Scrub typhus cases in a family

Yasuyuki Taooka, Gen Takezawa

ABSTRACT

Abstract is not required for Clinical Images
Scrub typhus cases in a family

Yasuyuki Taooka, Gen Takezawa

CASE REPORT

Case 1

A 70-year-old male who was a Japanese forestry-worker complained of high-grade fever, headache, throat pain, and malaise for last five days. Two days before consulting our outpatient clinic, he consulted his attending physician and was treated with acetaminophen as common cold, but his fever elevation continued. On the next day, he noticed skin eruption on his back (Figure 1) and chest, then his skin eruption spread to the extremities. He did not feel pain or itching with his eruption. On physical examination, cervical lymphadenopathy was palpable, but hepatomegaly, jaundice or tonsillitis was not recognized. On his chest, a 10-mm of diameter of localized necrotic lesion was found. His blood examination showed abnormal liver function and elevated serum C-reactive protein as following (Table 1); Total bilirubin 0.6 mg/dL, LDH 307 IU/L (normal range: 106–211 IU/L), ALT 46 IU/L, AST 41 IU/L, and C-reactive protein 2.6 mg/dL, white blood cell count 8,630/μL. On his peripheral blood, 5% of atypical lymphocytes were observed. DNA analysis as PCR by using sample both of his blood and localized necrotic skin lesion showed positive for Orientia tsutsugamushi, Kuroki. As the diagnosis of scrub typhus (Tsutsugamushi disease), 10 days of oral administration of minocycline (200 mg/day) was prescribed, and his fever elevation subsided three days later.

Five days after onset of Case 1, 64-year-old female, wife of patient in Case 1, came to our hospital complaining of similar symptoms, which were fever elevation and general malaise for two days. On her physical examination, cervical lymphadenopathy and pharyngitis were recognized. On her lower abdominal lesion, a 8 mm of diameter of localized necrotic lesion was also found (Figure 2), but maculopapular rash was not found on her trunk and extremities just like her husband. Her blood examination showed as following (Table); LDH 387 IU/L, ALT 45 IU/L, AST 62 IU/L, and CRP 1.6 mg/dL, white blood cell count 4,490/μL. On her peripheral blood, 3% of atypical lymphocytes were also observed. They were similar with the results of (Case 1). She worked as a house-wife, and did not work in the endemic field like her husband. DNA analysis as PCR by using sample of her localized-necrotic skin lesion showed positive for Orientia tsutsugamushi, Kuroki. The diagnosis of her having scrub typhus (Tsutsugamushi disease) was performed, and oral administration of minocycline (200 mg/day) was started. Her symptoms relieved three days later.

Yasuyuki Taooka¹, Gen Takezawa²

Affiliations: ¹MD, FACP, Department of General Medicine, Akiota Hospital, Hiroshima, Japan; ²MD, Department of General Medicine, Akiota Hospital, Hiroshima, Japan.

Corresponding Author: Yasuyuki Taooka, MD, FACP, Department of General Medicine, Akiota Hospital, Shimodomo-Gohchi 236, Akiota-Cho, Yamagata-Gun, Hiroshima, 731-3622, Japan; E-mail: taooka-alg@umin.ac.jp

Received: 24 March 2016
Accepted: 01 June 2016
Published: 01 September 2016

Figure 1: Maculopapular rash on his back.
DISCUSSION

Scrub typhus is a kind of mite-transmitted infectious diseases, and occurs in mainly endemic rural areas [1–3]. Orientia tsutsugamushi is widely distributed through the Asia-Western Pacific region [1]. Fever, skin eruption, lymphadenopathy, and eschar (localized necrotic lesion) at the site of the chigger bite are known as the specific findings for the diagnosis [2–5]. The incubation period is around two weeks, and sometimes occurs as imported disease in tourists [2, 3]. Therefore, physicians working other than Asia-Western Pacific region also should be aware of its clinical features. Rare but some, since the prognosis of the patients might be mortal [5, 6]. Tsutsugamushi diseased need early diagnosis and starting antibiotics including minocycline [4]. The standard regimen is tetracycline (minocycline or doxycycline), and alternatives is chloramphenicol, rifampicin, azithromycin, or clarithromycin [1, 4, 6]. Usually measuring serum antibody titer against Orientia tsutsugamushi is utilized for the diagnosis [2], but sometimes that might need the days. By using patient’s blood or eschar, PCR analysis detecting Orientia tsutsugamushi DNA is useful for having diagnosis [7, 8]. According to the previous reports, sensitivity of detecting Orientia tsutsugamushi by PCR analysis using whole blood was more than 82%, and specificity was almost 100% [8]. More than half of scrub typhus patients, atypical erythematous rash is seen several days later after onset of fever elevation [2, 3, 9]. Same with (Case 2), atypical erythematous rash was not recognized. One possible reason was that early diagnosis was performed by PCR before showing her eruption in (Case 2). The transmission pathway of scrub typhus in (Case 1) might be by contacting with Orientia tsutsugamushi in the forest during the work, but that of (Case 2) was uncertain. Since she has not been to the same forest, another transmission

Table: Laboratory data

| Normal Range          | Case 1   | Case 2   |
|-----------------------|----------|----------|
| Total bilirubin       | 0.6 mg/dL| 0.2 mg/dL|
| LDH                   | 307 IU/L | 387 IU/L |
| ALT                   | 46 IU/L  | 45 IU/L  |
| AST                   | 41 IU/L  | 62 IU/L  |
| BUN                   | 12 mg/dL | 5 mg/dL  |
| Cr                    | 1.06 mg/dL| 0.58 mg/dL|
| Na                    | 136 mEq/L| 135 mEq/L|
| K                     | 4.2 mEq/L| 4.0 mEq/L|
| Cl                    | 97 mEq/L | 98 mEq/L |
| C-reactive protein    | 2.6 mg/dL| 1.6 mg/dL|
| WBC                   | 8,630 mL | 4,490 mL |
| Neutrophil            | 40.5 %   | 54.8 %   |
| Lymphocyte            | 48.0 %   | 29.8 %   |
| Monocyte              | 7.8 %    | 11.8 %   |
| Eosinophil            | 1.5 %    | 0.0 %    |
| atypical lymphocyte   | 5.0 %    | 3.0 %    |
| Hemoglobin            | 14.2 g/dL| 12.8 g/dL|
| Platelet              | 14.5 x10^4/mL | 18.4 x10^4/mL |
pathway was suspected. Although infection from person to person would not happen but familial infection was already reported [3, 5]. Former infected patients wearing contaminated-clothes come home and brought pathogen to their family via clothes contaminated with Orientia tsutsugamushi. She had no family other than her husband. As long as we heard from her, such like transmission pathway was possible in (Case 2).

CONCLUSION

Familial infected case of scrub typhus was reported. PCR analysis was valuable for its diagnosis.

**********

Keywords: Eschar, Scrub typhus, Tsutsugamushi disease

How to cite this article

Taooka Y, Takezawa G. Scrub typhus cases in a family. Int J Case Rep Images 2016;7(9):618–621.

Article ID: Z01201609CL10105YT

doi:10.5348/ijcri-201612-CL-10105

**********

Author Contributions

Yasuyuki Taooka – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Gen Takezawa – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

Copyright

© 2016 Yasuyuki Taooka et al. This article is distributed under the terms of Creative Commons Attribution License which permits unrestricted use, distribution and reproduction in any medium provided the original author(s) and original publisher are properly credited.

Please see the copyright policy on the journal website for more information.

REFERENCES

1. Jensenius M, Fournier Pierre E, Raoult D. Rickettsioses and the International Traveler. Clin Infect Dis 2004; 39 (10):1493.
2. Koh GC, Maude RJ, Paris DH, Newton PN, Blacksell SD. Diagnosis of scrub typhus. Am J Trop Med Hyg 2010; 82(3):368.
3. Jeong YJ, Kim S, Wook YD, Lee JW, Kim KI, Lee SH. Scrub typhus: clinical, pathologic, and imaging findings. Radiographics 2007; 27(1):161.
4. Yasunaga H, Horiguchi H, Kuwabara K, Hashimoto H, Matsuda S. Delay in tetracycline treatment increases the risk of complications in tsutsugamushi disease: data from the Japanese Diagnosis Procedure Combination Database. Intern Med 2011; 50 (1): 37.
5. Rajapakse S, Rodrigo C, Fernando D. Scrub typhus: pathophysiology, clinical manifestations and prognosis. Asian Pac J Trop Med 2012; 5(4): 261.
6. Peter JV, Sudarsan TI, Prakash JA, Varghese GM. Severe scrub typhus infection: Clinical features, diagnostic challenges and management. World J Crit Care Med 2015; 4(3): 244.
7. Tange Y, Kobayashi Y. Transfiguration of rickettsial diseases: tsutsugamushi disease and spotted fever group rickettsiosis in Japan. Intern Med 1993; 32 (12): 937.
8. Kelly DJ, Fuerst PA, Ching W, Richards AL. Scrub typhus: The geographic distribution of phenotypic and genotypic variants of Orientia tsutsugamushi. Clin Infect Dis 2009; 48 (Supple 3):S203.
9. Yoshimoto T, Yoshimoto T. Scrub typhus without eruption. Am J Trop Med Hyg 2012; 86(4): 559.
Edorium Journals: An introduction

Edorium Journals Team

About Edorium Journals
Edorium Journals is a publisher of high-quality, open-access, international scholarly journals covering subjects in basic sciences and clinical specialties and subspecialties.

Invitation for article submission
We sincerely invite you to submit your valuable research for publication to Edorium Journals.

But why should you publish with Edorium Journals?
In less than 10 words - we give you what no one does.

Vision of being the best
We have the vision of making our journals the best and the most authoritative journals in their respective specialties. We are working towards this goal every day of every week of every month of every year.

Exceptional services
We care for you, your work and your time. Our efficient, personalized and courteous services are a testimony to this.

Editorial Review
All manuscripts submitted to Edorium Journals undergo pre-processing review, first editorial review, peer review, second editorial review and finally third editorial review.

Peer Review
All manuscripts submitted to Edorium Journals undergo anonymous, double-blind, external peer review.

Early View version
Early View version of your manuscript will be published in the journal within 72 hours of final acceptance.

Manuscript status
From submission to publication of your article you will get regular updates (minimum six times) about status of your manuscripts directly in your email.

Our Commitment

Six weeks
You will get first decision on your manuscript within six weeks (42 days) of submission. If we fail to honor this by even one day, we will publish your manuscript free of charge.*

Four weeks
After we receive page proofs, your manuscript will be published in the journal within four weeks (31 days). If we fail to honor this by even one day, we will publish your manuscript free of charge and refund you the full article publication charges you paid for your manuscript.*

Favored Author program
One email is all it takes to become our favored author. You will not only get fee waivers but also get information and insights about scholarly publishing.

Institutional Membership program
Join our Institutional Memberships program and help scholars from your institute make their research accessible to all and save thousands of dollars in fees make their research accessible to all.

Our presence
We have some of the best designed publication formats. Our websites are very user friendly and enable you to do your work very easily with no hassle.

Something more...
We request you to have a look at our website to know more about us and our services.

* Terms and condition apply. Please see Edorium Journals website for more information.

We welcome you to interact with us, share with us, join us and of course publish with us.