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INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/19921
DOI URL: http://dx.doi.org/10.21474/IJAR01/19921

RESEARCH ARTICLE

SCRUB TYPHUS IN PREGNANCY IN NORTHERN INDIA: A CASE SERIES

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Manuscript Info

Manuscript History
Received: 14 September 2024
Final Accepted: 24 October 2024
Published: November 2024

Abstract

Background: Scrub typhus, mite borne intra cellular infection caused by gram-negative coccobacillus Orientia Tsutsugamushi is uncommon in pregnancy. In infected, the presentation can vary from mild asymptomatic to severe unrecognised cause of maternal and fetal death in pregnancy, with case fatality as high as 30%.

Objective: To analyse the outcome of scrub typhus in pregnancy in Northern India.

Material and methods: Pregnant females presented to K.D. Medical College Hospital, Mathura between August 2023- October 2023, with acute undifferentiated febrile illness of ≥5 days duration, were included in this study. Scrub typhus was diagnosed using serum IgM levels by ELISA (IgM Optical Density >0.5). The antenatal and postnatal data of Pregnant females diagnosed and treated with Scrub typhus was reviewed, analysed, and presented as Case series.

Results: Scrub typhus was diagnosed in 8 Pregnant females, 5 of them presented in third trimester while other 3 in second trimester. 37.5% (3) pregnant females had eschar at presentation. 37.5% (3) pregnant females were critically ill requiring ICU admission, one of them had preterm, IUD and abortion respectively, and no maternal mortality was observed.

Conclusion: It is concluded that Scrub typhus in Pregnant females is associated with poor maternal and fetal outcome. Strong suspicion, early diagnosis, and treatment can improve the outcome.

Introduction:-

Scrub typhus, caused by the gram-negative intracellular bacterium *Orientia tsutsugamushi*, is a significant cause of acute febrile illness in India. Its prevalence in pregnancy is under-reported, particularly in Northern India, despite its association with adverse maternal and fetal outcomes. The infection is transmitted through the bite of chigger mites and may manifest as flu-like symptoms, rash, eschar, and organ dysfunction. Severe complications such as acute kidney injury (AKI), acute respiratory distress syndrome (ARDS), and multiple organ dysfunction syndrome (MODS) have been documented.

Vertical transmission has been reported, leading to adverse neonatal outcomes such as intrauterine growth restriction (IUGR), preterm labor, and stillbirth. Despite its public health relevance, studies on scrub typhus in pregnancy remain sparse. This study aims to analyze the clinical presentation, management, and outcomes of scrub typhus in pregnant women in Northern India.

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Objectives:-

To analyze the clinical presentation, biochemical test results, and fetomaternal outcomes of scrub typhus in pregnancy in Northern India.

Materials and Methods:-

Study Design

A retrospective observational study was conducted at K.D. Medical College, Mathura, Uttar Pradesh, from August 2023 to October 2023.

Study Population

Pregnant women presenting with acute undifferentiated febrile illness (≥5 days duration) and diagnosed with scrub typhus using IgM ELISA (Optical Density >0.5) were included in the study.

Data Collection

Patient records were reviewed for:

- Demographics and clinical presentation
- Laboratory investigations, including complete blood count, liver and renal function tests, and serology for scrub typhus
- Maternal outcomes, including delivery mode, ICU admission, and complications
- Neonatal outcomes, including birth weight, preterm birth, and neonatal complications

Results:-

Sociodemographic Profile

- Mean age: 24 ± 2.4 years
- 75% of cases were from rural areas, with 62.5% being literate
- 87.5% had domestic animals at home
- 75% were unbooked with no antenatal care (ANC)

Clinical Presentation

- Common symptoms: fever with chills, myalgia, headache, vomiting, and abdominal pain
- Eschar was observed in 37.5% of cases
- ICU admission required in 3 cases (37.5%), with complications including:
  - ARDS: 1 case
  - AKI: 1 case
  - ARDS + AKI with MODS: 1 case

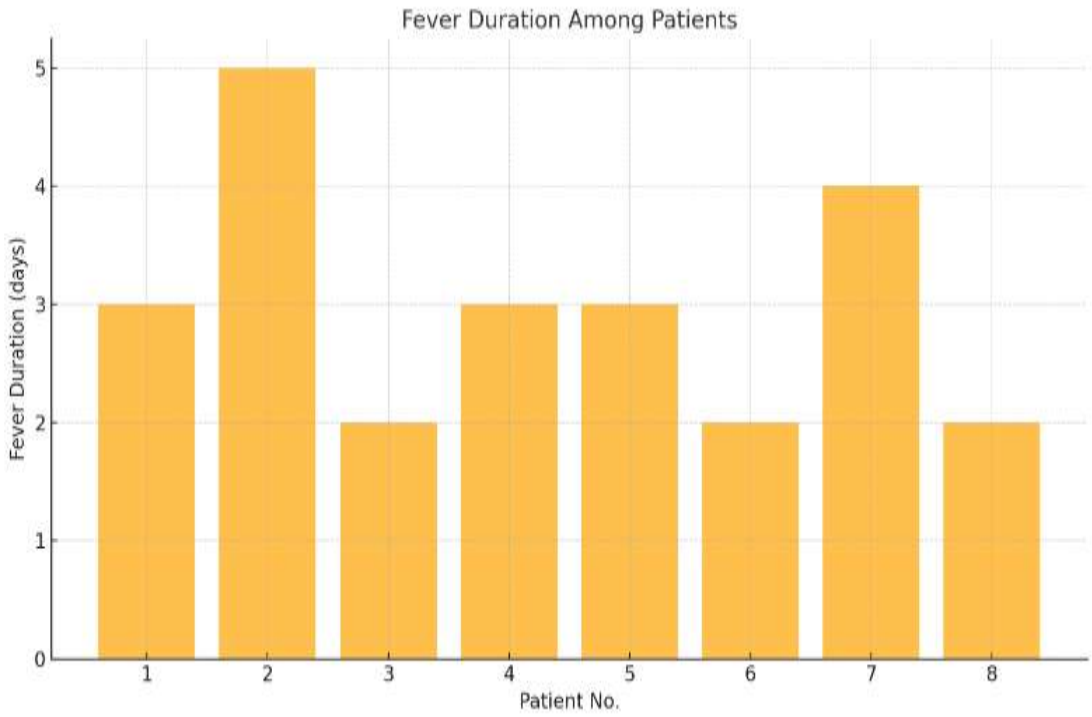

Fig.:- Fever in Patients.

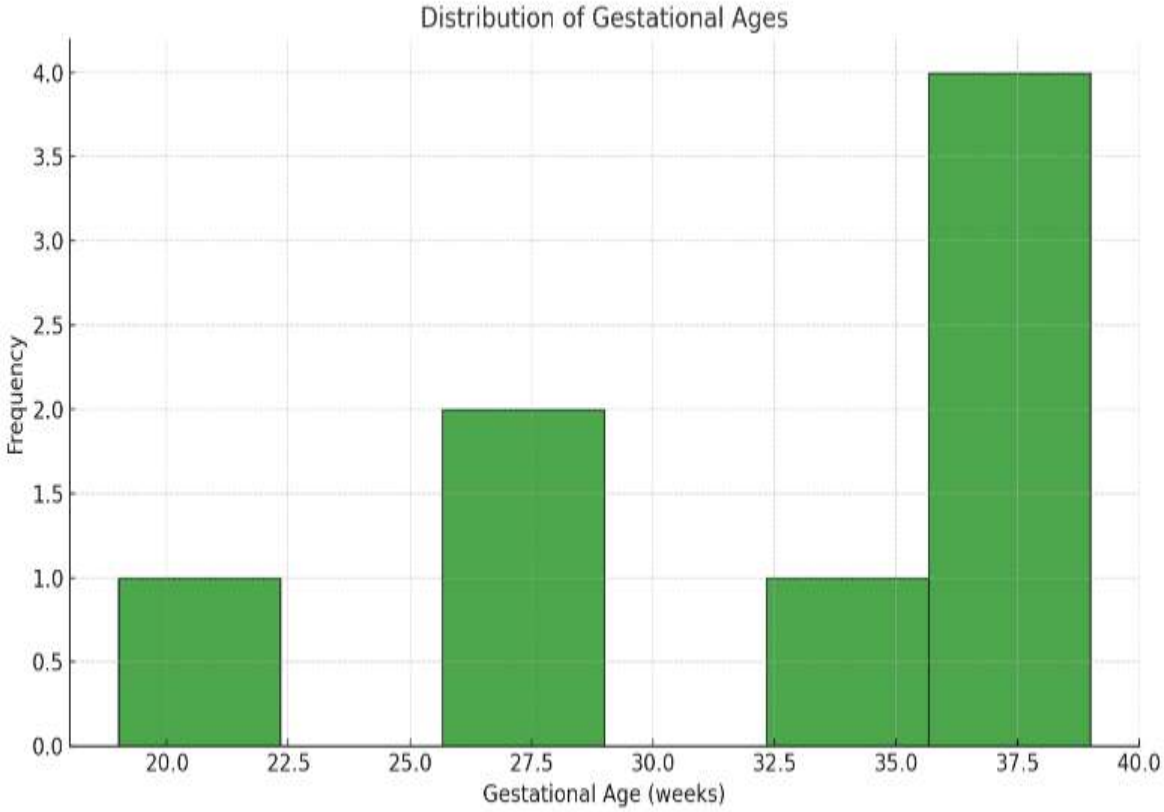

Fig.:- Distribution of Gestational Age.

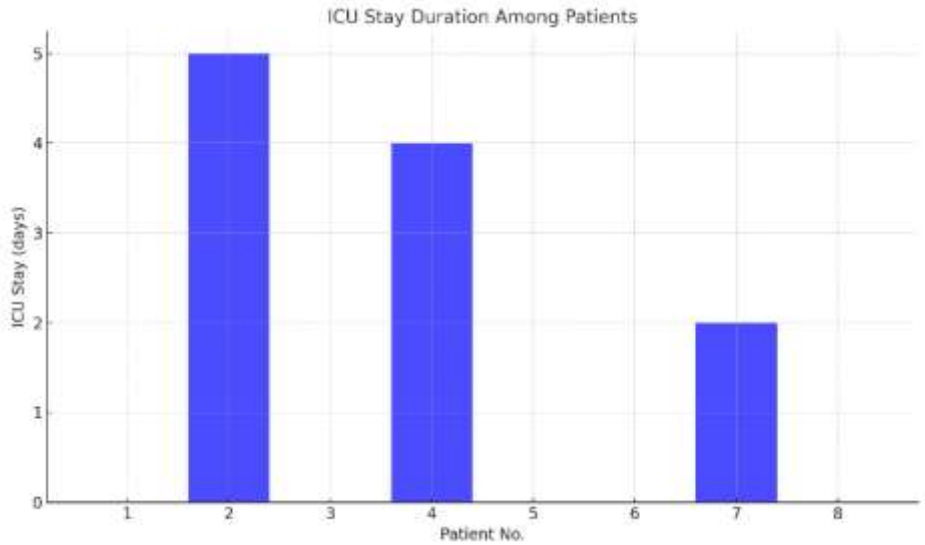

Fig.:- ICU duration among patients.

Observations:-

- Fever duration ranged from 2 to 5 days, with associated symptoms including vomiting, abdominal pain, and headaches.
- Gestational ages varied between 19 and 39 weeks, with significant complications like decreased fetal movement, abdominal distension, and maculopapular rash.
- ICU admission was required for three patients, with the longest stay being 5 days.
- Outcomes included one intrauterine death, one spontaneous abortion, and six cases with good maternal and fetal outcomes.

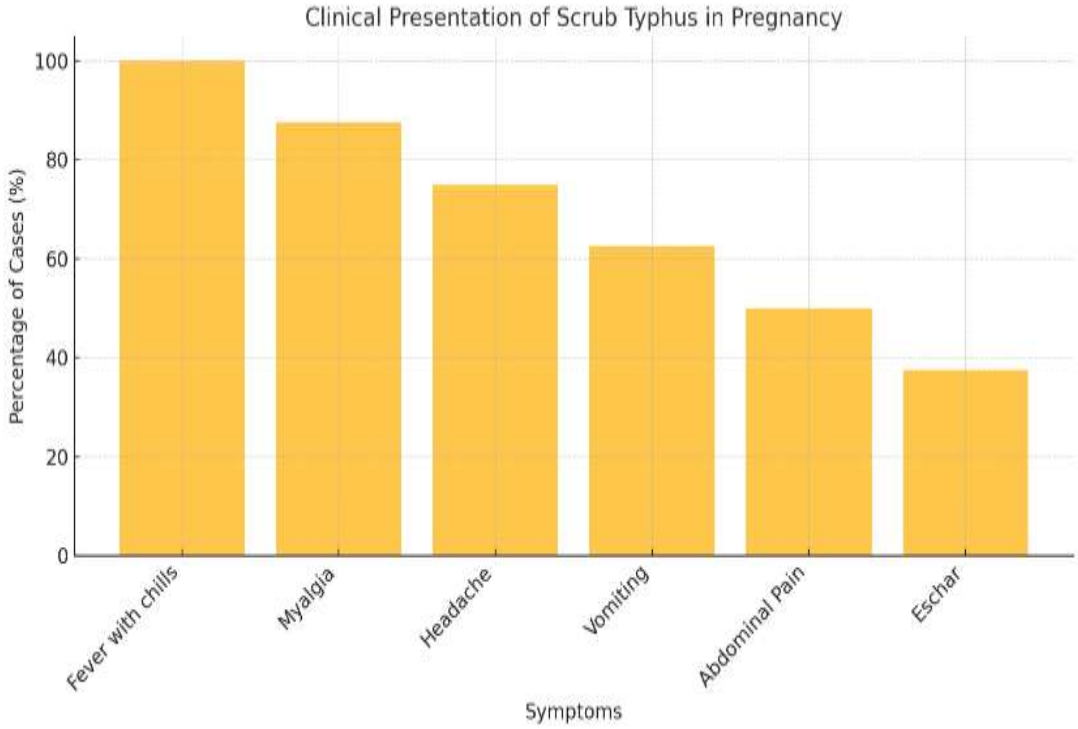

Fig.:- Clinical presentation of Scrub Typhus in Pregnancy.

Maternal Outcomes
- One case each of abortion, intrauterine death (IUD), and preterm labor
- Five patients delivered uneventfully with good maternal and neonatal outcomes
- All patients were treated with azithromycin (500 mg/day for 5 days) and discharged in a satisfactory condition

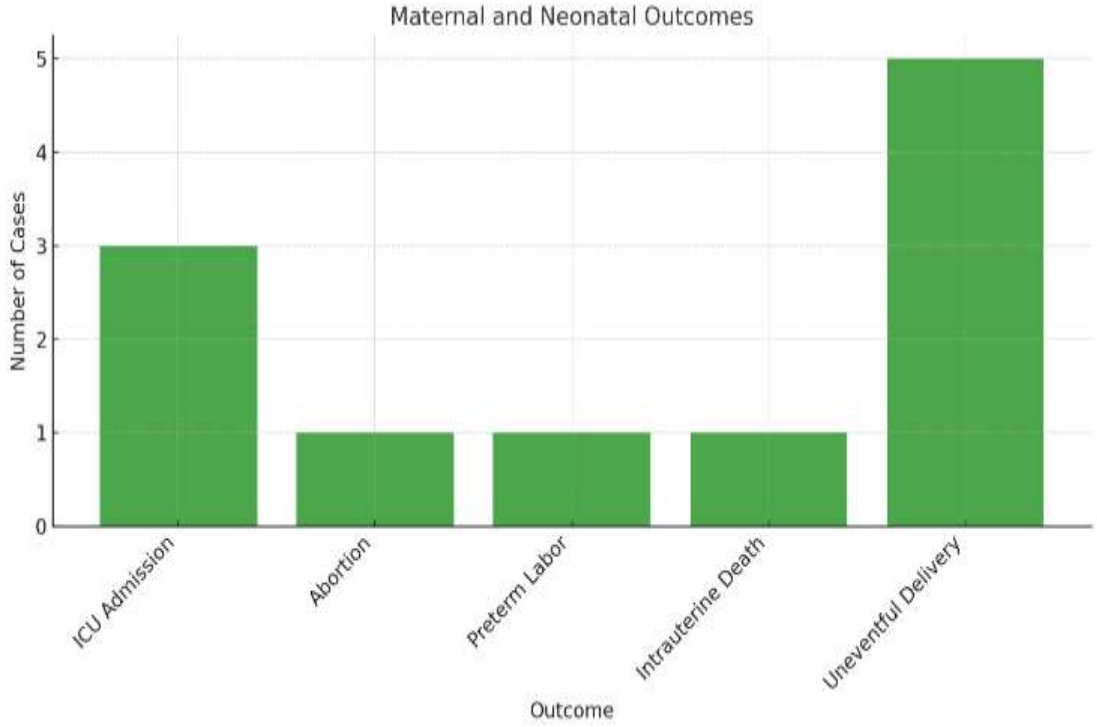

Fig.:- Maternal and Neonatal outcomes.

Neonatal Outcomes
- No neonatal mortality observed
- Complications included preterm birth and low birth weight in some cases

Discussion:-

The findings of our study are consistent with those reported in previous literature. For example, Mahajan et al. (2009) documented similar maternal complications such as acute kidney injury, acute respiratory distress syndrome, and multiple organ dysfunction syndrome. Similarly, Poomalar et al. (2015) highlighted the significant association of scrub typhus with preterm labor, intrauterine death, and low birth weight.

Our study expands on this by focusing on the Northern Indian population, highlighting sociodemographic factors like rural residence, lack of antenatal care, and exposure to domestic animals as potential risk factors. These findings align with global studies like those by Xu et al. (2017), which emphasize the role of environmental and socioeconomic factors in disease prevalence.

Notably, while Meena et al. (2016) reported maternal mortality in their case series, our study observed no maternal deaths, which we attribute to early diagnosis and timely intervention using azithromycin. The presence of eschar in 37.5% of our cases underscores its diagnostic value, as also suggested by Tseng et al. (2008).

Furthermore, neonatal outcomes in our study showed no neonatal mortality, which contrasts with some studies reporting higher rates of adverse neonatal events. This discrepancy might be due to differences in sample size, disease severity, and management protocols. However, the prevalence of preterm labour and low birth weight remains a consistent finding across studies.

The limited number of cases in our study highlights the need for larger, multicenter studies to establish robust clinical guidelines. Increased awareness among clinicians and integration of scrub typhus testing in febrile illness panels are critical steps toward improving foetomaternal outcomes in endemic regions.

Conclusion:-

Scrub typhus in pregnancy poses significant risks to maternal and foetal health. Early recognition, prompt diagnosis, and appropriate treatment can mitigate adverse outcomes. Further research is warranted to better understand the epidemiology, clinical course, and management of scrub typhus in pregnancy.

Acknowledgments:-

We thank the faculty and staff at KD Medical College for their support and the patients who participated in this study.

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