



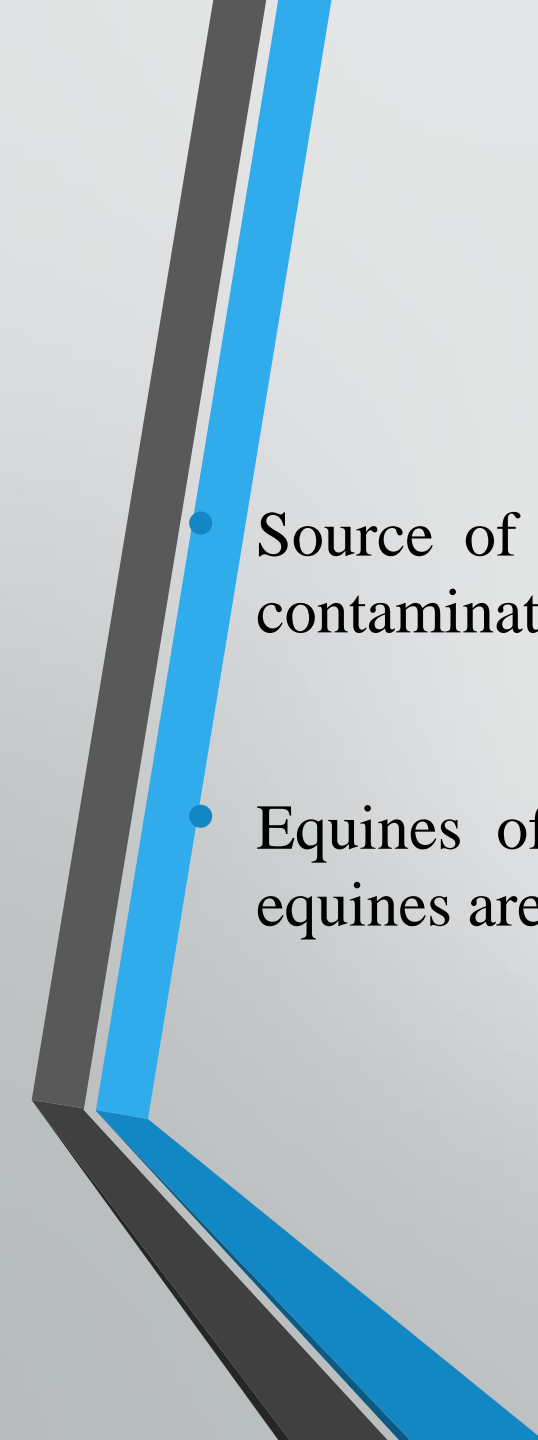
Equine Strangle and Equine Glander

By

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STRANGLES (Equine distemper)

- A Highly contagious infection of upper respiratory tract of horses and other equines caused by a bacterium *Streptococcus equi* .Characterized by severe inflammation of the mucosa of the head and throat, with extensive swelling and often rupture of the lymph nodes, which produces large amounts of thick, creamy pus. Transmission is either by direct or indirect contact of susceptible animals with a diseased horse.

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- Source of infection are nasal discharge or material from the draining abscess contaminates pastures, barns, feed troughs, etc.
 - Equines of any age may contract the disease, although younger and elderly equines are more susceptible

Clinical signs

- Depression, in appetite, and fever of 39°C–39.5°C).
- Horses develop a nasal discharge (initially mucoid, rapidly thickening and purulent), a soft cough and slight but painful swelling between the mandibles, with swelling of the submandibular lymph node.
- Horses are often seen positioning their heads low and extended, so as to relieve the throat and lymph node pain.

- Later, abscesses develop in the submandibular (between the jaw bones) and/or retropharyngeal (at the back of the throat) lymph nodes. The lymph nodes become hard and very painful, and may obstruct breathing ("strangles").
- The lymph node abscesses will burst in 7–14 days, releasing thick pus heavily contaminated with *S. equi*.
- The horse will usually rapidly recover once abscesses have ruptured.

- **Complications of Strangle**
- **Bastard strangles** i. e. dissemination of infection to unusual sites. For example, abdominal or lung lymph nodes may develop abscesses and rupture, as well as a brain abscess.
- **Purpura haemorrhagica**, an immune-mediated acute inflammation of peripheral blood vessels that occurs within 4 weeks of strangles, while the animal is convalescing. It results from the formation of immune complexes. Visible in the mucous membranes as pinpoint haemorrhages. These haemorrhages lead to a widespread severe edema of the head, limbs, and other parts of the body.

Minor, non-fatal complications include:

- Post strangles myocarditis
- Purulent cellulitis
- Laryngeal hemiplegia, which involves paralysis of the throat muscles. It is commonly referred to as "roaring".
- Anaemia

- Guttural pouch empyaema (filled with pus), which may be concurrent with classic strangles, or follow in the immediate convalescent period. The 2 guttural pouches are large mucous sacs; each is a ventral diverticulum of the Eustachian tube.
- Persistent infection in the guttural pouch may lead to inspissation (drying) of pus and, in some cases, the formation of a solid, stone-like, concretion called a chondroid.

LN swell, abscess and rupture either externally through the horse's skin

In **retropharyngeal LN**, usually internally into the guttural pouch. This air-filled sac is an enlargement of the **Eustachian tube** that drains into the nasal cavity.

Drainage of abscess material into the nasal cavity from the guttural pouch contributes to the mucopurulent nasal discharges commonly observed during strangles. Residual pus becomes inspissated to form chondroids

Equine Glander

Definition: Glanders is a contagious bacterial disease affecting primarily equidae (horses, mules and donkeys) and is caused by the bacterium *Burkholderia mallei*. Cats, dogs, goats, camels and bears can also be affected and most importantly, humans (Veterinarians, Butchers, lab workers, Horse handlers) can become infected by contact with infected animals.

Transmission

- The bacteria transmitted to humans

- ✓ Contact with tissues or body fluids of infected animals
- ✓ The bacteria enter the body through cuts or abrasions in the skin
- ✓ Through mucosal surfaces such as the eyes and nose
- ✓ Inhaled via infected aerosols or dust contaminated by infected animals
- ✓ Cases of human-to-human transmission have not been reported

- In animals

- ✓ Direct horse to horse contact also plays a part in transmission between horses with active skin lesions and discharging lymph nodes

Sign and Symptoms in Human

Four forms of infection

1. Localized cutaneous

2. Pulmonary

3. Septicemic

4. Chronic form

Generalized symptoms

Fever, malaise, muscle ache, chest pain

Clinical Signs: Cutaneous

- Incubation period: 1 to 5 days
 - Erythema and ulceration of skin
 - Lymphadenopathy
 - Nodules
 - Along lymph vessels
 - Highly infectious exudate
- Case fatality rate: 20% when treated

Clinical Signs: Pulmonary

- Incubation period: 10 to 14 days
- Inhalation of aerosolized bacteria
- Hematogenous spread to lungs
- Pneumonia, pulmonary abscesses, pleural effusion
The mortality rate in the pulmonary form is 90 to 95% if untreated, and 40% if treated ,

Clinical Signs: Septicemia

- Incubation period: 1 to 5 days
- Any site of infection can lead to sepsis
- Fever, chills, myalgia, chest pain, rash
- Tachycardia, jaundice, photophobia, lacrimation

Clinical Signs: Chronic

- Farcy”
 - Multiple abscesses
 - Muscles, joints, spleen, liver
 - Weight loss
 - Lymphadenopathy

Sign and Symptoms in animals

The course of disease as:

- Acute (usually associated with donkeys) or asses and mules
- Chronic (associated with horses in endemic areas)
- ✓ **Acute form:**
 - High fever, depression, dyspnea, diarrhea & rapid weight loss.
- ✓ **Chronic form:**
 - Nasal form
 - Pulmonary form
 - Cutaneous form

- **Nasal form (Nasal glanders)**

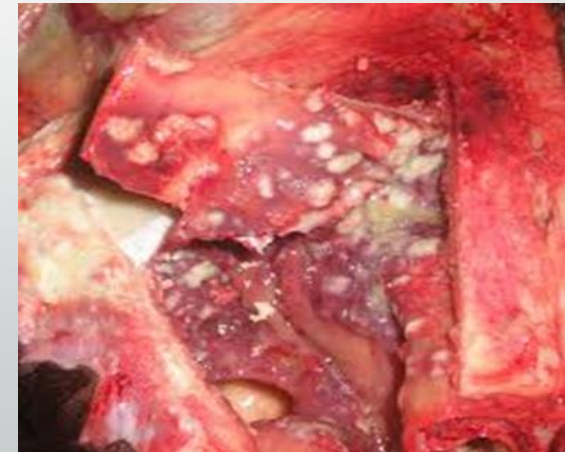
- **Ulceration of mucosa:** one or both the nostril, larynx & trachea
- **Ulcers have:** Grayish center with thick, jagged borders (star shaped)
- A highly infectious, viscous, yellowish-green, mucopurulent discharge is present and this may crust around the nares
- A purulent ocular discharge
- Regional lymph nodes (e.g. **submaxillary**) are enlarged and indurated and may rupture and suppurate; these often will adhere within deeper tissues



Nasal discharge in donkey



Mucopurulent nasal discharge in horse



Nodules and ulcers in the nasal conchae in a horse with glanders at PM

- **Pulmonary form (Pulmonary glanders)**

- Usually requires several months to develop;
- first manifestation: Intermittent fever, dyspnea, paroxysmal coughing or a persistent dry cough accompanied by laboured breathing
- Diarrhea and polyuria: **Progressive loss of condition**
- **Nodules:** Grayish white with red border,
 - Later become calcified & discharge their contents spreading the disease to the upper respiratory tract
 - Surrounded by: grayish, granulated or white fibers
- Occasionally, lesions observed in the liver, spleen & kidneys

Black miliary granulomas (nodules) found in the lung postmortem in a horse with glanders



- **Cutaneous form (Cutaneous glanders)**

- This form is also referred to as '**farcy**'.
- Develops insidiously over an extended period; begins with fever, coughing, enlargement of the lymph nodes, dyspnoea usually associated with periods of exacerbation leading to progressive debilitation
- **Nodules:** Gray center & excrete a thick, oily liquid that encrust the hair
- Nodules appear under the skin along the course of **lymphatics of the legs, ribs & belly**
- Leads to persistent ulcers connected along tortuous, thickened lymphatic vessels
- Upon rupturing: excrete an infectious, purulent discharge



Gross Lesions in Animals

- Ulcers, nodules, stellate scars in upper respiratory
- Pneumonia(Firm rounded miliary nodules)
- Swollen lymph nodes and vessels