



**ORIGINAL RESEARCH PAPER**

**Clinical Microbiology**

**STUDY ON THE DETECTION OF TYPHUS FEVER ANTIBODIES IN PATIENTS SERUM USING WEIL-FELIX TEST IN A TERTIARY CARE HOSPITAL , INDIA**

**KEY WORDS:** Typhus fever, Antibodies, weil felix test, RMSF

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**ABSTRACT**  
**Background:** Rickettsial diseases are the most complicated re-emerging arthropod borne infections that are one of the main causes of febrile illness. Rickettsial diseases have been documented in India since 1930s. The geographical distribution varies with different regions. Therefore this study regarding the prevalence of Typhus fever in the rural areas of Wayanad. **Objectives:** To determine the prevalence of typhus fever in various age and gender groups and to categorize rickettsial diseases by weil- Felix test. **METHOD:** The present study was conducted in 96 febrile patients; the serum samples are collected and subjected to weil- Felix slide agglutination test. **Result:** A total 96 samples tested, 15 (16%) samples were positive for Rickettsial infections by Weil- Felix test. Out of 15 positive cases 8 (53%) were seropositive for scrub typhus (OXK), 4 (27%) were Spotted fever (OX2), 3 (20%) were for Typhus fever and RMSF. **Conclusion:** The present study has shown seroprevalence of rickettsial diseases and prevalence in various age groups and gender.

**I. INTRODUCTION**

Typhus fever is a group of infectious diseases that include epidemic typhus, scrub typhus and murine typhus [1]. Common symptoms include fever, headache, and rash. Epidemic typhus as it is the most important of the typhus group. Signs and symptoms begin with sudden onset if fever and other flu-like symptoms about 1-2 weeks after being infected. The weil-Felix test is an agglutination test for the diagnosis of Rickettsial infections.

The Weil- Felix test can be done either as slide of tube test. These tests detect antibodies to Rickettsial antigens that cross react with antigens of Proteus species. The basis of the test is the sharing of an alkali stable carbohydrate antigen by some rickettsiae and by certain strains of Proteus. The test may be performed as a micro-agglutination in micro titre plate with round bottomed wells with haematoxylin- stained antigen.

**II. METHODS**

This was a hospital based study carried out in the department of microbiology, DM WIMS Medical College, Meppadi, Wayanad over a period of 3 months starting from May 2019 to July 2019. A total of 96 serum samples of Patients presenting with acute febrile illness were subjected to Weil- Felix slide agglutination test.

**III. RESULT**

During the study period a total of 96 samples collected from patients with febrile illness. Out of 96 serum samples screened 15 samples showed seropositivity in weil- Felix test (Table. 1) in which 11 males and 4 females.

Seroprevalence studies of the 15 positive cases showed 8 cases of OXK (53%), 3 cases of OX19 (20%) and 4 cases of OX2 (27%). Age wise analysis of 15 positive cases evidenced 5 (33%) paediatrics, 2 adolescents (13%), 8 adults (54%). Gender wise analysis of study population showed high prevalence in males (73%) when compared to females (Table.2)

**Table. 1: Agglutination pattern of Weil-Felix test**

Rickettsial Antigens	No. of Cases	Percentage
OXK	8	53%
OX19	3	20%
OX2	4	27%

**Table No. 2: Gender distribution**

Type of infection	Males	Females
Scrub typhus (OXK)	6	2

Spotted fever( OX2)	3	1
Typhus fever and rocky mountain spotted fever (OX19)	2	1

**IV. DISCUSSION**

Overall prevalence of Typhus fever based on the detection of hetrophil agglutinins in the 96 study population was found to be 16%. In the present study prevalence of rickettsiosis found to be highest in scrub typhus (53%) followed by spotted fever (27%) and Typhus group rickettsiae and rocky mountain spotted fever (20%). In this study the agglutination of OXK seen in 8 cases (53%) followed by OX19 3 cases (20%) and OX2 in 4 cases (27%). This study is incomparable with the studies of KS Rashmi et al.,2015, their study shows higher prevalence of Ox2.

Of the 15 positive cases, gender prevalence of Typhus was higher in males (73%) as compared to females (27%). This is comparable with the studies of Mili D et al., 2011. Age prevalence of Typhus fever was higher in age group above 20. Higher prevalence found to be in adults (54%) followed by paediatrics (33%) and adolescents (13%).

**V. CONCLUSION**

This study aimed at determining the prevalence of rickettsial diseases in the rural areas of Wayanad district. The present study concluded that Seroprevalence of Rickettsial diseases was higher with scrub typhus followed by spotted fever and least being typhus fever and Rocky mountain spotted fever. In this study also concluded that age groups above 21 was more susceptible (adults) to scrub typhus and other rickettsial disease with an increased prevalence in males.

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