. But throughout the year incidence of malaria was observed. *P. vivax* malaria was more commonly observed in our study with peak in summer while incidence of *P. falciparum* increased in monsoon. The present study reveals that rainfall and ambient temperature plays a key role in the

**DISCUSSION:**

**Table-I : Comparative Study of Different Malaria Cases**

Study (n=number)	P. vivax cases (100%)	P. falciparum case (100%)	Mixed infection (100%)
Paltial Palat et al. Rising Incidence of Malaria in Ahmedabad (2013) <sup>4</sup> n=175 cases	73.8%	26.2%	0%
Manifestation of malaria in Mangalore, southern India(2018) <sup>5</sup> n=909 cases	69.6%	9.0%	21.3%
Epidemiological study of malaria cases in North East region of India <sup>6</sup> (2011-2014) n=426 cases	84.44%	10.56%	5%
Present study (May 2018 –April 2019) n=70 cases	88.57%	11.43%	0%

In the present study, and other study patients were maximally affected by P.vivax. Our data were comparable to study done in North East India, were as study carried out at Mangalore showed 21.3% mixed infestation.

**Table-II: Comparative Study of Gender Wise Distribution of Malaria Cases**

Gender	Paltial Palat et al. Rising Incidence of Malaria in Ahmedabad (2013) <sup>4</sup> (100%)	Manifestation of malaria in Mangalore, southern India (2018) <sup>5</sup> (100%)	Present study (May 2018 – April 2019) (100%)
Male	58.14%	93%	81%
Female	41.86%	7%	19%

In the present study, and other study male were affected more than female.

**Table-III: Comparative Study of Age Wise Distribution of Malaria Cases**

Age group (year)	Paltial Palat et al. Rising Incidence of Malaria in Ahmedabad (2013) <sup>4</sup> (100%)	Manifestation of malaria in Mangalore, southern India (2018) <sup>5</sup> (100%)	Present study (May 2018 – April 2019) (100%)
1-20	13.53%	15.12%	35.71%
21-40	50.18%	52.30%	50%
41-60	18.12%	20.15%	8.57%
61-80	10.15%	12.14%	4.28%
above-80	8.02%	0.29%	1.42%

In the present study, and other study patients maximally affected were between 21-40 age group. Above 80 year were minimum affected.

**Table-iV: Comparative Study of Gender Wise Distribution of Malaria Cases**

Gender	Paltial Palat et al. Rising Incidence of Malaria in Ahmedabad (2013) <sup>4</sup> (100%)	Manifestation of malaria in Mangalore, southern India (2018) <sup>5</sup> (100%)	Present study (May 2018 – April 2019) (100%)
Rural	58%	78%	64%
Urban	42%	22%	36%

In the present study, and other study patients maximally affected were of RURAL population.

malaria especially in *P. falciparum*. These finding are alarming for us as despite of various programmes for prevention and control of malaria. The incidence of malaria still remains major burden to our country.

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