

Prevalence of Malaria from Peripheral Blood Smear Examination: A Three Year Retrospective Study

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Abstract: Malaria is an acute parasitic illness mainly caused by *Plasmodium Vivax* and *Plasmodium falciparum* in India. Studying its prevalence is necessary to implement effective control measures. The aim of this study was to determine three-year blood smear positive rate of malaria. A retrospective study was conducted at Government Theni medical college, Theni. Three years malaria cases data has been collected from laboratory register from the May 2012 to May 2015. Among the total 7,545 blood smears examined 3345 smears were from fever cases and examined for malaria. Of these smears 31 (0.93%) smears were positive for malaria. Among the positive smears predominant species detected was *Plasmodium vivax* 28 cases (90%) followed by *Plasmodium falciparum* 3 cases (10%). The smear positive rate of malaria in Theni district is almost constant in three years with slight fluctuation. Since the diagnosis of malaria with blood smears is highly specific but have low sensitivity, other more sensitive methods should also be implemented. Proper health planning and health education have to be provided to the community to prevent malaria transmission.

Keywords: Malaria, peripheral smear, plasmodium vivax, plasmodium falciparum

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I. Introduction

Malaria is an acute parasitic illness mainly caused by *Plasmodium Vivax* and *Plasmodium falciparum* in India. Studying its prevalence is necessary to implement effective control measures. The diagnosis of malaria with blood smears is highly specific. Proper health planning and health education have to be provided to the community to prevent malaria transmission. The aim of this study was to determine three-year blood smear positive rate of malaria.

II. Material And Methods

A retrospective study was conducted at Government Theni medical college, Theni. Three years malaria cases data has been collected from laboratory register from the May 2012 to May 2015.

III. Result

Among the total 7,545 blood smears examined 3345 were from fever cases and examined for malaria. Of these smears 31(0.93%) were positive for malaria. Among the positive smears predominant species detected was *Plasmodium vivax* 28 cases (90%) followed by *Plasmodium falciparum* 3 cases (10%).

Plasmodim species	Frequency	Percentage
<i>Plasmodium vivax</i>	28	90%
<i>Plasmodium falciparum</i>	3	10%
Total	31	100%

Table 1: prevalence of malaria cases in Govt Theni Medical college, Theni

Age group in years	Male	Female
<1	-	-
1-5	-	1
6-14	3	-
15-29	9	1
30-44	10	-
≥45	7	-
Total	29	2

Table2: Age and sex distribution of malaria cases

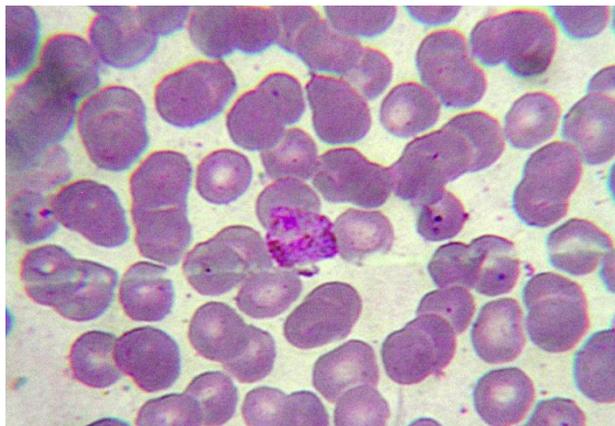


Figure 1: Schizont stage of *P.vivax*

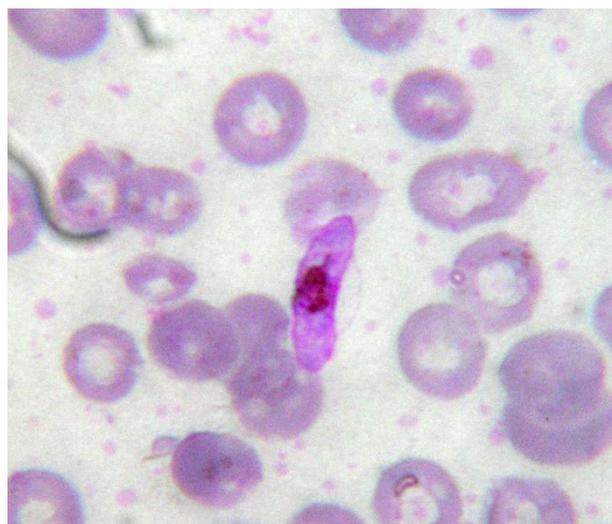


Figure 2: Gametocyte stage of *P.falciparum*

IV. Discussion

Malaria has been a problem in India for centuries. Orissa, Chhattisgarh, West Bengal, Jharkhand, and Karnataka contributed the most number of cases¹. In Tamil Nadu prevalence of malaria cases is low (2%)¹. The smear positive rate of malaria in Theni district is almost constant in past three years with slight fluctuation. Significantly affected age group was 30-44years followed by 14-29 years. Males were more affected than females, might be due to more outdoor activities and travel. Even though conventional microscopy is the reference method and the one most used for the diagnosis of Plasmodium species, its sensitivity and specificity are limited to the number of tests that can be analyzed per microscopist and his/her training, especially for low-parasite densities, when more time is needed for an accurate diagnosis². So other more sensitive immunodiagnostic methods like PCR should also be implemented to detect cases with low parasite load². Rapid diagnostic methods like modified quantitative buffy coat (QBC) can also be used in Indian settings³.

V. Conclusion

The smear positive rate of malaria in Theni district is almost constant in three years with slight fluctuation. Since the diagnosis of malaria with blood smears is highly specific but have low sensitivity, other more sensitive methods should also be implemented. Proper health planning and health education have to be provided to the community to prevent malaria transmission.

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