



LEPTOSPIROSIS

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LEPTOSPIROSIS



Transmission

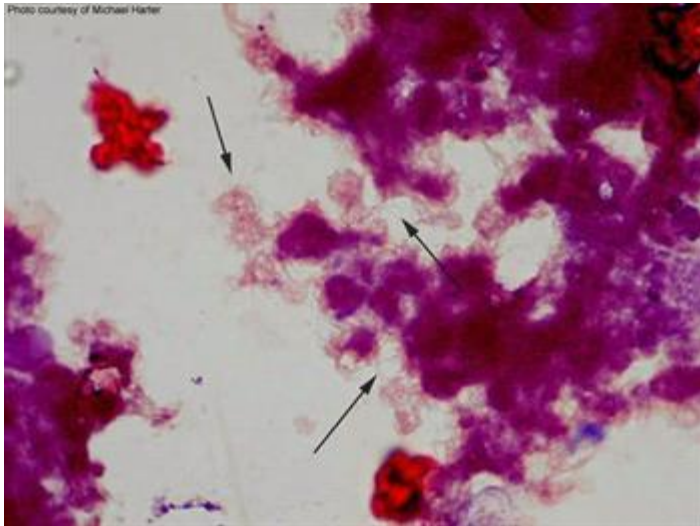
Clinical Signs

Diagnosis

Treatment

Prevention

ABOUT LEPTOSPIROSIS



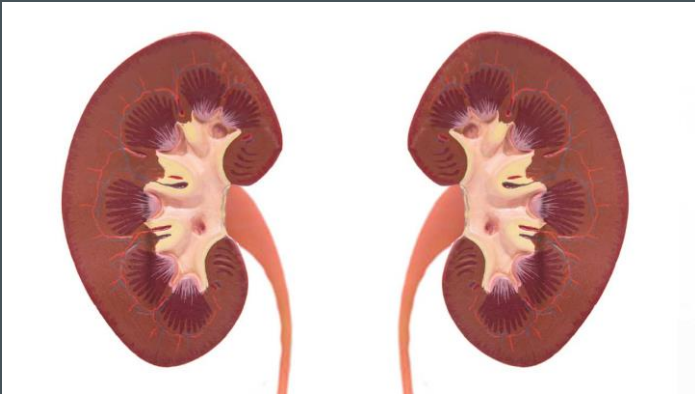
- Gram negative bacteria, motile spirochete
- Most important serogroups for dogs and cats
 - Canicola (dog)
 - Icterohaemorrhagiae (rat)
 - Grippotyphosa (raccoon, skunk, marsupials)
 - Pomona (cow, pig)
 - Hardjo (cow)
 - Bratislava (rat, pig, horse),
 - Autumnalis (mouse)
- Very few cases of clinical leptospirosis have been reported in cats

TRANSMISSION

- Direct contact with infected urine (through mucosal membranes or wounds)
- Mating, placental transfer
- Bite wounds
- Ingestion of infected tissues
- Indirect transmission- THROUGH WATER SOURCES, soil, food, bedding contaminated with urine
 - Stagnant or slow-moving water
 - Environmental flooding
 - Organism can survive for MONTHS in optimal conditions
- Leptospira remain in environment by infection of RESERVOIR HOSTS (Do not develop clinical illness)
- ZOONOTIC!!

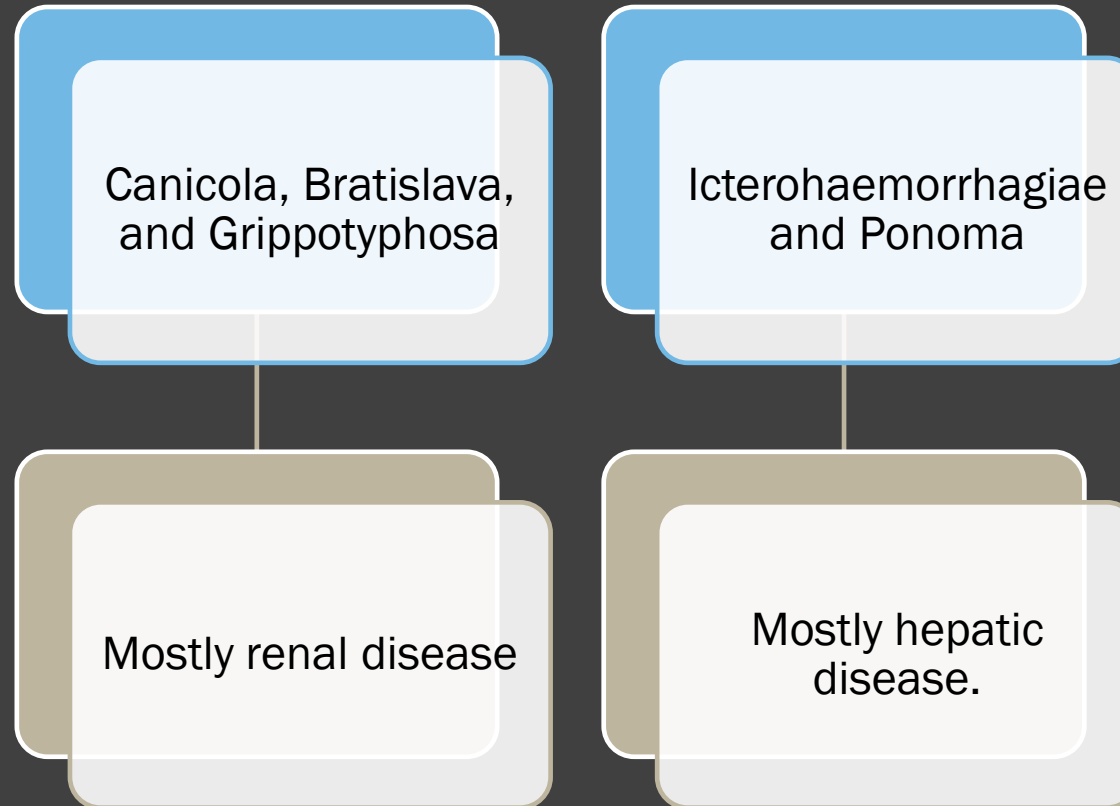


PATHOPHYSIOLOGY



- Enters bloodstream then multiplies quickly
- Attach to endothelial cells- vasculitis, vascular hemorrhage
- Spreads and replicates in many organs
 - KIDNEYS
 - LIVER
 - Spleen, eyes, genital tract, CNS
- Found in renal tubular lumen 2 weeks post infection- SHEDDING

CLINICAL SIGNS (VARIES WITH SEROGROUP)



CLINICAL SIGNS (GENERAL)

- FEVER
- Vomiting, diarrhea
- Dehydration
- PU/PD
- Lethargy
- Icterus
- Coagulopathy- petechia, ecchymosis, blood in urine or stool
- Uveitis/conjunctivitis
- Severe cases- dyspnea, rapid pulse, collapse, SHOCK



ONSET OF DISEASE

- Peracute- MASSIVE LEPTOSPIREMIA, death occurs with few signs
- Acute- fever, generalized muscle pain, dehydrated, vomiting, diarrhea, abdominal pain, bleeding, can die BEFORE renal and hepatic involvement showing
- Subacute- ADR history, weight loss, +/- fever, kidney and/or hepatic involvement, respiratory abnormalities, neurologic signs
- Chronic- Unknown, possibly mild renal symptoms

DIAGNOSIS

- Bloodwork
 - Elevated WBC count
 - Anemia, thrombocytopenia
 - AZOTEMIA (elevated BUN and creatinine with low USG)- in 87-100% of dogs
 - Elevated liver enzymes- 80% in one study
 - Hyperbilirubinemia
- Radiographs
 - Interstitial to nodular alveolar densities in thorax
- Ultrasound
 - Kidneys- increased cortical echogenicity
 - Liver- hypoechogenicity



TESTING



- Lepto Titers- MAT test (Microscopic Agglutination Test)- test of choice in patients with clinical signs
 - Single positive titer of $>1:800$ in serogroup not covered by vaccination is suggestive
 - Paired titers taken 2-4 weeks apart that show 4 fold increase are also suggestive
 - Titer of $>1:32,000$ against vaccinated serogroup is suggestive
 - Titers negative during first 7-10 days
- PCR- in blood or urine
 - Blood during first week
 - Urine after 10 days
 - Antibiotics can cause false-negatives
- Point-of-Care Tests- detect Leptospira-specific antibodies in serum
 - Witness Lepto (Zoetis)
 - SNAP Lepto (Idexx)



TREATMENT

■ ANTIBIOTICS!!

- Doxycycline 5 mg/kg q 12 hrs for 3 weeks (oral or IV)
 - Eliminates renal carrier state
- Penicillin G 25,000-40,000 units/kg q12 hrs for 3 weeks
- Ampicillin 22 mg/kg q6-8 hrs IV for 3 weeks

■ Supportive care

- IV fluids
- Anti-emetics, pain meds, liver protectants

PROGNOSIS

- GOOD with adequate treatment
 - 80-90% survival rate with aggressive fluid therapy and antibiotics
- Poorer prognosis with pulmonary disease
- Possible complications
 - Chronic renal failure
 - Chronic active hepatitis
 - Up to 50% of dogs that survive acute phase have impaired renal function for >1 year



Serovars *L. icterohaemorrhagiae*, *L. grippotyphosa* and *L. sejroë*

PREVENTION

- Vaccination
 - Includes 2-4 serovars
 - Initial immunization- 2 injections 2-3 weeks apart
 - Booster annually