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Retrospective Study of Malarial Parasite Positivity in 75 Paediatrics Patients with Fever Admitted to a Tertiary Care Hospital

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Abstract

Background: Malaria remains a major cause of pediatric morbidity and mortality in endemic regions. Early diagnosis using peripheral smear examination is critical for timely treatment and improved outcomes.

Objectives: To evaluate the demographic, clinical, and laboratory profile of children admitted with fever and positive malarial parasite (MP) smear, and to analyze the distribution of Plasmodium species and associated hematological parameters.

Materials and Methods: A retrospective observational study was conducted on 75 children admitted with fever and positive malarial smear in the pediatric ward of our tertiary care institute over a two-year period. Hospital records were reviewed for demographic details, clinical features, laboratory findings, Plasmodium species, treatment, and outcomes.

Results: Among 75 children, Plasmodium vivax was detected in 46 (61.3%) cases and Plasmodium falciparum in 29 (38.7%) cases. Male children were 44 (58.7%) and females 31 (41.3%). Fever was present in all cases, followed by pallor (40%), vomiting (36%), and splenomegaly (32%). Anemia was observed in 34 (45%) children. All patients received antimalarial therapy, with 100% recovery and no mortality reported.

Conclusion: Malaria continues to be a significant cause of pediatric fever in endemic regions. Early recognition, prompt treatment guided by smear positivity, and monitoring of hematological parameters are critical for favorable outcomes.

Keywords: Pediatric malaria, Fever, Malarial parasite, Retrospective study, Plasmodium species

Introduction

Malaria is a life-threatening parasitic infection caused by Plasmodium species and transmitted by Anopheles mosquitoes [1]. In pediatric populations, malaria is a leading cause of hospitalization in endemic areas, contributing to high morbidity and mortality if not diagnosed and treated promptly [2].

Peripheral blood smear examination remains the gold standard for malaria diagnosis, enabling detection of species, parasite density, and guiding therapy [3]. Retrospective analysis of pediatric malaria cases helps identify epidemiological trends, clinical presentations, and outcomes, informing local management strategies [4].

This study aims to analyze 75 pediatric cases admitted with fever and positive malarial smear in our tertiary care hospital, providing insight into demographic, clinical, laboratory, and therapeutic patterns.

Objectives

1. To determine the prevalence of Plasmodium species among hospitalized febrile children.
2. To analyze demographic and clinical features of pediatric malaria.
3. To evaluate laboratory parameters including anemia and parasite density.
4. To assess treatment outcomes.

Materials and Methods

Study Design-Retrospective observational study.

Study Setting-Paediatric ward of tertiary care hospital.

Study Period: January 2024 – December 2025.

Study Population- 75 children aged 6 months to 14 years admitted with fever and positive malarial parasite smear.

Inclusion Criteria

- Documented fever at admission
- Positive peripheral smear for Plasmodium species
- Complete clinical and laboratory records available

Exclusion Criteria

- Children already on antimalarial therapy before admission
- Chronic hematological disorders or immunodeficiency
- Incomplete hospital records

Data Collection

- Demographics: age, sex
- Clinical features: fever, pallor, vomiting, hepatosplenomegaly, jaundice
- Laboratory: hemoglobin, total leukocyte count, platelet count, parasitemia, Plasmodium species
- Treatment: type of antimalarial therapy
- Outcome: recovery, complications, mortality

Laboratory Methods

- Peripheral smear examination (thin and thick)
- Giemsa staining for parasite identification
- Hematological parameters using automated analyzers

Statistical Analysis

- Descriptive statistics (mean, percentage)

- Comparison of features between P. vivax and P. falciparum infections

Results

Table 1: Demographic Distribution

Age Group (years)	Number of Cases (n=75)	Male (n)	Female (n)
<5	28	16	12
5–10	33	19	14
11–14	14	9	5
Total	75	44	31

Table 2: Clinical Features of Paediatric Malaria

Symptom / Sign	Number of Cases (n=75)	Percentage (%)
Fever	75	100
Pallor	30	40
Vomiting	27	36
Splenomegaly	24	32
Hepatomegaly	12	16
Jaundice	8	10
Seizures	3	4

Table 3: Distribution of Plasmodium Species

Species	Number of Cases (n=75)	Percentage (%)
Plasmodium vivax	46	61.3
Plasmodium falciparum	29	38.7
Mixed infection	0	0

Table 4: Laboratory Findings

Parameter	Mean ± SD / Cases	Remarks
Hemoglobin (g/dL)	9.8 ± 1.6	Anemia in 34 children (45%)
Total leukocyte count (/µL)	8,500 ± 2,400	Mostly normal
Platelet count (/µL)	120,000 ± 35,000	Thrombocytopenia in 28%
Parasitemia (%)	1.8 ± 0.9	Higher in P. falciparum

Table 5: Treatment and Outcomes

Parameter	Number of Cases (n=75)	Percentage (%)
Chloroquine / Artemisinin therapy	75	100
Average hospital stay (days)	5.2 ± 1.5	–
Recovery	75	100
Complications	3	4
Mortality	0	0

Discussion

This retrospective analysis highlights key patterns in Paediatric malaria:

- P. vivax was more common than P. falciparum, consistent with regional epidemiology [5,6].
- Fever was universal, while pallor, vomiting, and splenomegaly were common associated features, in line with previous studies [7].
- Hematological disturbances such as anemia and thrombocytopenia were observed in a significant proportion of cases, reflecting the systemic impact of malaria [8].
- Early recognition and appropriate antimalarial therapy ensured complete recovery in all patients, demonstrating the importance of prompt diagnosis via smear positivity.

Limitations

- Retrospective and single-center design
- Lack of follow-up data for late complications
- No PCR confirmation for species differentiation

Conclusion

Malaria remains a significant cause of pediatric fever in endemic areas. Peripheral smear positivity remains a reliable diagnostic tool, guiding effective treatment. Awareness of local species distribution, early diagnosis, and timely therapy are essential to prevent morbidity and improve outcomes. Larger multicenter studies are recommended to assess trends over time and optimize management.

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