

The Organism

- gram (-) not parasite ⇒ it's bacteria but because
- *Coxiella burnetii* they go inside the cell and replicate intracellular the called them Parasite in that cell
 - Obligate intracellular pathogen
 - Proteobacteria ^{من مملكة البكتيريا} _{macrophages}
 - Stable and resistant ^{مقاومة}
 - Killed by pasteurization ^{high temp for short time}
 - Two antigenic phases
 - Phase 1: virulent
 - Phase 2: less pathogenic

Tough
go inside the cell + replicate



لها آلية أيضية (metabolic mechanism)

AA ^{amino acid} لا يستطيع تصنيع السكر ^{cannot synthesize sugar}

History

⊛ escape From immune system by this way So they resist the effect of eradication ⇒ establish themselves the

- 1935
 - Queensland, Australia (abattoir worker)
 - Montana, USA (ticks)

⊛ acute = suddenly < 6 month
⊛ chronic > 6 month and more

- Outbreaks
 - Military troops
 - When present in areas with infected animals
 - Cities and towns



□ Downwind from farms

by dust □ By roads traveled by animals

Foametes ^{فوميتات} cough or sneeze ⇒ droplet go far away

Transmission

- Aerosol ⇒ عندما تفتح أو تعطي رعبا
كغون رعبا aerosol
- Parturient fluids → directly transmit
□ 10⁹ bacteria released to another person
← per gram of placenta
- Urine, feces, milk
- Direct contact
- Fomites
- Ingestion
- Arthropods (ticks)



كثيرا كحيواناتا اكثر اسى
بكون موجودة في
Placenta
ونقل الى
fetus

↳ some blood from animals and
go to human and infected that
← زعم من الحيوان ويحي على الانسان ويعرجه

Transmission

- Person-to-person (rare)

⊕ اذا وصلت لانسان حمله

بكتريا كخدة لانه نادر

تنتقل من شخص لآخر

To the baby and do some problem

- Transplacental (congenital)

- Blood transfusions →

نقل الدم من شخص لآخر
ممكن ينقل العدوى

- Bone marrow transplants

- Intradermal inoculation

لذات الامهات
الحوامل يعنى

- Possibly sexually transmitted

chronic disease

Epidemiology

- Worldwide
 - Except New Zealand → لم تسجل حالاته
- Reservoirs
 - Domestic animals
 - Sheep, cattle, goats, dogs, cats
 - Birds
 - Reptiles
 - Wildlife

Epidemiology

- Occupational and environmental hazard
 - disease or dangerous thing that can derive from Qatar Profession



- Farmers

لو كنت انت دكتور راح تكون معرف
بكثير من العدوات والفيروسات

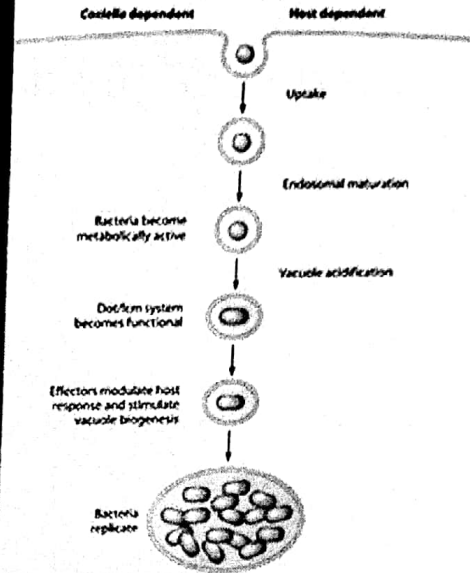
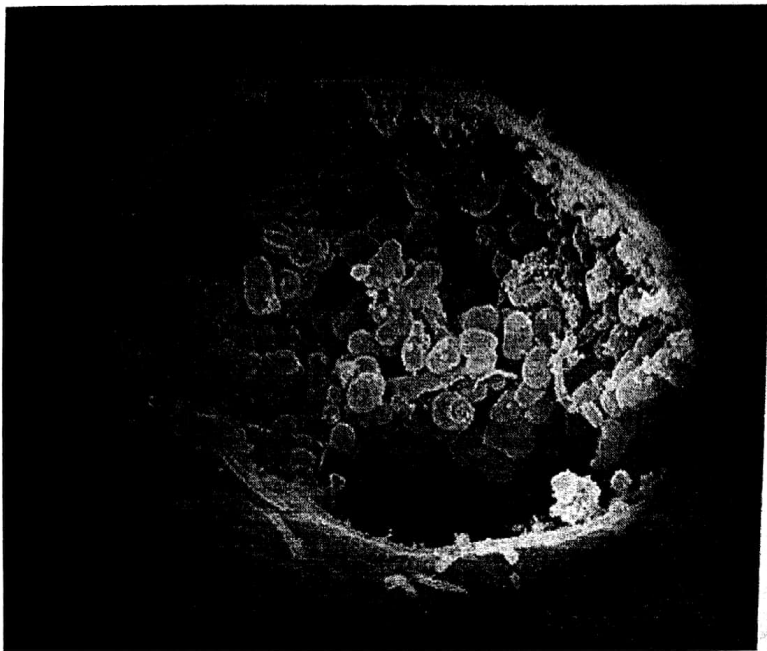
can reduce the disease by cutting meat

- Livestock producers
- Veterinarians and technicians
- Meat processors/ abattoir workers
- Laboratory workers



← ولانه المرحون موجودون في الامارات ممكن ينقل
ويحل افعى نداء مع الـ milk والنعيم في ذلك بيعدى حينه
الـ اكتسب اوفسها .

Pathogenesis



microbe in human \rightarrow go to macrophage and start replicating itself (multiplied) \Rightarrow infect the organisms \Rightarrow The immune sys don't can kill \Rightarrow because replicate inside cell

Human Disease

- Incubation: 2 to 5 weeks
 - One organism may cause disease
 - Humans are dead-end hosts
 - Disease
 - Asymptomatic (50%) \rightarrow no clinical sign
- 50% {
- Acute
 - Chronic

(*) it severe disease?
No \Rightarrow its self-limiting disease.

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%

acute infection

Chronic Disease → more than 6 months

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

انا ما انجلي ممكن يصير في مرحلة death

Risk to Pregnant Women

- Most asymptomatic
- Transplacental transmission
- Reported complications
 - In-utero death
 - Premature birth
 - Low birth weight
 - Placentitis



Prognosis

- Usually self-limiting *its not bad / not severe*
- Only 2% develop severe disease *لكنه خطر منه complication death*
- Active chronic disease
 - Usually fatal if left untreated *good ← antibiotic ←*
 - Fatality for endocarditis: 45 to 65% *chronic*
 - 50 to 60% need valve replacement *50% → لانه يفرسه microbe*
- Case-fatality rate: <1 to 2.4%

Diagnosis

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

high ← virus copy in
risk in the lab

Treatment

- Treatment
 - Doxycycline
 - Chronic disease – long course
 - 2 to 3 years of medication
- Immunity
 - Long lasting (possibly lifelong)

↓ B
بعض مناعة طويلة الأمد
أحياناً

Prevention and Control

- Good husbandry
 - Tick prevention
 - Disposal of birth products
- Separate new or sick animals
- Vaccination
 - Human and animal

Prevention and Control

- Pasteurization
- Disinfection
 - 10% bleach → لو ميسقو المنكان من كلور
مستة باره راح نعيم المنطقه
- Eradication not practical
 - Too many reservoirs → very difficult
وصعب جداً
المخزون يفضل ان الجسم
الكلية وضعه تفصل عليه
 - Constant exposure دافق
صعوبة
صعوبة
 - Stability of agent in environment



Rickettsiae

- bacteria which are obligate intracellular parasites → replicate inside the cell
- 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
rash بطرق على الجسم

□ intracellular parasite that
multiples in host cytoplasm
که نکتہ ایسے Parasite

□ Transmission
تسبب سے سمجھو کہ لائن
تپڑوں پر اور کچھ پر داخل ہوا
□ ticks are primay 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)

