

1. Chlamydia Rickettsiae Adult patient history

**A 23 year-old woman gave birth to her fourth child, a healthy 6.5 lb male.**

**At two weeks of age, a bilateral conjunctivitis developed that was treated with sulfonamide ointment, and the condition improved.**

**However, at 4 weeks, he developed a severe staccato cough which prevented him from eating or sleeping. He had no fever.**

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2. Chlamydia Rickettsiae Adult patient history (cont.)

**Breath sounds were good, but x-rays showed there were mixed interstitial and alveolar infiltrates, and pleural thickening was noted.**

**Bacterial cultures of aspirates revealed nothing on gram staining.**

**Suspecting a virus, but fearing *Legionella*, the attending prescribed erythromycin.**

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3. Chlamydia Rickettsiae Adult patient history (cont.)

On the fourth day of hospitalization, a medical student noted the conjunctivitis in the case history, as well as the mother's checkered past I.D. history.

He stained aspirates with a commercially-available chlamydia antibody reagent and found many positive cells in all microscope fields.

Confident that the antibiotic choice was appropriate, it was continued, and the child became better and was discharged on the ninth day.

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4. Chlamydia Rickettsiae Adult patient history (cont.)

The medical student was declared an infectious disease god.

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5. Chlamydia trachomatis pneumonia

## ***Chlamydia trachomatis pneumonia***

**Incidence: Primarily in infants--approximately  
10-20% of infants born to infected mothers  
develop pneumonia**

- 1. Encounter**
  - a. infected mother
  - b. infection acquired during birth, probably *not* transplacental.
  
- 2. Entry**
  - a. conjunctivitis
  - b. nasopharyngeal colonization

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6. Chlamydia trachomatis pneumonia (cont.)

## ***Chlamydia trachomatis pneumonia***

- 3. Multiplication**
  - a. Unique developmental cycle
  - b. Grows intracellularly within vacuole
  - c. Primarily a pathogen of epithelial layer
  
- 4. Spread**
  - a. Spreads via extracellular route
  - b. In infant pneumonia: nasopharyngeal carriage means topical treatment of conjunctivitis did not prevent disease
  
- 5. Damage**
  - a. Kills cells during intracellular growth
  - b. Mild inflammatory response
  - c. In infant pneumonia: patchy interstitial infiltrates
  - d. Rarely systemic except for particular strain

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7. Chlamydia Rickettsiae infections

## ***Chlamydia trachomatis* infections**

- 1. Sexually transmitted diseases**
  - a. asymptomatic in 70% of females carrying organism
  - b. Limited to epithelial layer
  - c. Cause of infertility
  
- 2. Trachoma**
  - a. Most common cause of preventable blindness in world
  - b. Repeated infection and co-infection primary cause of blindness.
  
- 3. Lymphogranuloma venerum**
  - a. Only true systemic disease
  - b. Caused by particular strain-" LGV"

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8. Other Chlamydia species

## **Other *Chlamydia* species**

***Chlamydia pneumoniae***

- a. 10-20% of all pneumonia cases in US
- b. Almost everyone has been infected (about 70% seroconversion, starting at age 5)
- c. Disease self-limiting
- d. Often associated in a "mixed infection"

  

***Chlamydia psittaci***  
Primarily an animal pathogen

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9. Chlamydia Rickettsiae juvenile patient history

**A 2 and a half year-old boy from the South Bronx was admitted to the hospital with fever, rash and difficulty in walking.**

**Ten days before he was treated for a rash and fever which was presumed to be pharyngitis.**

**Over the following week the fever persisted, even though he was treated with oral ampicillin.**

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10. Chlamydia Rickettsiae juvenile patient history (cont.)

**On admission, the patient was febrile with scattered papules on the face and palms and soles.**

**A presumptive diagnosis of Rocky Mountain Spotted Fever was made and treatment with chloramphenicol was initiated.**

**Within 24 hours, patient became afebrile, and the rest of the symptoms soon resolved.**

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11. Chlamydia Rickettsiae juvenile pateint history (cont.)

Weil-Felix agglutination showed a positive serum reaction.

The diagnosis of Rocky Mountain Spotted Fever was confirmed at the Centers for Disease Control by indirect fluorescent antibody testing.

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12. Rickettsia rickettsii: Rocky Mountain Spotted Fever

***Rickettsia rickettsii:***  
**Rocky Mountain Spotted Fever**

1. Encounter: tick-laden small mammals in Bronx park.
2. Entry: bite of dog tick, *Dermacentor variabilis*.
3. Multiplication: intracellular replication

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13. Rickettsia rickettsii: Rocky Mountain Spotted Fever (cont.)...

***Rickettsia rickettsii:***  
**Rocky Mountain Spotted Fever**

- 4. Spread: Systemic spread through bloodstream or through cell-to-cell intracellular movement.
- 5. Damage: Capillary rupture (rash), rupture of venules in brain, disseminated intravascular coagulation

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14. Chlamydia Rickettsiae Chart

<i>Stage</i>	<i>Chlamydia</i>	<i>Rickettsia</i>
Encounter	Close Contact	Vector (Zoonotic reservoir)
Entry	Phagocytosis into epithelial cells	Phagocytosis into endothelial cells
Multiplication	Developmental Cycle: EB->RB->EB	Meningitis; URI
Site of Multiplication	Within Vacuole	Within cytoplasm; some within nucleus
Spread	Localized (cell lysis); some able to cause LGV	Systemic (lysis of cells and intracellular spread)
Damage	Inflammatory exudate	Vasculitis; CNS; DIC

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