Murine Typhus

Epidemiology

Source: Infected fleas
Reservoir: rats, rodents, cats, opossums, and other mammals
Transmission:
- Vector-borne transmission via flea bites
- NOT person-to-person

Incubation ~12 days (6-14 days)

Epi Profile:
Endemic in 3 U.S. regions:
- Hawaii
- Southern Texas
- Southern California

▪ LA has had a few probable or suspected cases each year, but no confirmed cases yet

Clinical case definition:

Any of the following symptoms: fever (≥ 100.4℉), headache, chills, myalgia, arthralgia, cough, diarrhea, insect bite, abdominal pain, nausea and/or vomiting, confusion or rash. The rash normally erupts on the upper trunk and spreads outward, usually excluding the face, soles of the feet, and palms.

Common lab results include: leukopenia, thrombocytopenia, or elevation of hepatic transaminases, in the absence of any other known cause.

Complications:
In those who do not receive appropriate antibiotic treatment, complications including organ failure and neurologic symptoms may arise.

Morbidity:
Estimated to be less than 1% with appropriate antibiotic therapy, and about 4% without antibiotics.

Diagnosis

Microbiology: The disease is caused by *Rickettsia typhi* and *Rickettsia felis*. *R. felis* is a recent discovery.

Lab Diagnosis

Serology:
A fourfold change in immunoglobulin G (IgG)-specific antibody titer reactive with *Rickettsia typhi* or *Rickettsia felis* antigen by indirect immunofluorescence assay (IFA) between paired serum specimens (one taken in the first week of illness and a second 2-4 weeks later)

PCR:
Detection of *R. typhi* or *R. felis* DNA in a clinical specimen via amplification by PCR

Other:
- Can isolate *R. typhi* or *R. felis* from a clinical specimen in cell culture
- Demonstrate *R. typhi* or *R. felis* antigen in a biospy or autopsy specimen by IHC

Confirmed:
Clinically compatible case that is laboratory confirmed
Probable:
Clinically compatible case with supportive lab results
Suspected:
Clinically compatible case with laboratory evidence of past or present infection, but no clinical information available (e.g., a laboratory report), or a clinically compatible case with an epidemiological link to a confirmed case (e.g., a shares household or exposure with a confirmed case), but does not have laboratory testing.

Treatment, Prophylaxis

Treatment

Antibiotics:
Tetracyclines, specifically doxycycline, or chloramphenicol if doxycycline is contraindicated

Prophylaxis:
Because it may take up to 10 days for antibodies to become present, antibiotic therapy should be administered upon suspicion of a rickettsial infection

Major risk Factors:
- Advanced age
- Immunocompromised status

Chemoprophylaxis is NOT recommended for cases of flea bites that do not show clinical manifestations.

Report to OPH confirmed cases

Control

Standard Precautions

Prevention:
Eliminate habitat: trim foliage, eliminate heavy undergrowth, clear woodpiles, and cover holes, crawlspaces, and passageways. Holes, burrows, and rat runs may be treated with insecticide.
Do not feed wild or feral animals. Keep trash cans covered, and cover pet food that is kept outside. Eliminate any food or water sources that may attract wild or feral animals.
Flea prevention should be used on domestic pets, and they should not be allowed to roam freely.
Insect repellent containing DEET should be worn in outside areas. Gloves and goggles should be worn before cleaning any of these areas. Spraying thoroughly with disinfectant can also help eliminate transmission through feces. **Do not attempt to relocate feral or wild animals** – contact local animal control agencies.