



SCRUB TYPHUS – A KILLER DISEASE

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ABSTRACT

Scrub typhus is an acute, febrile, infectious illness that was first described in China in 313 AD by Hong Ge in a clinical manual (Zhouhofang) and in Japan (1810 AD). Scrub typhus is commonly found in regions of Asia, including countries like Japan, South Korea, and India. It's also found in parts of Australia and some Pacific Islands. Scrub typhus, an illness marked by fever and varying severity, begins suddenly with symptoms like fever, headache, chills, joint, and muscle pain. It often shows an eschar before and a rash after onset. The illness typically lasts around three weeks and usually resolves without complications. Fatal cases can involve multiple organ failure and abnormal changes in the lungs, kidneys, liver, and brain. Scrub typhus can lead to various complications if left untreated or if the infection is severe. Some possible complications include pneumonia, acute respiratory distress syndrome (ARDS), kidney damage, liver dysfunction, and central nervous system involvement. It's crucial to seek medical care if you suspect scrub typhus to prevent or manage any potential complications.

Key words: Scrub typhus, *Orientia tsutsugamushi*, Meningoencephalitis, PCR.

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INTRODUCTION

Scrub typhus, also known as bush typhus, is a mite-borne infectious disease caused by *Orientia tsutsugamushi* (previously called *Rickettsia tsutsugamushi*). It is of greatest public health importance in the rural Asian tropics. The disease spreads through bites of infected chiggers and is characterized by symptoms such as fever, headache, body aches, and rash. It is prevalent in rural areas of Southeast Asia, Indonesia, China, Japan, India, and northern Australia, posing a risk to travelers and residents in affected regions. (1,2)



Epidemiology:

- Scrub typhus is commonly found in regions such as Korea, China, Vietnam, Taiwan, Japan, Pakistan, India, Sri Lanka, Thailand, and Malaysia. (3,4).
- Rare cases have also been reported in Chile (5,6)
- Serologic and molecular evidence also found in Africa and the Middle East (7,8)

Causes:

Orientia tsutsugamushi is a gram-negative coccobacillus that infects various host cells. It has three primary strains (Karp, Gilliam, Kato) and can cause reinfection with different strains.

Risk Factors

- Exposure to human body lice
- Exposure to rats and mice.
- Tick bites
- Mite bites
- Travel to the tropics
- Being in contact with natural plants, forests, scrublands, or bushes.
- Exposure to cat or dog fleas

Signs and Symptoms as per CDC:

The symptoms of scrub typhus can vary, but they often include fever, headache, muscle aches, and a rash. Other possible symptoms include fatigue, chills, cough, and swollen lymph nodes. If you suspect you have scrub typhus, it's best to consult a healthcare professional for a proper diagnosis and treatment.

Symptoms of scrub typhus usually start within 10 days of being bitten by a mite. After being bitten by an infected mite, it usually takes about 6 to 21 days for symptoms of scrub typhus to appear. This period is called the incubation period. It's important to note that the incubation period can vary from person to person.

Signs and symptoms may include

- Fever and chills
- Headache
- Body aches and muscle pain
- A dark scab-like spot where the chigger bit, known as an eschar.
- Mental changes, ranging from confusion to coma
- Enlarged lymph nodes
- Rash
- Positive Weil Felix reaction (19)

Individuals experiencing severe illness may develop organ failure and bleeding, potentially leading to death if not properly treated.



Figure 1: Eschar (blackened scab) at site of chigger bite

Diagnosis and Testing:

- Serology
- Chest X ray
- Biopsy
- Culture
- FBC
- LFTs
- Serum electrolyte levels
- CRP
- Polymerase chain reaction (PCR)
- ELISA
- Ultrasound abdomen
- MRI Brain

Treatment as per CDC:

When it comes to treating scrub typhus, antibiotics like doxycycline or azithromycin are commonly prescribed. It's important to seek medical attention if you suspect you have scrub typhus, as a healthcare professional can provide the appropriate treatment plan based on your specific condition.

- Scrub typhus should be treated with the antibiotic doxycycline suitable for all age group.
- For pregnancy azithromycin has been shown to be a safe and effective alternative to doxycycline.
- Early antibiotic treatment is crucial for effectiveness and quick recovery.

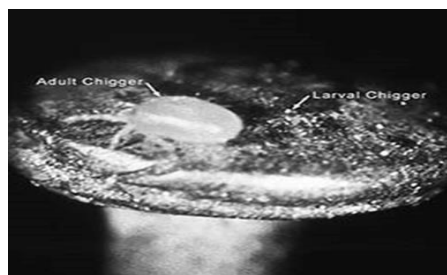


Figure-2: Adult and larval chiggers (mites)

Prevention of scrub typhus as per CDC:

- No vaccine available.
- Avoid contact with infected chiggers.

Measures to be taken in high-risk areas:

- Use EPA-registered insect repellents containing DEET.
- Apply sunscreen before repellent.
- Dress in long clothing.
- Treat clothing with permethrin.



- Don't apply repellent on cuts or irritated skin.
- For children, avoid applying repellent to hands, eyes, or mouth. Use mosquito netting for cribs, strollers, and carriers. Apply repellent to adult hands before applying to a child's face.(1)

Complication:

Scrub typhus can lead to various complications if left untreated or if the infection is severe. Some possible complications include pneumonia, acute respiratory distress syndrome (ARDS), kidney damage, liver dysfunction, and central nervous system involvement.

- Interstitial pneumonia and pleural effusion (10,11)
- Meningoencephalitis: May be severe and fatal. Often accompanied by fever, rash, headache, and enlarged liver and spleen.(12,13)
- Myocarditis: myocarditis has been associated with increased mortality.(14)
- Hearing loss: Transient or permanent, unilateral or bilateral. (15)
- Necrotic skin rash
- Fatigue
- Ocular complication: keratitis, uveitis, retinal vasculitis, macular oedema, optic neuritis, and endophthalmitis. (17,18)

Nurses Responsibilities in prevention of Scrub Typhus:

- Public health nurse should encourage community for vector control.
- Clearing the vegetation where rats and mice live should be done.
- Vector control team should be allotted for application of insecticides such as lindane or chlordane to ground and vegetation.
- PHN should give mass awareness on impregnating clothes and blankets with metical chemicals (benzyl benzoate) and application of mite repellents (diethyltoluamide) to exposed skin surfaces.
- Inform to buy permethrin treated clothing.
- Periodic training of village resources person of VCT should be done regarding vector control.

CONCLUSION

Globally, more than 1 million cases of scrub typhus are reported annually. (9) Since there is no vaccine for Scrub Typhus till now we can prevent it by impregnating several measures. This is only possible by making people aware regarding scrub typhus, it's consequences and preventive measures to be adopted.

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