

## **VII. *Leptospira***

**A. Microbiology:** spirochete, detected by dark field

**B. Disease:** biphasic illness:

1. First phase: bacteremic phase; duration 1 week
  - a. Nonspecific illness: abrupt fever, headache, conjunctival suffusion, GI complaints, myalgia, rash
  - b. Spirochete enters the bloodstream → organs (liver, kidney) → jaundice, hemorrhage, renal failure
  - c. Resolution of fever is associated with the development of humoral response
  
2. Second phase: immune phase occurs ~2 days after the first phase; duration 1-4 weeks. Patient can present with aseptic meningitis, conjunctivitis, diffuse lymphadenopathy, hepatosplenomegaly.
  
3. Weil's syndrome (icteric leptospirosis): can develop after the first phase; consists of the triad: hemorrhage, jaundice/hepatitis, renal failure. Creatinine phosphokinase (CPK) can be extremely high due to myositis.

**C. Diagnosis:**

1. Spirochete can be cultured from CSF, blood, urine – low yield
2. Direct examination by dark field microscopy – (+) only during early infection.
3. Serology: ELISA

**D. Encounter/entry:**

1. Ingestion or contact with contaminated urine from infected domestic animals (dogs, sheep, cattle, goat, sheep) or rats.
2. Entrance of spirochete through broken skin and mucous membrane.
3. Occupational hazard for farmers, veterinarians, hunters, survival show contestants

**E. Damage:**

1. release a toxin that displaces long-chain fatty acids from host endothelial cells → breakdown of blood vessel wall → spirochete dissemination.
2. Thermolabile hemolysin.

**F. Transmission to human host: No**