

# ULCERATIVE LYMPHANGITIS

Dry land Distemper or Pigeon Fever





# Definition

- Ulcerative Lymphangitis is an infectious; mildly contagious disease of horses and cattle caused principally by *Corynebacterium pseudotuberculosis*. It is a lymphangitis of the lower limbs, marked by the presence of nodules and ulcers which discharge green pus. In sheep this agent induces Caseous Lymphadenitis.



# Epidemiology

- **Distribution:** The disease is worldwide in distribution and present in Iraq.
- **Animal susceptibility:** Horses, donkeys and mules.



Nice mule



# Epidemiology


- **Mode of transmission:**

Pus is the main source of infection. The bacteria probably enter via:

- skin wounds including IM injections,
- arthropod vectors such as *Habronema* spp larva and stable flies,
- and contact with fomites such as contaminated grooming equipment.

- 
- **Seasonal incidence:** Autumn and summer,

High environmental temperatures and drought dry conditions precede all reported outbreaks of equine infection.





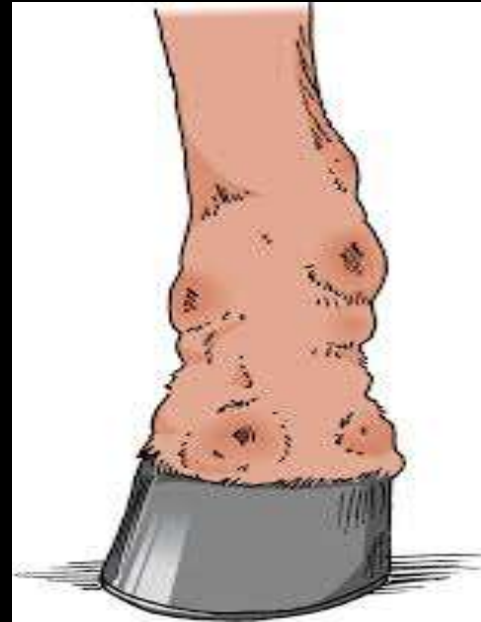
## *Corynebacterium pseudotuberculosis* (*C. ovis*).

\*Soil-borne, gram-positive, bacillus, facultative intracellular, facultative anaerobe, grows in ~48 hours. \*2 biotypes; Biovar equi, multiple strains. Biovar ovis, multiple strains.




# Pathogenesis

- After infection of skin wounds or abrasion--- *C. ovis* multiply and secrete exotoxins----- invade lymphatic vessels( usually of hind limbs starting at fetlock )with abscess formation papules or nodules on the course of lymph vessels-----
- progress toward inguinal region---- abscess rupture result in ulcer and crust and formation of draining tracts, lymph nodes involvement is unusual----- swelling and pain of legs with lameness.



- Abscess formation in muscles of chest and caudal abdominal region may be present.



- 
- Septicemia may result in abortion, renal abscess, debilitation and death.



- The major role of *C. ovis* toxin in natural infection seems to be facilitation of the spread of the causative bacteria by its action as a permeability factor.
- It thus causes marked leakage of plasma from small blood vessels at the site of infection which floods lymphatic spaces and increases the risk of bacteria being carried by lymphatic drainage from the site of infection to regional lymph nodes.
- *C. ovis* toxin is a Phospholipase D which attacks the Sphingomyeline of endothelial cells of blood vessels.

# Human cases

- Although human infection caused by *C. pseudotuberculosis* is a rare event, few cases of human lymphadenitis due to *C. pseudotuberculosis* have been reported in persons with close contact with affected animals.

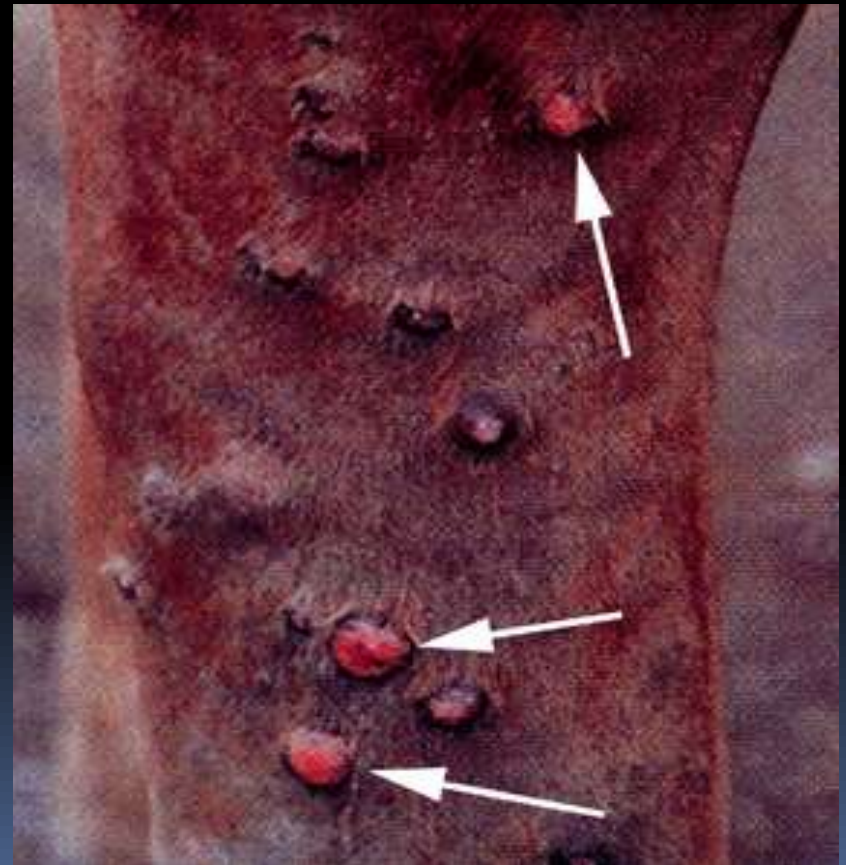
## Clinical signs:

- IP is long, morbidity and mortality are low. Course of the disease is 2-3w up to 12 m.
- The disease is sporadic in nature, although there are endemic areas. There are three forms .

1. The classical External or cutaneous form (Ulcerative Lymphangitis); External or cutaneous abscessation and swelling of the extremities. This type of the disease is recognized by swelling of the legs, usually hind, that pits when pressed with a finger. It is the most common form characterized by severe cellulitis and swelling, that affects the lymph vessels in one or more limbs with multiple ulcerative injuries. Lesions are usually very painful and horses have extreme stiffness or lameness .



# Cutaneous form of UL.



- 2. External abscesses. It presents itself with hard edematous swelling and abscess formation in either the\* **pectoral region of the chest, the inguinal region** (groin) or **\*ventrally in the midline (other sites are possible)**. These swellings become larger as the abscess matures and may cause fever, lameness or depression in the horse. This form of the disease has been shown to cause abscessation in virtually every region of the body, but is primarily seen in those regions listed above.

# Midline of abdomen- ventrally



# Pigeon disease





# External abscess in the pectoral region



Drainage is good.



Larger external abscess...





# Dry land Distemper(DD)



### 3. Internal infectionis (internal abscessation),

Occurs when infection spreads via lymphatic causing the formation of abscesses in other organs. It is the most serious and the most difficult form to diagnose and to treat.


- If your horse is off food and exhibiting signs of fever and not getting better, it is best to do an ultrasound to see if the poor animal has an organ abscess. The most common sites for these abscesses to develop are in the liver, spleen, kidneys, and lungs. About half of the cases with internal abscesses currently have, or have recently had, an external abscess. Others have no history of having an external abscess, but have recently been exposed to another horse that has.



# Treatment:

- Treatment of the external form is directed at assisting the abscess to mature, usually done with hot packs and poultices such as Icthamol. Once the abscess has matured it can then be drained, with special care being taken to collect and properly dispose of the infectious exudates (pus).
- Following drainage, the pocket should be flushed thoroughly and packed if possible. Strict attention to fly control is essential throughout the treatment period and even more so following abscess drainage. Treatment for ulcerative lymphangitis should be aggressive and it's important to note that these horses need to be treated for several weeks.

- They need to be on high levels of NSAIDs for the swelling and pain (Phenylbutazone, analgesic and anti-inflammatory relieves pain and swelling).
- Animal should be treated as soon as possible in an aggressive way with antibiotics, such as Penicillin, Trimethoprim-Sulfa or Gentamicin, to avoid lameness and inflammations in the rest of the extremities.
- In addition, Gentamicin, by itself or in combination with oral Rifampicin, it has a preventive nature Rifampicin is used to prevent relapse.


- 
- General supportive and nursing care is indicated. If treatment is successful, the swelling gradually recedes over days or weeks. Severe or untreated cases often become chronic, and fibrosis and induration of the leg occurs. If caught early, this clears up within 2 months.

# Diagnosis

- samples for direct smears and culture include aseptic aspirates of abscesses, swabs of purulent exudate beneath crusts associated with folliculitis.
- 1. Examination of direct Gram- stained pus smears reveals presence of Gram's positive coryneform rods.



ASM MicrobeLibrary.org © Pfizer Inc.



2. Isolation of *C pseudotuberculosis* from lesions is necessary for confirmation. In all forms of lymphangitis in horses, bacteria are easily grown on ordinary media, needs two-three days for appearance of colonies. Colonies are dull, rough, easily fragmented and not easily emulsified; yellowish- grey in colour, haemolysis is variable according to strain.



B- Haemolytic, dry, yellowish grey colonies

non- haemolytic var.  
*C. pseudotuberculosis*



Gram positive pleomorphic rods swelled extremities and beaded appearance







# Control

- It based on good hygiene in stables, careful disinfection of lower limb injuries or abrasions. Vaccination trials by bacterin-toxoid, fly and rodent control.