

Rickettsial infections

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Rickettsia

They are obligatory intracellular small bacteria belong to family Rickettsiaceae. Except for Q fever, they are transmitted to humans by arthropods. Many rickettsiae are transmitted transovarially in the arthropod, which serves as both vector & reservoir.

Rickettsia are pleomorphic coccobacilli, they do not stain with Gram's stain, but are readily stained with Giemsa. They have G- cell wall structures that include peptidoglycan-containing muramic & diaminopimelic acids. They grow well in yolk sac of embryonated eggs. In cell culture, the generation time is 8-10 hrs at 34 °C, & can grow in different parts of the cell.

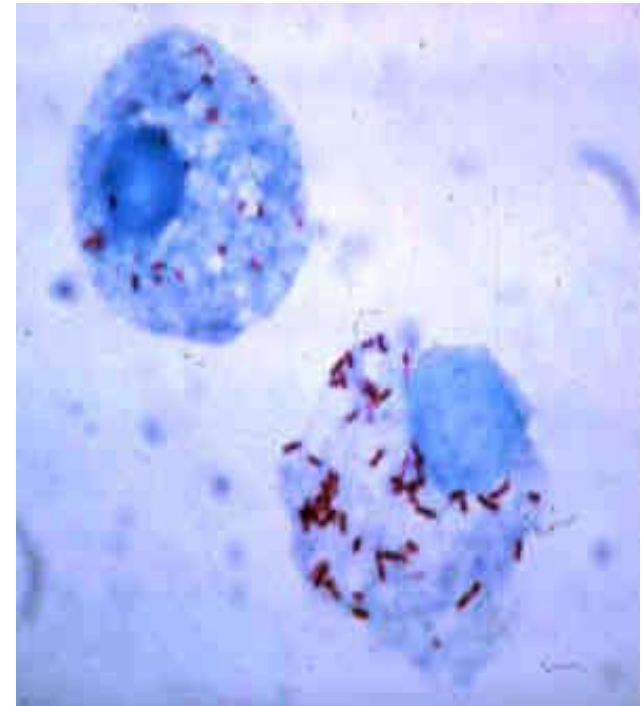
Rickettsia, except for *Coxiella burnetii*, multiply in the endothelial cells of small blood vessels & produce vasculitis, the cells become swollen & necrotic that may leading to rupture. Vascular lesions are prominent in the skin, but may be in many other organs & appear to be the basis of hemostatic disturbances. DIC & vascular occlusion may develop in brain & heart.

Clinically, except for Q fever, in which there is no skin lesion, rickettsial infections are characterized by fever, headache, malaise, prostration, skin rash & hepatosplenomegaly.

Typhus group:

Epidemic typhus or louse- borne typhus caused by *Rickettsia prowazekii*.

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it is prevalent worldwide characterized by fever, chills, myalgia, headache & rash. System infection & prostration are severe & fever lasts for about 2 wks. The disease is more severe & often fatal in patients over 40 ys. During epidemic, the case fatality rate is 6-30%.

2. Endemic typhus or flea- borne typhus caused by *Rickettsia typhi*, & the rodents are the reservoir. The disease is characterized by fever, headache, myalgia, rash, & usually milder than epidemic typhus.

3. Scrub typhus caused by *Orientia tsutsugamashi* by mite vector, & the rodents are reservoirs. The disease characterized by fever, headache, rash, lymphadenopathy, & atypical lymphocytosis.

Q fever (goat flu)

The disease resembles influenza, nonbacterial pneumonia, hepatitis or encephalopathy rather than typhus. The causative agent is *Coxiella burnetii*. The transmission results from inhalation of dust contaminated with rickettsia from placenta, dried feces, urine, or milk or from aerosol in slaughterhouses. The geographical distribution of the disease is worldwide, & the mammalian reservoirs include goats, sheep, cattle, & may be other animals. In human the disease is manifest by headache, fever, fatigue, pneumonia (no rash), & can have major consequences. Infective endocarditis may develop in chronic Q fever. The disease is recognized around the world & occurs mainly in persons associated with goats, sheep, & dairy cattle. Outbreaks in veterinary & medical centers where large # of people exposed to animals shedding coxiella are documented. As laboratory findings, the blood culture is negative, but rising titers of Abs against *C. burnetii* can be detected by IF, CF, & ELISA assays.

