

المرحلة الرابعة نظري

Leptospirosis: Leptospirosis is a disease of dogs and large domestic animals caused by several species of leptospira and is of zoonotic importance

Etiology: Leptospirosis is caused by various species of *Leptospira*, a spirochete in the family Leptospiraceae, order Spirochaetales. The classification of this organism is complex., in cattle *L. icterohemorrhagica*; *L. pomana*; *L. canicola* ; *L. grippotyphosa*

Transmission

Leptospirosis can be transmitted either directly between hosts or indirectly in the environment. *Leptospira* spp. can be ingested in contaminated food or water, spread in aerosolized urine or water, or transmitted by direct contact with the skin. The organisms usually enter the body through mucous membranes or abraded skin. *Leptospira* spp. are excreted in the urine, and can be found in aborted or stillborn fetuses, as well as in normal fetuses or vaginal discharges after calving. They can be isolated from the male reproductive organs.

Leptospira spp. do not multiply outside the host. In the environment, they require high humidity for survival and are killed by dehydration or temperatures greater than 50°C. They can remain viable for a few to many weeks or months in contaminated soil and for several weeks in cattle slurry. They can remain viable in water for several months under laboratory conditions, but do not survive as well in river water under natural conditions.

Pathogenesis: From the point of entry the organisms invade the blood stream and multiply rapidly producing septicemia . During this period the temperature rises this phase lasts for several days. If the animals does not die during the septicemic phase the organisms settle down in the liver, kidney and the pregnant uterus . the acute form is common in calves during this phase jaundice is seen in all animals due to intravascular hemolysis and hepatic necrosis. Anemia, icterus and hemoglobin uria are noticed.

Post Mortem Lesions

In acute cases, there may be signs of anemia, as well as icterus, hemoglobinuria, and submucosal and subserosal hemorrhages. The kidneys are typically swollen and contain petechiae and which ecchymoses, become pale over time. The liver is sometimes swollen, with minute foci of necrosis. Ulcers and hemorrhages may be found in the mucosa of the abomasum. Petechiae can also be seen in other organs in some fulminating infections. Pulmonary edema and emphysema are rare but have been reported.

Subacute forms: In animals that survive , the organisms localize in the kidneys where they grow in the tubules and are excreted in the urine. Interstitial nephritis is produced with infiltration of

lymphocytes and plasma cell. The aborted fetus does not show any specific lesions but for edema in the umbilical cord, pericardium, subcutaneous tissue and perirenal tissue.

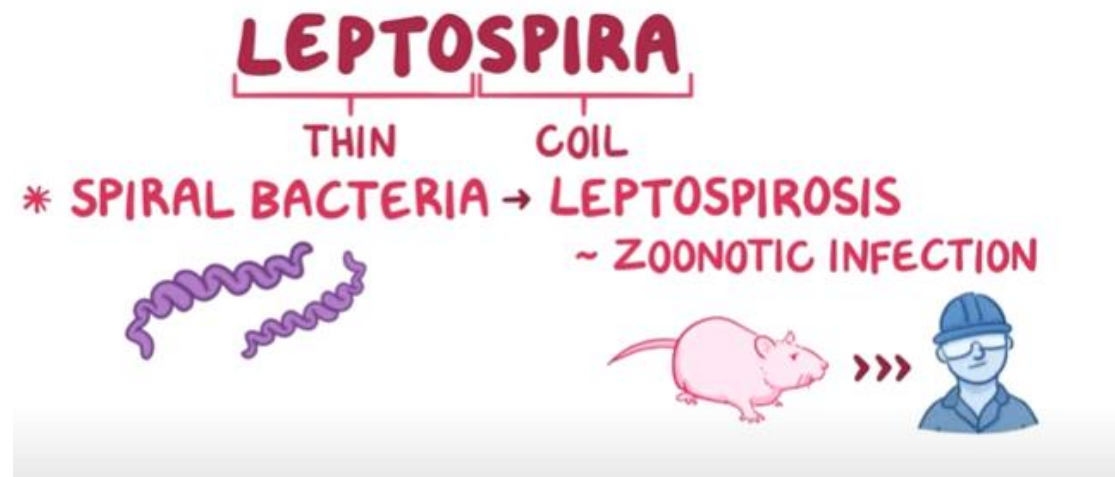
Diagnosis:

- 1- Symptom.
- 2- Agglutination test
- 3- Agglutination lysis test.
- 4- Inoculation into guinea-pigs intraperitoneally, of blood or milk or urine collected from ailing animals at the height of disease and recovering from.
- 5- Dark field examination of urine.

Differential diagnosis:

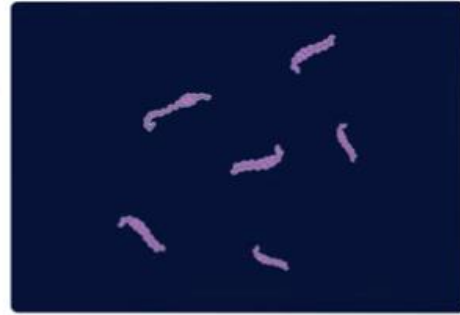
- 1-Babesiosis
- 2-Anaplasmosis.
- 3- Brucellosis
- 4-Post-parturient hemoglobin urea.

العملي



LEPTOSPIRA

- * TINY SPIRAL BACTERIA
- * GRAM-NEGATIVE
 - ↳ X RETAIN GRAM DYES



- * DARKFIELD MICROSCOPE



+ IMMUNOFLUORESCENCE 

PATHOGENESIS ~ LITTLE IS KNOWN



* VIRULENCE FACTORS

↳ ATTACK & DESTROY HOST CELLS 

↳ INCLUDE:

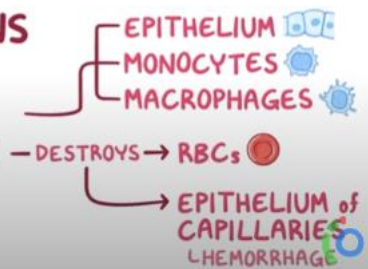
- TOXINS 
- LIPOPOLYSACCHARIDE (LPS) → INFLAMMATION

* LEPTOSPIRA INTERROGANS

ADHESINS

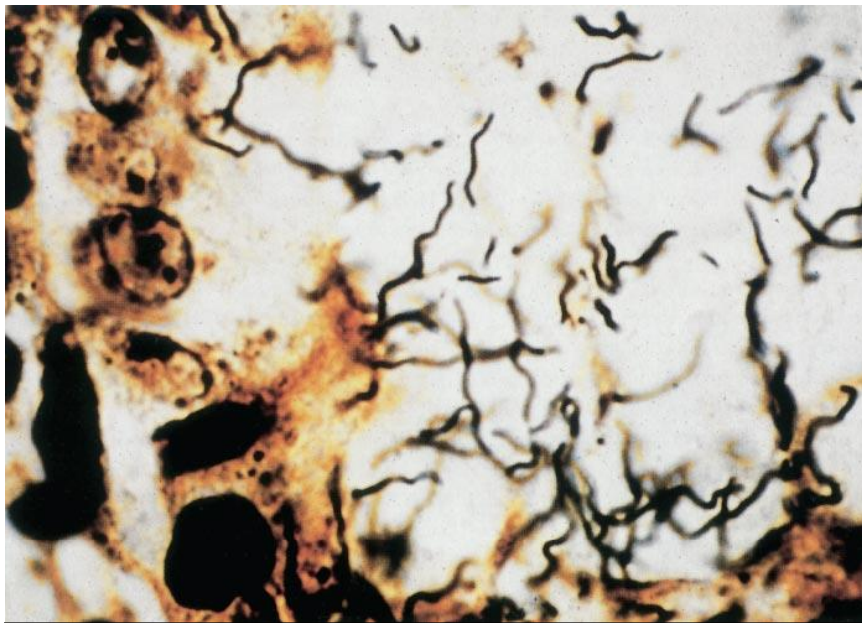
- HELP ATTACH to HOST'S CELLS

SPHINGOMYELINASE C TOXIN





dog r signs of anemia, as well as icterus, hemoglobinuria, and submucosal and subserosal hemorrhages



Figures 4 Histological sections showing numerous leptospire bacteria entwined in microvilli and free in the lumen of a renal tubule (Warthin-Starry stain)

Kidney showed bacteria , icterus ,
necrotic area in the proximal
tubulus

