



CLOSTRIDIUM PILIFORME (TYZZER'S DISEASE)

CLASSIFICATION

Order: Clostridiales
Family: *Clostridiaceae*
Genus: *Clostridium*

- Gram-negative bacteria
- Filamentous, endospore-forming
- Obligate intracellular organism (cannot be grown on artificial media)
- Rod-shaped
- Anaerobic/microaerophilic
- Some isolates produce cytotoxins

PREVALENCE

Has a wide host range including laboratory, domestic and wild mammalian species.

DIAGNOSIS

ELISA, IFA, Histopathological examination (large intestine, liver – must be collected quickly after death).

Due to antigenic diversity of *C. piliforme*, IFA and ELISA tests may not detect antibodies against all strains of the bacterium.

DISEASE/CLINICAL SIGNS

Most murine infections are inapparent. Disease and/or clinical signs are most often reported in young, immunosuppressed, stressed or overcrowded animals and include:

- Watery diarrhoea
- Lethargy
- Sudden death
- Ruffled fur
- Necrotic foci in intestine, liver, myocardium
- Hypertrophy and inflammation of the ileum
- Mesenteric lymphadenopathy

STRAINS

Different strains have not been officially recognised, but there is some evidence to suggest that several strains do exist.

TRANSMISSION

Oral-faecal (ingestion of spores in faecal matter).

INFORMATION SHEET



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There are no reports of vertical transmission in mice.

Zoonotic infection with *C. piliforme* has been reported in a patient with AIDS.

INTERFERENCE WITH RESEARCH

The effects of infection with *C. piliforme* are varied and include the following:

- Increased mortality
- Alters pharmacokinetics of warfarin and trimethoprim in mice
- Alters serum level of hepatic enzymes
- Increased severity of disease in juvenile mice when neutrophils or NK cells are depleted
- Causes megaloblastic anemia in Sprague-Dawley rats
- Lowers susceptibility to *Y. enterocolitica* induced arthritis

DURABILITY

The vegetative form is extremely susceptible to all conditions outside of the host. The spore form is resistant to:

- Room temperature (for at least one year)
- Formalin
- Temperatures up to 60°C for 30 minutes

Spores appear to be susceptible to:

- 80°C for 30 minutes
- 0.3% sodium hypochlorite
- 0.4% peracetic acid

CONTROL

Maintain regular health monitoring of supplier sub-populations and strict protocols for barrier colonies. Exclude wild rodents from facility. House animals in filter-top cages, avoid overcrowding, sterilize feed and frequently change bedding and cages.

POST INFECTION

Caesarean rederivation can potentially be used to eliminate the organism from an infected colony as vertical transmission has not been demonstrated in mice. Caesarean-derived mice should of course be tested prior to reintroduction into a colony.

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