

# BRUCELLOSIS

[In humans: Mediterranean fever, undulant fever, Malta fever. In animals: contagious abortion, epizootic abortion, Bang's disease]

**SPECIES:** Dogs primary laboratory risk

**AGENT:** Brucella abortus: cattle, sheep Brucella canis: dogs Brucella melitensis: sheep, goats Brucella suis: swine

**RESERVOIR AND INCIDENCE:** Of the above species, Brucella canis is most likely zoonotic agent in the lab animal facility due to the extensive use of random source and lab bred dogs, in contrast to use of large domestic animals. Prevalence: 1 to 10% in dogs, throughout the U.S. B. canis is well adapted to dogs, and is not the subject of a large scale eradication program in the general dog population, as Brucella has been in other animals. Human brucellosis due to B. canis is uncommon but can be acquired from dogs; most cases resulted from contact with aborting bitches. In 1988, the CDC noted 96 cases of brucellosis reported in the U.S.: 22 from Texas and 20 from Calif.

**TRANSMISSION:** Ingestion of unpasteurized milk, Lab accidents. Poorly defined transmission cycle in zoonotic diseases: contact with infected animals especially aborted fetuses, fluids or membranes, or urine. Possibly airborne.

**DISEASE IN ANIMALS:** abortions are followed by immunity, though carrier state persists especially with secretions from the udder. Infertility, testicular abnormalities, poor semen quality may be seen in dogs. Inapparent infection may be common, as indicated by seropositivity.

**DISEASE IN MAN:** Acute form characterized by lymphadenopathy, splenomegaly, fever, headache, chills, orchitis, weakness, nausea, weight loss. The chronic form may assume an undulant nature, with periods of normal temperature between acute attacks; symptoms may persist for years, either continuously or intermittently. Antibiotics can effect a cure within one year in about 80% of cases. Case fatality if untreated is less than 2%.

**DIAGNOSIS:** Rapid slide agglutination test is available. Blood culture and additional serologic tests used to confirm slide test results.

**TREATMENT:** Single-drug regimens are not recommended because the relapse rate may be as high as 50%. Combination regimens of two or three drugs are more effective. Either (1) doxycycline plus rifampin or streptomycin (or both) (2) trimethoprim-sulfamethoxazole plus rifampin or streptomycin (or both) are effective in doses for 21 days. Longer courses of therapy may be required to cure relapses, osteomyelitis, or meningitis.

**PREVENTION\CONTROL:** Quarantine and test. Disposable gloves, Chlorine, organic iodine, quaternary ammonium compounds are rapid bactericidal agents.

**BIOSAFETY LEVEL:** BL-3 practices recommended for studies using most *Brucella* sp. experimentally.

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