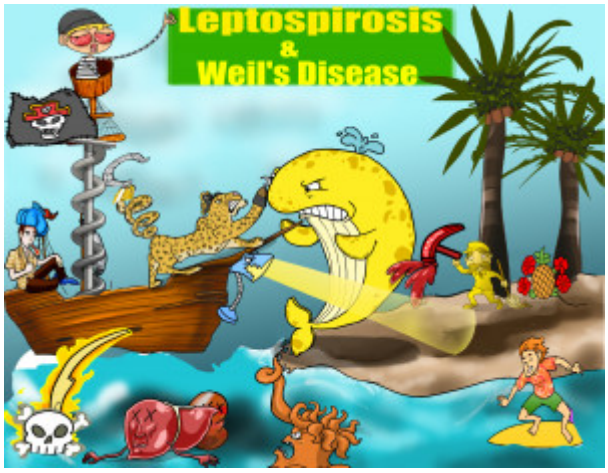
Leptospirosis and Weil's Disease

Leptospirosis, and its more severe phenotype, Weil's disease, is a zoonotic disease that often occurs in tropical regions where water is contaminated with animal urine. The disease is caused by Leptospira interrogans, a spirochete with hooked shaped ends. Clinical features include flu-like symptoms, photophobia, and conjunctival suffusion. Weil's disease may present with liver and kidney dysfunction, jaundice, hemorrhage, and anemia.



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Epidemiology

Tropical Regions
Tropical Hawaiian Surfer
Human infection usually results from exposure to animal urine in contaminated water or soil. Leptospirosis is prevalent among people who spend a lot of time around water sources (e.g. surfers, sewer workers, and farmers) particularly in tropical areas (e.g. Hawaii).

Water Contaminated with Animal Urine
Ocean with Toxic-Urine
Portals of entry for Leptospira include cuts or abraded skin, mucous membranes, or conjunctivae. This is especially common in people who spend a lot of time around contaminated water sources.

Characteristics

Leptospira interrogans
Leopard-spiral
The genus Leptospira contains 22 species among which 10 are considered pathogenic. L. interrogans is the most common organism causing leptospirosis.

Spirochete
Spiral-spirochete Staircase
Leptospirosis is caused by pathogenic spirochetes of the genus Leptospira. Spirochetes are a group of spiral-shaped bacteria.

Hooked Shaped Ends
Hooked-End-Tail
Leptospira can be distinguished morphologically from other spirochetes by their unique "question mark" hook at the end of the bacterium.

Clinical Features

Flu-like Symptoms
Thermometer and Ice-bag
Leptospirosis presents with flu-like symptoms such as myalgias (classically of calves), fever, photophobia, headache, and gastrointestinal distress.

Conjunctival Suffusion
Convict-Red-Eyes
Conjunctival suffusion is conjunctival erythema without the classic exudates seen in conjunctivitis. In leptospirosis, conjunctival suffusion is commonly bilateral and diffuse.

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Photophobia

Lamp-Monster

Photophobia is a common symptom in patients with leptospirosis. They may also complain of retro-orbital pain.

Weil's disease

Liver and Kidney Dysfunction

Dead Kidney and Liver

Weil's disease or icterohemorrhagic leptospirosis is a severe form of leptospirosis that can progress to acute liver and kidney failure. Clinical features are due to systemic spread and multiorgan involvement.

Jaundice

Jaundice-janitor

Involvement of the liver causes hepatitis which can result in jaundice. Although the exact pathomechanism is not well understood, it is thought that Leptospira invades intercellular junctions between hepatocytes causing bile to leak. Other features of acute liver failure may be evident.

Hemorrhage

Hemorrhage-hammer

Patients with Weil’s disease are at increased risk of bleeding events. Several mechanisms have been implicated such as increased vascular permeability, complement activation, and immune-mediated damage to cells. Pulmonary hemorrhage can result in hemoptysis and is a major cause of death in these patients.

Anemia

Anemone

Anemia can be attributed to widespread hemorrhage. Consider blood transfusions for precipitous drops in hemoglobin.

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