

Coxiella burnetii 2

- gram (-)

- obligate intracellular → can't make its own energy

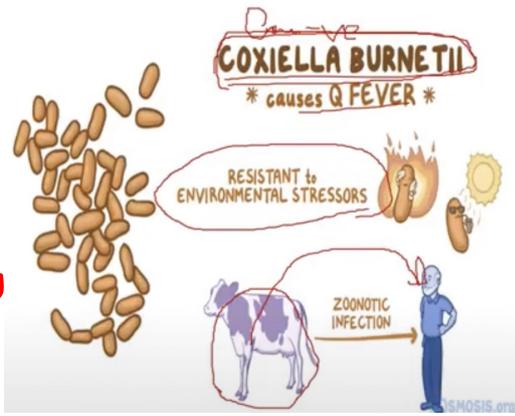
- causes Q fever

- resistant to the environmental stressors

- from animals to humans (zoonotic infections)

- non-motile

- endospore formation



كثان حيلة لابي

انزعة ان انزعة لان
انزعة في :-

- 1- animal inoculation
- 2- Embryonated Eggs
- 3- cell culture

Q fever: -

atypical pneumonia

- Lab test

& serological test

culture لعلنا لعلنا لعلنا

highly contagious لعلنا

Case 1- الالتهاب البيضي

history of frequent contact
with animals or its placenta

micro3

Coxiella burnetii causes Coxiellosis (Query Fever)

The organism

- *gram(-)
- *Obligate intracellular pathogen
- *Family: Proteobacteria
- *Stable and resistant to the environmental stressors
- *Killed by pasteurization
- *Two antigenic phases
- Phase 1: virulent (causes the acute disease)
- Phase 2: less pathogenic (causes the chronic disease)

Transmission

1-From animals:

- *Aerosol
- *Parturient fluids: (10⁹ bacteria released/gram of placenta)
- *Urine, feces, milk
- *Direct contact
- *Fomites
- *Ingestion
- *Arthropods (ticks)

2-Person-to-person (rare)

- *Transplacental (congenital)
- *Blood transfusions
- *Bone marrow transplants
- *Intradermal inoculation
- *Possibly sexually transmitted

Epidemiology

- *Worldwide (Except New Zealand)
- *Reservoirs:
- 1-Domestic animals (Sheep, cattle, goats, dogs, cats)
- 2-Birds
- 3-Reptiles
- 4-Wildlife (ticks)

Occupational and environmental hazard (people on risk):

- 1-Farmers
- 2-Livestock producers
- 3-Veterinarians and technicians
- 4-Meat processors/ abattoir workers
- 5-Laboratory workers

Human disease

- *IP: 2-5 weeks
- *highly infectious (One organism may cause disease)
- *Humans are dead-end hosts
- *Disease: (Asymptomatic (50%))
- Acute
- Chronic

Prognosis

- *Usually self-limiting
- *Only 2% develop severe disease (5% chronic disease)
- *Active chronic disease:
- Usually fatal if left untreated
- Fatality for endocarditis: 45 to 65%
- 50 to 60% need valve replacement
- *Case-fatality rate: <1 to 2.4% (mainly due to endocarditis)

Diagnosis

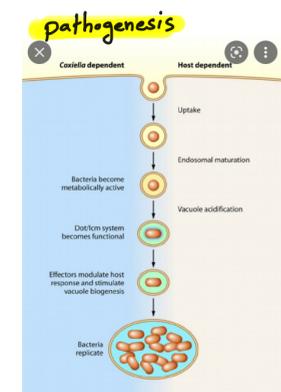
- 1-Serology (rise in titer)
- IFA, CF, ELISA, microagglutination
- 2-DNA detection methods
- PCR
- 3-Isolation of organism
- Risk to laboratory personnel
- Rarely done

Treatment :

- *Doxycycline (for 14 day)
- *Chronic disease – long course 2 to 3 years of medication !
- Immunity: Long lasting (possibly lifelong)

Prevention and control

- 1-Good husbandry
- Tick prevention
- Disposal of birth products
- 2-Separate new or sick animals
- 3-Vaccination (Human and animal)
- 4-Pasteurization
- 5-Disinfection (10% bleach)
- 6-Eradication (not practical):
- Too many reservoirs
- Constant exposure
- Stability of agent in environment



Acute infection

- *Flu-like, self limiting
- *Atypical pneumonia (30 to 50%)
- *Hepatitis
- *Skin rash (10%)
- *Other signs (< 1%)
- Myocarditis, meningoencephalitis, pericarditis
- *Death: 1 to 2%

Chronic disease

- *1 to 5% of those infected (Prior heart disease, pregnant women, immunocompromised)
- *causes:
- 1-Endocarditis
- 2-Other (Granulomatous hepatitis, Cirrhosis, Osteomyelitis)
- *50% relapse rate after antibiotic therapy

Risk to Pregnant Women:

- 1-Most pregnant women are asymptomatic
- 2-Transplacental transmission
- 3-Reported complications
- *In-utero death
- *Premature birth
- *Low birth weight
- *Placentalitis



Rickettsiae

- bacteria which are obligate intracellular parasites
- spread by arthropod vectors
 - lice, fleas, mites and ticks
- The rickettsial diseases of man are usually broken down according to the arthropod vector



Rickettsiae

- *Rickettsia prowazekii*
- *Rickettsia typhi*
- *Ehrlichia chaffeensis*



Rickettsia rickettsii

□ Disease/Bacterial Factors

- Rocky Mountain Spotted Fever
- intracellular parasite that multiplies in host cytoplasm

□ Transmission

- ticks are primary reservoir and vector

□ Risk?

- Requires 24-48 hour exposure to feeding tick

□ Control

- tetracyclines & chloramphenicol
- Avoid tick infested areas
- insect repellent
- remove ticks

Rash of Rocky Mountain Spotted Fever

