University of Mosul
Lecture No.: 4
College of Veterinary Medicine
Date: 2024-2025
Unit of Scientific Affairs
Website:

Lecture title: **Epizootic Lymphangitis**

Lecturer Affiliation: ***Khder J. Hussain Altaee,*** *BVMS, MSc, PhD*
Assist Prof , Department of Internal and Preventive Medicine

Summary:

Synonyms: Equine blastomycosis, Equine histoplasmosis, pseudoglanders or African glanders

It is chronic pygranulomatus contagious disease of horses. Characterized by suppurative lymphangitis and lymphadenitis, ulcers of skin (dermatitis) , ulcerative conjunctivitis with keratitis and pneumonia.

There tree form of disease includes: skin form, ocular form and pulmonary form.

Etiology:

- The infection caused by a dimorphic fungus soil saprophyte, Histoplasma capsulatum var. farciminosum. This organism has also been known as Histoplasma farciminosum.
- The organism has also been classified by the genus name Zymonema, Cryptococcus, Saccharomyces or Blastomyces.
- It is yeast like cells with characteristic double wall capsule, large ovoid or lemon shape, retractile bodies and replicate by budding. It grows on saboured dextrose agar and stain by Claudius stain.

Epidemiology:

- The disease occurs as outbreaks in horses, donkeys and mules in parts of Iran, Asia, India, Northern Africa, and the Mediterranean littoral.
- The susceptible animals are: mainly affects horses, donkeys and mules. It has also been rarely reported in human, camels, cattle and dogs.
- Most outbreaks occur in autumn and winter or when large numbers of horses are gathered together for military or other purposes. The mortality rate is 10-15 %, but the course is prolonged

Predisposing factors:

- Overcrowding, poor ventilation stables, wet and cold weathers and movement of infected horses.

Source and mode of transmission:

Skin lesions and nasal and ocular exudates of infected animals, or the soil act as source of infection.

- Fungal spores are carried from infected animals by direct contact or on bedding, grooming utensils, horse blankets and/ or harness.
- Biting flies in the genera Musca and Stomoxys are thought to spread the **conjunctival form** and **the skin form** mechanically when they feed on lesions and exudates. **Ticks** might be involved in transmission.
- **The pulmonary form**, which is rare, probably develops when an animal inhales the organism

Pathogenesis :

- The fungus invade cutaneous abrasions or wounds result in formation of S/C nodules (granuloma) which abscessed with discharging of thick creamy pus with formation of indolent ulcer
- Spread of infection along lymphatic vessels which become thicking, enlarged and develop nodules along their course (Pearl necklace arrangement) and adjacent lymph nodes are also abscessate.
- Hematogenous spread (yeast cells are present intracellular or extracellular especially of macrophages) with visceral involvement may occurs which result in disturbance in general conditions of the animals.
- Skin lesions are mainly present on head, neck, and limb (mainly hind one which is more exposed to abrasions than forelimb).
-

Clinical finding:

- The incubation period is usually several weeks to 2 months.
- The lesions often occurs on the extremities, chest wall, face and neck.

- The first symptom is a painless, the S/C nodules, approximately 2 cm in diameter.
- This nodule enlarges at portal of entry which rupture discharging **thick creamy pus** with formation of indolent ulcer.
- The skin over the nodules may be fixed to the underlying tissues.
- The surrounding skin is edematous at first, and later becomes thickened, hard and variably painful.
- The regional **lymph nodes can be enlarged**, but **fever is uncommon**. The infection also spreads along the lymphatics, causing **cord–like thickening**.
- The lesion develop mainly on limbs ecepcially hock but may present on the back, vulva, scrotum, occasionally the lesion appear on nasal mucosa due to nibbling of the lesions on the limb and trunk but it lies just inside nostrils and do not **inovlve nasal septum**.
- Sometimes lesion spreads to the underlying joints and results in severe arthritis.
- Ocular involvement manifested by ulcerative conjunctivitis, keratoconjunctivitis, sinusitis,
- Primary pneumonia, with a serous or purulent nasal discharge.
- Sponatenous recovery can occurs and immunity is solid after attack but many animals destroyed (die) because of the chronic nature of the disease.

Necropsy findings:

- Areas of the skin and subcutaneous tissue are thickened
- The regional lymph nodes may be enlarged and inflamed. Nodules in the skin have a thick, fibrous capsule and the affected lymphatic vessels are usually thickened or distended.
- Both nodules and lymphatics contain **purulent exudates**.
- The lungs, spleen, liver, testes and other internal organs may also contain nodules and abscesses.

Clinical pathology and diagnosis:

*__Field diagnosis__: signs as cutaneous nodules, lymphangitis and lymphadenitis with postmortem lesions.

*__Laboratory diagnosis__:

--**Samples**: Pus or exudate from lesions. Fungi die quickly in the samples if there is no antibiotic or refrigeration. Samples should be taken on **solution contain 500 iu/ml penicillin**.

1-Direct staining of smear: In a Gram–stained preparation, H. capsulatum is a Gram positive, pleomorphic, **ovoid to globose** structure that is approximately 2–5 µm in diameter.

2-Culture of the organism: H. capsulatum var farciminosum can be cultured on a variety of fungal media as enriched **Sabouraud's dextrose agar** with 2.5% glycerol. This organism grows as a mycelium at cooler temperatures. These colonies grow slowly and develop in approximately 2 to 8 weeks at 26°C. They are dry, granular, wrinkled and grayish-white, becoming brown as they age. Aerial forms are rare.

3-Serological tests: include fluorescent antibody tests,
enzyme–linked immunosorbent assays (ELISA) and passive hemagglutination.

Differential diagnosis:

Glanders , Ulcerative lymphangitis, and Strangles

Treatment:

1- Early cases (mild cases) are cured by extensive excisions of affected parts followed by local application of **tincture iodine or silver nitrate** with parental injection of **sodium iodine 2.5%** solution I/V. single dose.

2- In severe cases, **sodium iodine** 2 gr. / animal, orally for 2-5 days (side effect severe diarrhea)

3- Affected animals are showed **extensive lesions** are destroyed and buried is advisable.

Control:

1-Application of hygienic precaution or measurement.

2-Vaccination by using formalized aluminium hydroxide absorbed vaccine.