

Bovine Tuberculosis

Bovine Tuberculosis is an infectious granulomatous disease in animals and people caused by acid-fast bacilli of the genus *Mycobacterium bovis*. Although commonly defined as a chronic, debilitating disease, bovine tuberculosis occasionally assumes an acute, rapidly progressive course.

Causes:

Mycobacterium bovis: a Gram positive bacterium, Acid fast, *M. tuberculosis* complex, Persists in the environment, Cold, dark, and moist conditions

Epidemiology and Pathogenesis

- Although bovine tuberculosis was once found worldwide, control programs have eliminated or nearly eliminated this disease from domesticated animals in many countries.
- Most animal species are considered to be spillover hosts.
- Populations of spillover hosts do not maintain *M. bovis* indefinitely in the absence of maintenance hosts, but may transmit the infection between their members (or to other species) for a time.
- Some spillover hosts can become maintenance hosts if their population density is high. Bovine tuberculosis is usually maintained in cattle populations, but a few other species can become reservoir hosts.
- Cattle shed *M. bovis* in respiratory secretions, feces and milk, and sometimes in the urine, vaginal secretions or semen.
- Large numbers of organisms may be shed in the late stages of infection. Asymptomatic and anergic carriers occur.
- In most cases, *M. bovis* is transmitted between cattle in aerosols during close contact. Some animals become infected when they ingest the organism; this route may be particularly important in calves that nurse from infected cows.
- Cutaneous, genital, and congenital infections have been seen but are rare. All infected cattle may not transmit the disease.

Clinical signs in cattle:

1. Develop over months and may become dormant, reactivate
2. Early stage may be asymptomatic
3. Late stage characterized by: Progressive emaciation, Fever, weakness, inappetence, Moist cough, and Enlarged, draining lymph nodes

Clinical signs in other animals:

Cats:

- Weight loss, fever, dehydration, vomiting, diarrhea, dough
- Enlarged lymph nodes, skin infections
- Deformity of forehead/bridge of nose
- Blindness, retinal detachment

Brush-tailed opossums, badgers:

- Pulmonary disease

Post Mortem Lesions:

- **Granulomas (tubercles); Found in lymph nodes and organs.**

Appearance:

- **Yellow**
- **Caseous**
- **Calcified**
- **May resemble abscesses**

Diagnosis:

- **Tuberculin skin test; the procedure of inoculation are:**
 - **Caudal fold**
 - **Comparative cervical**
 - **Single cervical**

Differential Diagnosis:

- Bovine pleuropneumonia
- *Pasteurella*
- *Corynebacterium pyogenes*
- Aspiration pneumonia
- Traumatic pericarditis
- Caseous lymphadenitis
- Melioidosis
- Chronic aberrant liver flukes

Prevention and control:

- Notification of authorities
- Test-and-slaughter
- Eradication in domesticated animals
- Test-and-segregate
- May be used in early stages of eradication by some countries
- Slaughter surveillance
- Cleaning and disinfection
- Vaccines not currently available
- Treatment not advised