

A Case Report of Scrub Typhus with ARDS in Pregnancy- A Therapeutic Challenge

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Abstract

Scrub typhus is an endemic disease in tropical countries. Acute respiratory distress syndrome (ARDS) in scrub typhus carries a high mortality. Scrub typhus in pregnancy is an uncommon occurrence which carries a significant risk to the mother and fetus. Drug of choice for scrub typhus is Doxycycline or Chloramphenicol, however these drugs are contraindicated in pregnancy. The drug of choice in pregnancy is Azithromycin. Here we are reporting a case of 22 weeks primigravida admitted with scrub typhus (Confirmed by ELISA) and ARDS who did not adequately respond to Azithromycin. However she made complete recovery with addition of Rifampicin and continued her pregnancy.

Key words: Scrub typhus, ARDS, Rifampicin, Pregnancy.

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INTRODUCTION

Scrub typhus or tsutsugamushi disease is widely endemic in the tropical & subtropical regions of the Asian continent including Indian subcontinent. There is an increasing incidence of scrub typhus in Asian countries. There has also been an increasing incidence of scrub typhus during cooler months of the year. Many studies from South India¹ have reported outbreak and isolated reports of scrub typhus. Therapy with tetracycline (doxycycline) or chloramphenicol is currently recommended for the treatment of scrub typhus². Ciprofloxacin therapy has been used experimentally, but its efficacy has not yet been determined³. However, chloramphenicol and tetracycline, which are class D drugs according to the U.S. Food and Drug Administration (FDA) and Fetal Risk Summary, should not be used to treat pregnant women with scrub typhus.

Azithromycin, a macrolide antibiotic, has been proven to be more effective and safe in pregnancy. Here we are presenting a interesting case of 22 weeks primigravida admitted with fever and breathlessness, found to have Scrub Typhus was started on injection Azithromycin. However she progressively worsened and developed ARDS and was shifted to medical ICU. Along with IV Azithromycin we also started oral Rifampicin. In ICU she made slow and steady recovery and was shifted toward after 6 days of treatment in ICU. She was discharged completely recovered from ARDS and continued her pregnancy.

CASE REPORT

22 year old primigravida at 22 wks and 2 days pregnancy was brought to obstetric OPD with complaints of cough and fever for the past 6 days. On examination patient was febrile and tachypneic (Respiratory rate 22/min), pulse rate was 98/minute, blood pressure 100/70mmHg. Cardiovascular examination was within normal limits. Respiratory examination showed fine crepitations over the left base. Patient was admitted to ward with a provisional diagnosis of lower respiratory tract infection. She was started on intravenous cefotaxime and supportive care. Lab investigations revealed minimal rise in ALT and AST as shown in Table- 1. Other parameters like renal function, urine routine, random blood sugar were within normal limits. MP QBC, Dengue serology, HIV,

HBsAg and anti HCV were negative. ABG was satisfactory. Patient’s breathlessness worsened on the second day of admission, shifted to medical ICU under physician care. Her pulse rate was 112/min, BP 106/70mmHg and chest revealed bilateral extensive crepitations. Her ABG showed low PaO2 and was put on non invasive ventilation. A guarded X- ray of the chest was taken which showed extensive bilateral heterogeneous opacities (Figure-1). 2D Echo and her BNP was normal. With a high clinical suspicion of scrub typhus she was started on IV Azithromycin 1gm on day one and subsequently 500mg per day. Scrub typhus antibody was positive. Her serial lab monitoring showed

increasing liver enzymes. She continuously required non invasive ventilation, and her lung signs worsened with no improvement in oxygen saturation. Patient received two packed cell transfusion during the course in the hospital. On the 4th day along with Azithromycin, oral Rifampicin was started at a dose of 600mg per day. Patient had gradual clinical improvement and was removed from ventilator support after 3 days of Rifampicin. Her lab parameters showed improvement in liver function and platelet count (Table – 2). Patient was shifted to ward and obstetric opinion was sought. Repeat fetal scan was normal and she was advised to continue pregnancy. She was discharged on the 12th day of admission.

Table 1

Lab	Result	Reference value	Units
Haemoglobin	6.8	12-15	gms/dl
Total count	8700	4000-11000	Cells/cumm
Platelet count	1.65	1.5-4.5	Lakhs/cumm
SGOT	103	<31	U/L
SGPT	78	<34	U/L

Table 2

Lab	Day 1	Day 2	Day 3	Day 5	Day 7	Day 9	Day 11	REFERENCE VALUE	UNITS
Haemoglobin	6.8	8.6	8	9.6	9.4	9.1	9	12-15	gms/dl
TC	8700	9500	11400	14900	15100	11000	9200	4000-11000	Cells/cumm
PLATELET COUNT	1.65	1.65	1.60	1.24	1.10	1.70	2.67	1.5-4.5	Lakhs/cumm
SGOT	103	87	125	178	170	122	65	<31	U/L
SGPT	78	71	86	90	88	66	34	<34	U/L
ALP	169	211	157	238	262	206	171	45 to 129	U/L



Figure 1: Chest X-ray showing bilateral infiltrates

DISCUSSION

Scrub typhus is caused by *Orientia tsutsugamushi*, which is transmitted to humans by the bite of larval stage of trombiculid mites or chiggers. Common presentation of this disease is usually fever, headache, rash and eschar. Tsay and Charg documented that only 60% of the patients had classical eschar.[4] ARDS is a rare complication of

scrub typhus but there is increasing incidence of ARDS in scrub typhus in the recent years. ARDS is a dreaded complication of scrub typhus which increases the morbidity and mortality in these group of patients. It is even more a dreaded complication if it is present in a pregnant women with scrub typhus. Serological tests aid in the diagnosis of scrub typhus. Though there are various

immunological tests available, ELISA is useful for rapid detection. Early detection and prompt treatment with appropriate antibiotic is the key to successful management of scrub typhus. Doxycycline and chloramphenicol are the drug of choice in non pregnant patients. Though chloromphenicol has been used in pregnancy with caution there were increasing incidence of miscarriage and low birth weight babies born to these mothers. Ciprofloxacin has been used earlier but the outcomes were not satisfactory.[5] With the introduction of azithromycin, a macrolide antibiotic, treatment of pregnant women and their outcome has been highly successful and favorable. But still there is no study to prove the superiority of Azithromycin to other drugs in pregnancy. In our case when the patient with ARDS and scrub typhus was not responding to standard dose of Azithromycin we had to look for an alternative or an add on drug to manage the patient. Rifampicin proved effective in this situation. Rifampicin is a broad spectrum antibiotic introduced as early as 1968. Very rare incidence of congenital malformation has been reported in animal models but the dose required for this effect is almost 2 to 3 times the daily recommended dose for humans. However liver function has to be monitored frequently. If Rifampicin has to be used in late pregnancy or during delivery then one should watch for bleeding manifestation for mother and newborn and routine use of Vitamin K is indicated in these patients. The role of Rifampicin in scrub typhus during pregnancy has not been well studied. Whether Rifampicin has a better efficacy than Azithromycin during pregnancy is also an important area to be explored, especially when patient develop complicated scrub typhus.

CONCLUSION

The present study highlights the therapeutic challenges with severe scrub typhus in pregnancy especially when it does not respond to azithromycin. Addition of Rifampicin had a good clinical recovery and interestingly there were no effects on the fetus. The exact duration and dosage in pregnancy needs to be determined by further studies.

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