

TYPHUS FEVER

(Squirrel-associated epidemic typhus, louseborne typhus fever, murine typhus)

REPORTING INFORMATION

- Class A(3)
- Report by the end of the work week
- [Confidential Case Report Card](#) (3812.11 rev. 12/81), [lab report](#) (3833.11), or telephone

AGENTS

Rickettsia prowazekii - louse-borne and squirrel-associated typhus fever

Rickettsia typhi - murine typhus

CASE DEFINITION

The CDC has not published a case definition for typhus fever. The following will be used in Ohio.

Case Classification

Confirmed: A confirmed case of typhus has a compatible clinical history with a four-fold or greater change in IFA or CF antibody titer for *R. prowazekii* or *R. typhi*. Acute and convalescent sera should be run at the same laboratory at the same time.

Comments

Typhus is not a nationally reportable disease, so data are minimal.

SIGNS AND SYMPTOMS

In squirrel-associated epidemic typhus, there is usually a sudden onset of headache, fever, myalgia and centrifugal exanthems (the rash starts on trunk and spreads outward to extremities, whereas RMSF has a centripetal rash). The rash, reported from 61% of cases, is not a consistent feature of squirrel typhus. This makes clinical recognition more difficult. Louseborne typhus fever is nearly identical to squirrel-associated epidemic typhus, and murine typhus is clinically similar to mild louse-borne typhus.

DIAGNOSIS

See case definition. The IFA serologic test is available at the ODH Lab.

EPIDEMIOLOGY:

Source

Flying squirrels appear to be the vertebrate reservoir for squirrel-associated epidemic typhus. Seropositive rates for flying squirrels at five case sites were quite high (about 70%). The vector is thought to be an ectoparasite of flying squirrels, probably a louse or flea.

Occurrence

In the latest data available, from 1976-84, 33 cases were reported to the CDC, all but one from the eastern United States. One case from Ohio (Gallia County) was reported in 1980. Most patients (70%) have been over 20 years old; 55% were male. Onset typically occurs in winter, December to February.

Mode of Transmission

As flying squirrels frequently congregate in attics for the winter, it has been suggested that the mode of transmission to humans may be via the bite of an ectoparasite, such as the squirrel louse or flea, or through airborne transmission of excretions (squirrel or ectoparasite).

Period of Communicability

Information is not known for squirrel-borne typhus. In louse-borne typhus (same pathogen), the body louse is infective for humans during the febrile period and possibly for an additional three days.

Incubation Period

Probably 7-14 days.

Note: Epidemic louse-borne typhus is transmitted by body lice and still exists in mountainous regions of Mexico, Central and South America, Africa, and Asia. Approximately 90% of reported cases to the WHO are from Ethiopia. The last known case in an American tourist was in 1950. There is no vaccine. Brill-Zinsser disease is recrudescence of typhus fever.

Murine typhus: Caused by *R. typhi*, is transmitted by rat fleas. It occurs worldwide; Texas reports the most cases in the United States (41 of 58 in 1982).

PUBLIC HEALTH MANAGEMENT

Case

Investigation

A complete travel history for the patient for the three weeks prior to onset is necessary. Details are needed on squirrel infestation in buildings, patient contact with wildlife, fleas, lice and other biting arthropods.

Treatment

Tetracycline and chloramphenicol are indicated. Antibiotic therapy should be initiated when this disease is suspected without waiting for test results.

Isolation

Section [3701-3-13](#) of the Ohio Administrative Code states:

"A person infected with one of the following specified diseases or conditions shall be isolated as set forth below:

"(BB) Typhus: a louse infested person with typhus shall be isolated until twenty-four hours after application of an effective pediculicide for body lice and clothing and environment are free of body lice."

Contacts

No prophylaxis or isolation of contacts is indicated.

Prevention And Control

Avoid close association with squirrels. The key to recognizing squirrel typhus is: winter onset of rickettsial disease, possibly suggesting RMSF. A history of squirrel contact might be elicited from the patient.