

Scrub typhus presenting as cryptogenic organizing pneumonia in a young female: A first case report

Shivam Khanna, Dhruv Talwar, Sunil Kumar, Sourya Acharya,
Vidyashree Hulkoti

Department of Medicine, Jawaharlal Nehru Medical College, DattaMeghe Institute of Medical Sciences (Deemed to be University), Wardha, Maharashtra, India

ABSTRACT

We report the case of a young female suffering from fever and generalized weakness on presentation and was diagnosed to be a case of cryptogenic organizing pneumonia (COP). She developed breathlessness on rest and required oxygen support and on further evaluation diagnosed with Scrub typhus IgM positive status. This case report highlights the importance of a rare presentation of Scrub typhus in a young female presenting with clinically silent chest changes initially and preventable worse outcomes if detected and managed for scrub typhus infection early in the course of disease.

Keywords: Cryptogenic organizing pneumonia, eschar, scrub typhus

Introduction

Cryptogenic organizing pneumonia is characterized by the presence of granulation tissue in alveoli and alveolar ducts intraluminally which is specifically seen on histology. The extension to bronchioles is an additional finding.^[1] The presenting symptoms include constitutional symptoms with a flu-like illness, cough, and dyspnea. Many causes have been identified in patients labeled as cryptogenic organizing pneumonia (COP), some of them being, infections like tuberculosis, pneumocystis jereveci, malignancies, tumors, and autoimmune conditions like rheumatoid arthritis.^[2] Interestingly, few cases of rheumatoid arthritis have been reported presenting with COP, which were tested positive for rheumatoid arthritis factor and anti-nuclear antibody and treated with short course corticosteroids.^[3]

Address for correspondence: Dr. Dhruv Talwar,
Department of Medicine, Jawahar Lal Nehru Medical College,
DattaMeghe Institute of Medical Sciences (Deemed to be
University), Wardha, Maharashtra, India.
E-mail: dhruv.talwar2395@gmail.com

Received: 13-10-2021

Revised: 10-12-2021

Accepted: 24-12-2021

Published: 14-10-2022

Access this article online

Quick Response Code:



Website:
www.jfmpc.com

DOI:
10.4103/jfmpc.jfmpc_2059_21

Symptoms and signs coupled with imaging modalities are still at large from diagnosing a COP patient as the clinical presentation is highly variable and multifactorial. Currently, pulmonary puncture remains as the invasive diagnostic method for COP.

Scrub typhus a disease endemic to the Indian Subcontinent is caused by an obligatory intracellular organism, *Orientia tsutsugamushi*. This bacterium is transmitted by larval forms of the trombiculid mites. The patients suffer from headache, myalgia, generalized lymphadenopathy, rash in the form of an eschar, and in severe cases acute renal failure, acute respiratory distress syndrome, meningoencephalitis, and coagulopathy.^[4]

The clinical examination together with basic thoracic imaging suggestive of COP in a scrub typhus endemic region should raise a suspicion of scrub. Scrub typhus has been associated with acute respiratory distress syndrome, pneumonitis, and inflammatory lung injury, but its association with COP has never been reported and presents a rare and rapidly progressive disease course if left undiagnosed. As scrub typhus is routinely encountered in the

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: 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.

rural areas, the primary care workers need to be aware of such atypical presentations so that they can detect and treat the entity at the earliest.

Case presentation

An 18-year-old female was admitted to our hospital with a history of fever and generalized weakness since 8 days. She also complained of dry cough since 5 days. She had no history of breathlessness, diarrhea, abdominal pain, and burning micturition. There was no history any rash, joint pains, drug intake, or tuberculosis.

Physical examination

There was an eschar located on the inner aspect of left thigh as shown in Figure 1. Her physical examination revealed clear chest with no adventitious sounds during the initial 3 days of presentation with oxygen saturation of 97% on room air. But her condition deteriorated rapidly day 4 onwards, and clinically her chest examination revealed bilateral air entry reduction with no adventitious sounds and a fall in the oxygen saturation to 90% on room air. No abnormalities were found on clinical examination of the cardiovascular system, abdomen, and central nervous system.

Diagnostic evaluation

Her chest radiograph on presentation revealed bilateral homogenous opacities in middle and lower lung fields as shown in Figure 2. High resolution computed tomography (HRCT) Thorax was done to rule out acute respiratory distress syndrome (ARDS), the features were consistent with findings of COP suggestive of patchy consolidation with subpleural and peri-bronchial distribution with minimal bilateral pleural effusion occupying the basal segments of the lungs as shown in Figure 3.

Her blood investigation revealed Scrub Typhus positive status with other lab reports suggestive of white blood count of 10,000 per mm cube, Hb of 9 gm%, platelets 2,30,000 cells per mm³. Sputum examination did not reveal any pathogen, fungus, or acid-fast organisms. Investigations for dengue and leptospirosis sent were negative. RA factor and ANA sent was negative. In view of few areas of ground glass opacities, her COVID-19 RTPCR test was sent and reported to be negative.

Therapeutic intervention

The patient was treated with injectable amoxicillin and clavulanic acid 1.2 gm intravenous thrice a day, with no further deterioration during the first 3 days. On the 4th day of her hospital stay, there was deterioration of clinical features and detection of Scrub typhus IgM positive status for which she was shifted to injectable Doxycycline 100 mg twice a day via intravenous route for a period of 7 days and then to oral antibiotic course on discharge.

Discussion

There is a tendency to overlook scrub typhus infection in cases of plumonary diseases like pneumonitis, acute respiratory distress



Figure 1: Eschar located on the inner aspect of left thigh



Figure 2: Chest X-ray PA view suggestive of bilateral homogenous opacities in middle and lower lung fields

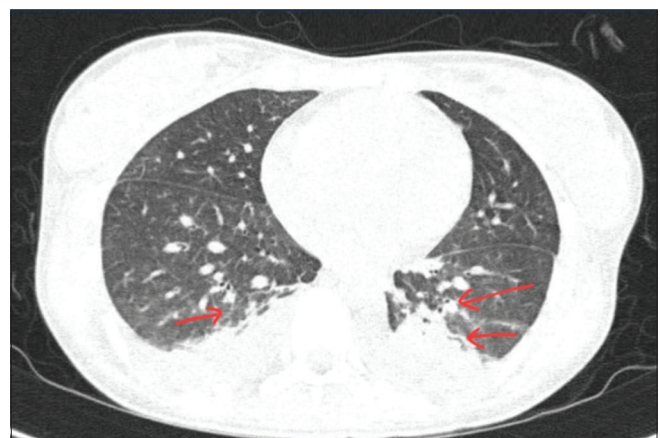


Figure 3: HRCT thorax done was suggestive of patchy consolidation with subpleural and peri-bronchial distribution with minimal bilateral pleural effusion occupying the basal segments of the lungs

syndrome, and even those presenting with milder symptoms of flu. Eschar, a characteristic finding in scrub typhus may be absent in patients suffering from it.^[5] Absence of an eschar should not be considered as a limitation in starting antibiotics for scrub typhus.

Diagnosis of scrub typhus in our case was based on the ELISA IgM test, which is the most commonly used test. Antibiotic coverage for this infection is provided by doxycycline, chloramphenicol, and azithromycin.^[6] Our patient had findings of Cryptogenic organizing pneumonia in Scrub typhus infection, which has never been reported in literature.

Cases exist which highlight the presence of ground glass opacities on HRCT of thorax and diagnosed as having ARDS in scrub typhus positive patients.^[7] Unusual presentation of Scrub typhus infection as epididymo-orchitis has been reported recently, which further highlights the wide range of presentation of scrub and the importance of further research into the pathophysiology of its various manifestations.^[8]

It has been reported that around 11% of scrub typhus infected patients develop ARDS, and mortality rate among them is around 25%.^[7] Considering the high chances of mortality, empirical therapy should be initiated at the earliest as the antibiotic regimens used for other common types of pneumonia like community-acquired or hospital-acquired pneumonia fail to cover scrub typhus.^[9] As the primary care workers are often the first point of contact for the patients, they can help to reduce mortality by suspecting scrub typhus and providing empirical therapy at the primary care level itself. There has been a reemergence of scrub typhus infection specially in the endemic areas raising an alarm for treating clinicians.^[10] This is the first case report in the world to the best of our knowledge to report association of COP with scrub typhus.

Keypoints

- Scrub typhus can present in atypical ways.
- Cryptogenic organizing pneumonia can be a presentation of scrub typhus and hence it should be kept as an differential diagnosis.
- Ground glass opacities should raise strong suspicion for scrub typhus in a COVID negative patient specially in a region which is endemic for scrub typhus.

Conclusion

Physicians should keep in mind the probability of scrub typhus infection in a case of COP and consider empirical therapy with doxycycline or chloramphenicol as soon as possible. Also the presence of concomitant ground glass opacities in a COVID-19 negative patient should raise strong suspicion for scrub typhus,

keeping in mind the wide variety of its clinical and imaging manifestations.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Mori S, Koga Y, Sugimoto M. Organizing pneumonia in rheumatoid arthritis patients: A case-based review. *Clin Med Insights Circ Respir Pulm Med* 2015;9(Suppl 1):69-80.
2. Epler GR. Bronchiolitis obliterans organizing pneumonia. *Arch Intern Med* 2001;161:158-64.
3. Kumar S, Garikapatti A, Andhale A, Nayak A. Cryptogenic organising pneumonia as main presenting feature of rheumatoid arthritis. *J Clin Diagn Res* 2019;13:6-7.
4. Tilak R, Kunte R. Scrub typhus strikes back: Are we ready?. *Med J Armed Forces India* 2018;75:8-17.
5. Paris DH, Shelite TR, Day NP, Walker DH. Unresolved problems related to scrub typhus: A seriously neglected life-threatening disease. *Am J Trop Med Hyg* 2013;2:301-7.
6. El Sayed I, Liu Q, Wee I, Hine P. Antibiotics for treating scrub typhus. *Cochr Database Syst Rev* 2018;9:CD002150. doi: 10.1002/14651858.CD002150.pub2.
7. Raja KK, Kumar S, Inamdar AH, Garikapati A, Dhronamraju S. Ground glass appearance on CT thorax-atypical feature of scrub typhus-A case report. *J Evolution Med Dent Sci* 2020;9:4012-3.
8. Shah DP, Phate N, Gupta A, Kumar S, Raisinghani N. Epididymo-orchitis presenting feature of scrub typhus in young elderly: A rare case report. *Int J Inf Res Rev* 2020;7:415-7.
9. Goswami D, Hing A, Das A, Lyngdoh M. Scrub typhus complicated by acute respiratory distress syndrome and acute liver failure: A case report from Northeast India. *Int J Infect Dis* 2013;17:e644-5.
10. John R, Varghese GM. Scrub typhus: Are emerging infection. *Curr Opin Infect Dis* 2020;33:365-71.