

LEPTOSPIROSIS

FECAVA WORKING GROUP
ON ZONOOSES

1. DISEASE

Leptospirosis

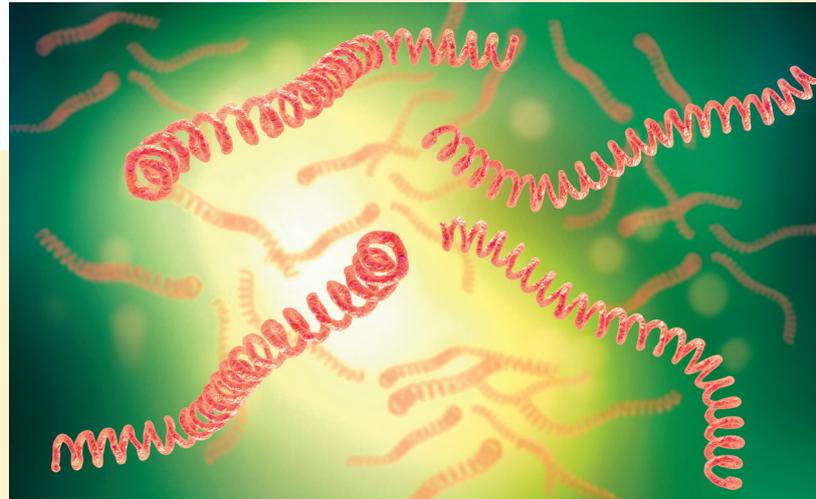
2. NAME, DEFINITION, ETIOLOGICAL SPECIES

Leptospira biflexa sensu lato (saprophytes) and *Leptospira interrogans* sensu lato (pathogens)

- Taxonomically, the genus is subdivided into 35 species which are classified into three major clades according to their virulence status: pathogens, intermediates and saprophytes.
- More than 250 serovars of *L. interrogans* have been described and further classified into antigenically related serogroups, of which at least 10 are important for dogs or cats.
- Leptospirosis is a zoonotic disease with worldwide distribution affecting most mammals.
- Clinical disease is common in dogs but rare in cats.
- Leptospire can survive for a prolonged period of time in water and moist soil.
- The disease in humans is underreported and overlooked because it may present with variety of clinical signs and can mimic lots of other infectious diseases.

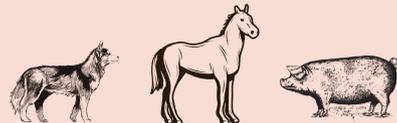
4. CLINICAL SIGNS, IF THERE ARE ANY

- Gastroenteritis
 - fever
 - malaise
 - anorexia
 - vomiting, hypersalivation
 - diarrhea (watery to mucoid, even bloody)
 - abdominal pain
- Acute infection:
 - Fever
 - Muscle tenderness
 - Vomiting
 - Recumbency, dehydration
 - Peripheral vascular collapse, tachypnea
 - Hematemesis, hematochezia, melena, epistaxis, petechiae, icterus
 - Oliguria/anuria
- Subacute infection:
 - Fever
 - Anorexia, vomiting, dehydration, Pu/Pd
 - Reluctance to move, paraspinal hyperaesthesia
 - Petechial or ecchymotic haemorrhages
 - Conjunctivitis, uveitis, rhinitis, tonsillitis
 - Oliguria/anuria
 - Coughing, dyspnea
 - Icterus
- Reservoir hosts usually don't develop any clinical signs of the disease after infection with pathogenic *Leptospira*.
- Incidental hosts can develop acute, severe disease.



3. DESCRIPTION OF THE ANIMAL RESERVOIRS

- Small rodents are the most important reservoir hosts.
- It is presumed that every known species of rodent, marsupial, or mammal can serve as a reservoir host for pathogenic *Leptospira*, including human.
- Common reservoir host animals are farm animals – pigs, cattle, horses, but can range from wild animals to domesticated dogs.



- There are known relationships between reservoir hosts and host-adapted leptospiral serovars.

5. WAY OF TRANSMISSION TO HUMANS

- Direct contact through mucous membranes or broken skin with urine of infected animals.
- Indirect contact with contaminated soil or surface water is more common.
- Leptospire can survive for up to 16 days in fresh water and up to 24 days in contaminated soil.
- They can also enter a human host through lungs if infected water is inhaled.

LEPTOSPIROSIS

6. CLINICAL SIGNS IN HUMANS

- Two distinct clinical syndromes can develop, icteric and anicteric.
- The anicteric syndrome is self-limited, rarely fatal and accounts for roughly 90 % of human leptospirosis.
- It presents with flu-like symptoms - headache, fever, cough, non-pruritic rash, diarrhea, anorexia, muscle pain.
- The icteric syndrome is called Weil's disease.
- This is a severe disease with fever, renal failure, hemorrhages, jaundice, and respiratory distress. It may also involve the heart, CNS, and muscles.
- The icteric form has an overall case fatality rate of 5-15%.

8. PREVENTION OF THE DISEASE

- Controlling infection in farm animals and pets reduces the risk of human infection.
- Prevention is complicated by wildlife reservoirs and environment contamination.
- Rodent control.
- Avoiding contact with potentially contaminated water (e.g., lakes, ponds).
- Personal hygiene and protective clothing are especially important in high-risk occupations or for owners of a pet with leptospirosis.

7. DIAGNOSIS IN HUMANS

- PCR, culture and microscopy - early cases, before seroconversion
- Serology - MAT and ELISA

DIAGNOSIS IN ANIMALS

- Clinical laboratory findings
 - Leucocytosis, thrombocytopenia
 - Azotemia
 - Elevated liver enzymes
 - Glucosuria, proteinuria, bilirubinuria
- Radiography and ultrasonography
 - interstitial to nodular alveolar densities in the caudodorsal lung fields
 - renomegaly, pyelectasia, increased cortical echogenicity, mild perirenal fluid accumulation, and a medullary band of increased echogenicity
- Serology
 - MAT (gold standard), ELISA, latex agglutination, IFAT
 - results may correctly identify the infecting serogroup only 50% of the cases.
 - interpreting titers as serogroup specific rather than serovar specific is appropriate.
 - Fourfold rise in paired titers at 3-week interval or 800 or greater single titer.

LEPTOSPIROSIS // WAYS OF TRANSMISSION (MAINTENANCE HOSTS)

