

# Acute Onset Postpartum Pleural Effusion: A Near-Miss Maternal Case Due to Scrub Typhus Infection

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## Abstract

A 32-year-old puerperal patient developed acute onset breathlessness and fever on the third postoperative day. On evaluation, the patient was diagnosed to have scrub typhus pneumonia without any characteristic eschar. The condition was associated with pleural effusion, and it was drained. Azithromycin was used as the drug of choice due to the peripartum status of this patient. The patient improved due to early detection and multidisciplinary timely care. The safe outcome of this near-miss case suggests that fever profile workup, especially in scrub typhus endemic areas, should include scrub typhus testing even if classical signs are absent in the peripartum period.

**Categories:** Internal Medicine, Obstetrics/Gynecology, Infectious Disease

**Keywords:** pleural effusion, scrub typhus, endemic, peripartum, puerperal

## Introduction

Scrub typhus in pregnancy is a rare infection that an obstetrician may come across. Though rare, it can lead to multiorgan failure and catastrophic feto-maternal outcomes [1]. Scrub typhus is commonly found in Asia and is caused by the intracellular bacteria *Orientia tsutsugamushi* via a flea vector [2]. Most of the cases reported in India belong to the hilly Himalayan area [3,4]. Very few cases have been reported from non-hilly areas of central India. Presenting herewith a near-miss case of bilateral interstitial pneumonitis in a post-operative case of cesarean section.

## Case Presentation

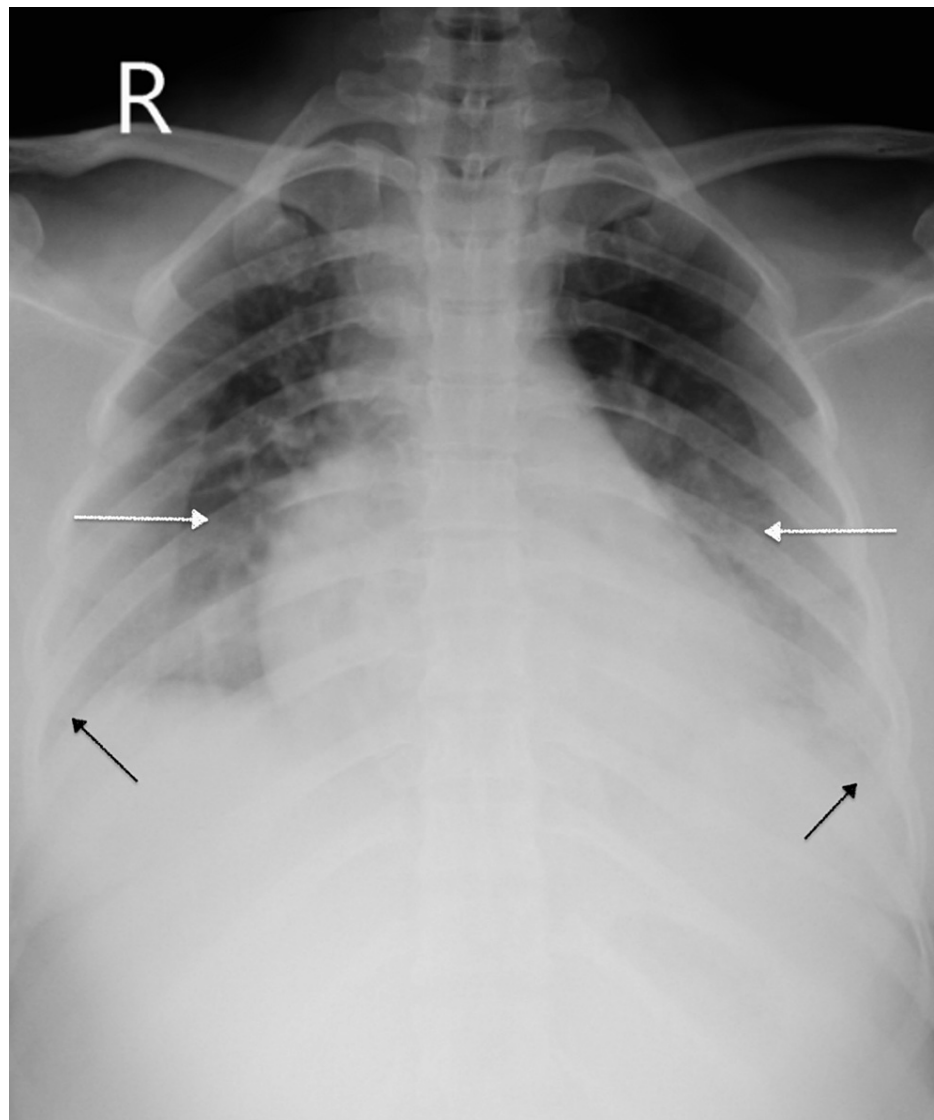
A 32-year-old second gravida with a history of previous cesarean section presented in labor. She was a dairy farm worker by occupation. Emergency cesarean section was done as intrapartum; the liquor was meconium stained, and fetal cardiotocography showed baseline bradycardia, and the immediate postoperative course was uneventful for 48 hours. She was breastfeeding the child. On day three postoperatively, the patient developed high-grade intermittent spikes of fever and breathlessness with a non-productive cough.

On examination, she was febrile (102 degrees Fahrenheit), pulse was 130/minute, regular. She was tachypneic (respiratory rate 28/min), with a blood pressure of 100/70 mm of Hg and SpO<sub>2</sub> of 90% while breathing ambient air. Respiratory system examination revealed coarse crepitations in bilateral lung fields and a stony dull note with absent air entry in the left infraaxillary and infra-scapular area. The abdomen was soft, bowel sounds were present, and the suture line of the cesarean section was healthy. Lochia was healthy, and her breasts were not engorged.

The patient was shifted to the intensive care unit for observation and further management. Chest X-ray revealed bilateral consolidation with bilateral parapneumonic effusions left more than right (Figure 1).

### How to cite this article

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**FIGURE 1: Chest X-ray showing bilateral consolidation (white arrows) with blunting of costophrenic angles (black arrows) suggestive of effusion.**

Her blood investigations revealed hemoglobin of 11.2gm%, white blood cells of 13,500/cumm with predominant neutrophils, platelet count of 1.8 lakhs, hematocrit 40%, C-reactive protein of 2.5mg/dl, ESR (erythrocyte sedimentation rate) 22mm/hour, LDH (lactate dehydrogenase)- 250IU/L, serum protein 45gm/dl. Peripheral smear for malarial parasite was negative. Also, Immunoglobulin M (IgM), Immunoglobulin G (IgG), and nonstructural protein 1 (NS1) antibodies for dengue, IgM, and IgG antibodies for *Leptospira* were negative, but IgM antibody for scrub typhus was positive. Liver and kidney function tests were within normal limits. Antibodies for scrub typhus were done as this area is endemic for scrub typhus. As the antibody for scrub typhus was positive, the patient was examined for eschar on the body, but it was not visible.

She was started on supplemental oxygen therapy. Due to the peripartum status tablet of azithromycin, 500 mg once a day for five days was added as the preferred drug to postoperative antibiotic prophylaxis. Ultrasound of the thorax suggests pleural effusion with subsegmental lung collapse on the left side, as shown in Figure 2.



**FIGURE 2: Ultrasonography of the thorax showing pleural effusion with subsegmental lung collapse on the left side (white arrow).**

Ultrasound-guided drainage of pleural fluid was done from the left pleural cavity, and 500 ml of pleural fluid was drained; pleural fluid analysis revealed total white blood cells- 55, proteins- 21gm/dl, glucose- 32mg/dl, LDH (lactate dehydrogenase)- 120IU/L which suggestive of exudative effusion by Light's criteria. Pleural fluid ADA (adenosine deaminase) was negative. The patient was afebrile after three days, breathlessness subsided, and the drain was removed after seven days. SpO<sub>2</sub> was 98% in room air. The rest of the post-operative period and wound healing were uneventful.

During critical care days, the baby was fed through a milk bank and was isolated from the mother. The baby was investigated for a scrub typhus antibody test and was negative. The patient was discharged in good general condition.

## Discussion

Acute febrile fever following surgery is not unusual. Scrub typhus is rarely considered the cause of fever, interstitial pneumonia, and pleural effusion. Although scrub typhus is typically associated with mountainous regions, in this instance, it may also be found in Indian plains. Scrub typhus manifests abnormally during the peripartum period because of the body's altered immune response mechanism. In patients with scrub typhus, presenting late or with multiple organs, involvement increases mortality [5,6].

A case series reports analysis of six pregnant and two puerperal women having scrub typhus infection reported that none of them showed normal lymphadenopathy and eschar. However, research from south India found that eschar was identified in almost half of the reported scrub typhus cases. In this case report, the eschar was not visible [7,8]. The ICU requirement, higher APACHE scores, low albumin levels, and absence of eschar are all indicators of a poor prognosis in such cases [9].

Interstitial pneumonia and vasculitis are the primary pathologic mechanism in respiratory system involvement in scrub typhus infection, which is extensively reported. Patients may exhibit lung involvement in up to 58.4% of cases, evident with symptoms causing cough and dyspnoea. Acute respiratory distress syndrome affects roughly 11.1% of these patients and reportedly shows a high fatality rate of 25%, which is a significant and dangerous sign of scrub typhus. One recent study from India shows ARDS incidence at 19.2% with a higher fatality rate (33%). In 12% to 55% of individuals, pleural effusion is seen [10].

Some authors consider the presence of interstitial pneumonia as a marker for predicting the clinical course and prognosis because it is associated with a more serious clinical presentation, prolonged indoor care, and a higher fatality when compared to patients who did not develop this complication. Interstitial pneumonitis with pleural effusions was our patient's initial diagnosis [11,12].

The intracellular gram-negative bacteria that caused severe vasculitis affects the lungs, heart, liver, kidneys, brain, and other essential organs. The same pathophysiology of the condition is explained in this case report also [13,14]. A high index of suspicion can detect this infection, and timely management can be started. Scrub typhus is frequently characterized by fever, myalgia, a maculopapular rash, and eschar from a vector bite [2]. As a safe peripartum medicine, azithromycin was given to this woman as a drug of choice [15]. Early detection and timely multidisciplinary management of this near-miss case prevented maternal mortality.

## Conclusions

Scrub typhus infection though rare is commonly found in endemic areas. Although there are more reports of scrub typhus in pregnant women, it is still underreported because of low awareness and the non-availability of diagnostic methods. Scrub typhus must be ruled out in pregnant females when they present with fever and respiratory symptoms. Timely diagnosis and therapy can prevent severe complications and high mortality related to scrub typhus infection in the peripartum period.

## Additional Information

### Disclosures

**Human subjects:** Consent was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

## References

1. Taylor AJ, Paris DH, Newton PN (ed): A systematic review of mortality from untreated scrub typhus (Orientia tsutsugamushi). 2015, 9:e0003971. [10.1371/journal.pntd.0003971](https://doi.org/10.1371/journal.pntd.0003971)
2. Bhandari M, Singh RK, Laishevtcev A, et al.: Revisiting scrub typhus: A neglected tropical disease. *Comp Immunol Microbiol Infect Dis*. 2022, 90-91:101888. [10.1016/j.cimid.2022.101888](https://doi.org/10.1016/j.cimid.2022.101888)
3. Rajan SJ, Sathyendra S, Mathuram AJ: Scrub typhus in pregnancy: Maternal and fetal outcomes. *Obstet Med*. 2016, 9:164-6. [10.1177/1753495X16638952](https://doi.org/10.1177/1753495X16638952)
4. Kumar R, Thakur S, Bhawani R, Kanga A, Ranjan A: Clinical profile of scrub typhus in pregnancy in sub-Himalayan region. *J Obstet Gynaecol India*. 2016, 66:82-7. [10.1007/s13224-015-0776-8](https://doi.org/10.1007/s13224-015-0776-8)
5. Mahajan SK, Rolain JM, Kashyap R: Scrub typhus complicating pregnancy. *J Assoc Physicians India*. 2009, 57:720-1.
6. Kota V, Kabra R, Kumar S, Acharya S, Gemnani RR: Plasmodium falciparum, vivax and scrub typhus in a young adult male: Surviving a triple strike. *Cureus*. 2022, 14:e30176. [10.7759/cureus.30176](https://doi.org/10.7759/cureus.30176)
7. Poomalar GK, Rekha R: A case series of scrub typhus in obstetrics. *J Clin Diagn Res*. 2014, 8:OR01-3. [10.7860/JCDR/2014/9718.5258](https://doi.org/10.7860/JCDR/2014/9718.5258)
8. Varghese GM, Janardhanan J, Trowbridge P, et al.: Scrub typhus in South India: clinical and laboratory manifestations, genetic variability, and outcome. *Int J Infect Dis*. 2013, 17:e981-7. [10.1016/j.ijid.2013.05.017](https://doi.org/10.1016/j.ijid.2013.05.017)
9. Kim DM, Kim SW, Choi SH, Yun NR: Clinical and laboratory findings associated with severe scrub typhus. *BMC Infect Dis*. 2010, 10:108. [10.1186/1471-2334-10-108](https://doi.org/10.1186/1471-2334-10-108)
10. Kashyap S, Solanki A: Pulmonary manifestations of scrub typhus: wisdom may prevail obstacles. *J Pulm Respir Med*. 2015, 5:251. [10.4172/2161-105X.1000251](https://doi.org/10.4172/2161-105X.1000251)
11. Song SW, Kim KT, Ku YM, et al.: Clinical role of interstitial pneumonia in patients with scrub typhus: a possible marker of disease severity. *J Korean Med Sci*. 2004, 19:668-73. [10.3346/jkms.2004.19.5.668](https://doi.org/10.3346/jkms.2004.19.5.668)
12. Khanna S, Talwar D, Kumar S, Acharya S, Hulkoti V: Scrub typhus presenting as cryptogenic organizing

- pneumonia in a young female: A first case report. *J Family Med Prim Care*. 2022, 11:5667-9.  
[10.4103/jfmpc.jfmpc\\_2059\\_21](https://doi.org/10.4103/jfmpc.jfmpc_2059_21)
13. Bonell A, Lubell Y, Newton PN, Crump JA, Paris DH: Estimating the burden of scrub typhus: A systematic review. *PLoS Negl Trop Dis*. 2017, 11:e0005838. [10.1371/journal.pntd.0005838](https://doi.org/10.1371/journal.pntd.0005838)
  14. Hulkoti V, Dubey A, Kumar S: Psychotic scrub typhus: A Case Report . *Med Sci*. 2020, 24:472-4.
  15. Kim YS, Lee HJ, Chang M, Son SK, Rhee YE, Shim SK: Scrub typhus during pregnancy and its treatment: a case series and review of the literature. *Am J Trop Med Hyg*. 2006, 75:955-9.