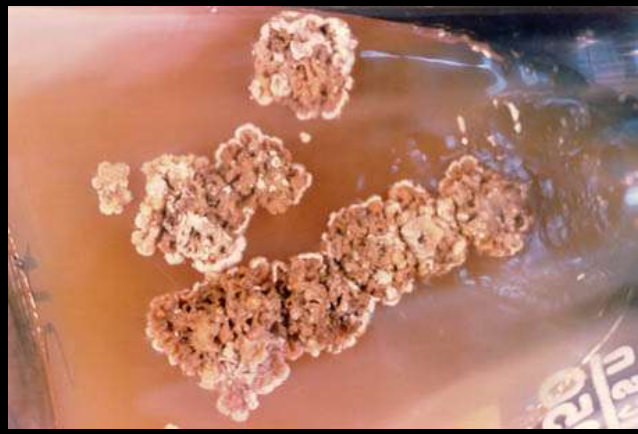
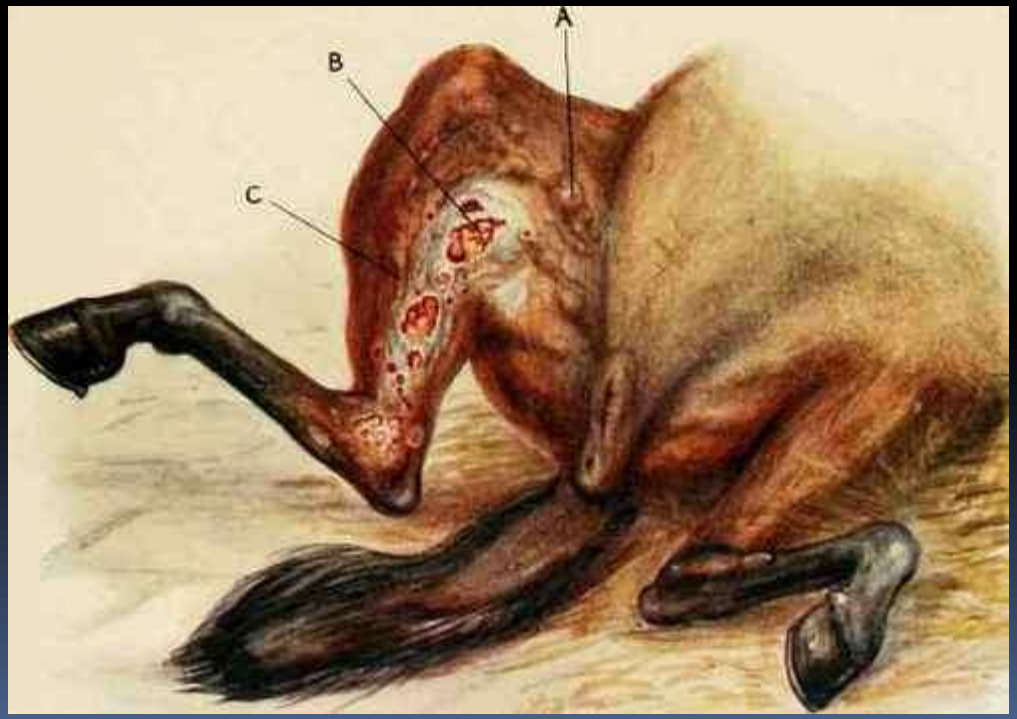
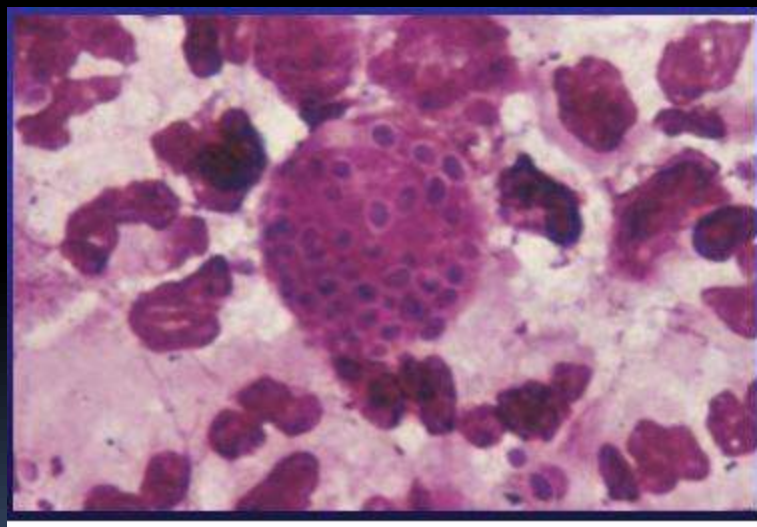
Epizootic Lymphangitis

EPIZOOTIC LYMPHANGITIS







Synonyms

*Pseudoglanders.

*Equine Blastomycosis.

*Equine Histoplasmosis.

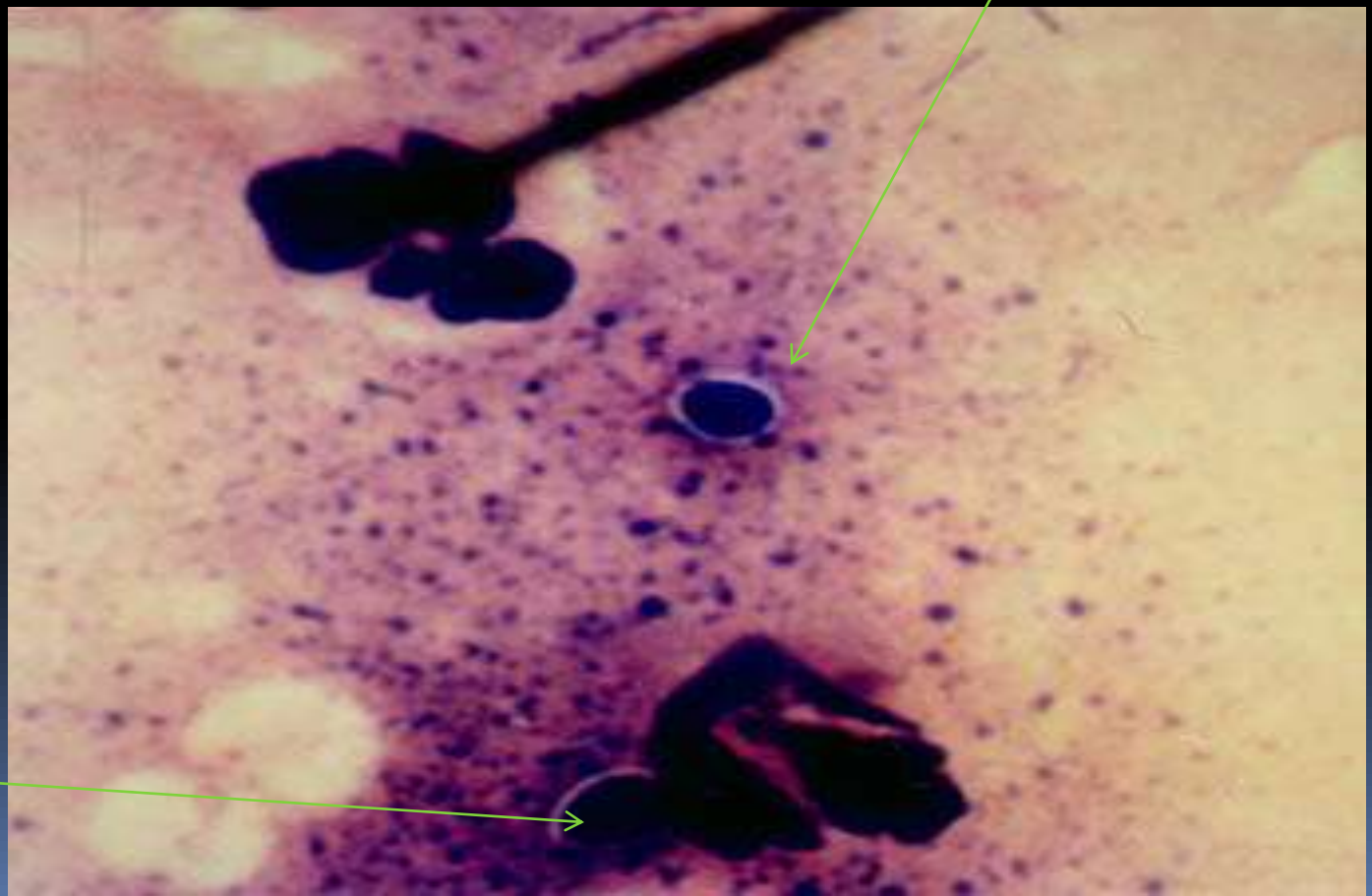
*Equine Cryptococcosis.

*African Farcy.

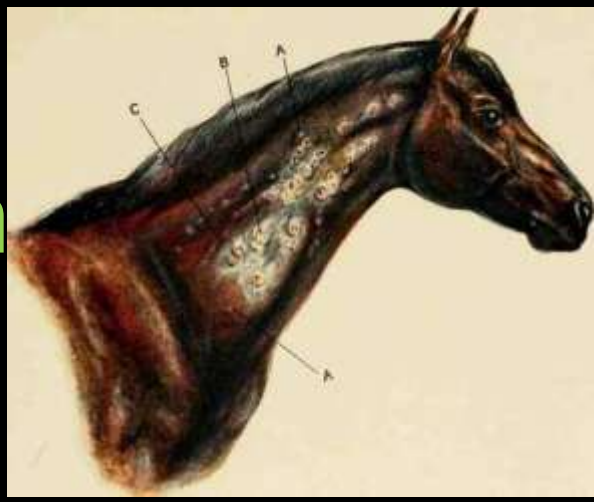
Definition

It is a chronic granulomatous contagious disease of horses and mules caused by the dimorphic fungus *Histoplasma farciminosum* . *(Histoplasma capsulatum* var. *farciminosum)* (HCF)

Gram - stain smear of Histoplasma farciminosum from the nodule of a horse with epizootic lymphangitis



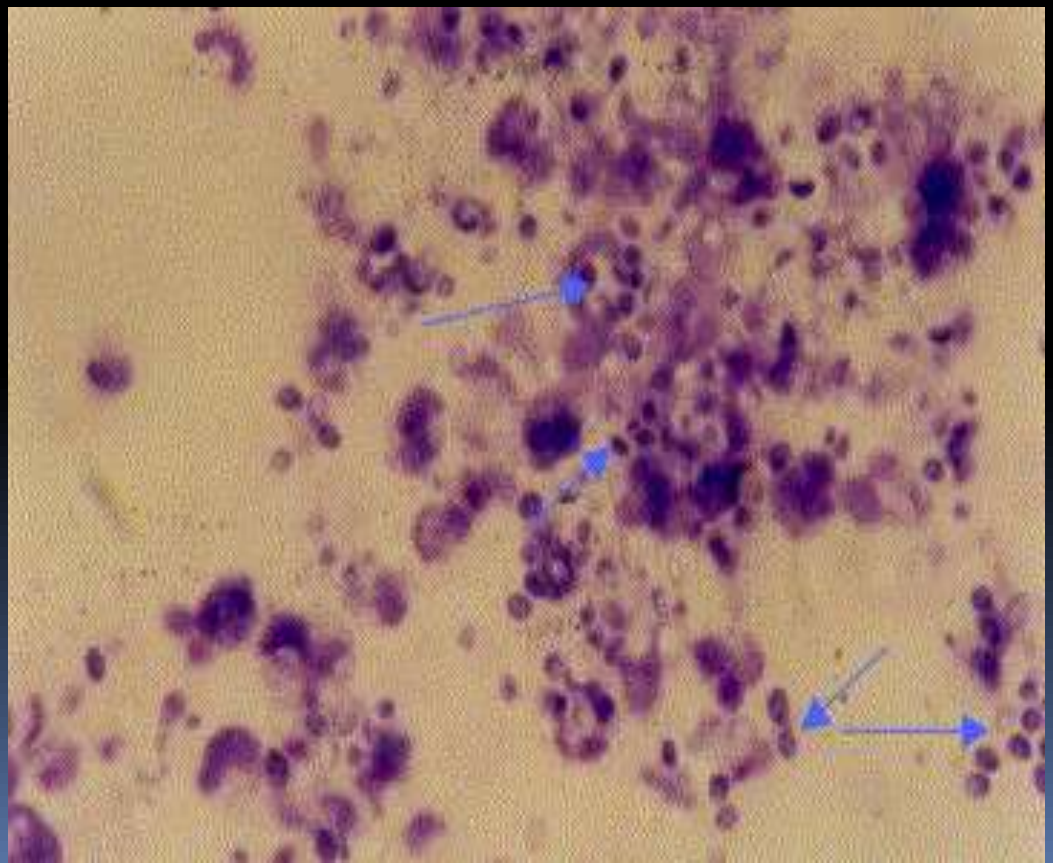
- It is characterized by lymphadenitis and lymphangitis in the skin of the neck and legs; forming ulcerating blisters and eventually leads to death. systemic infection is common with pulmonary and nasal involvement.



Causative agent:

The dimorphic fungus Histoplasma capsulatum var. *farciminosum* (HCF)

Gram positive oval yeasts in pus



Colonies of fungus on culture media

- The fungus forms mycelia in nature and yeast forms in tissues and has a saprophytic phase in soil (that is why dimorphic).

Host range

Horses donkeys and mules. Cattle are susceptible, but seldom contract the disease under natural conditions.

Pathogenesis

- The incubation period ranges from several weeks to six months .
- Following the initial invasion of the skin, the organism spreads through the lymphatic vessels to the regional lymph nodes, and in more advanced cases involves the internal organs .

pathogenesis

- Nodular and chronic suppurating lesions are evident in the skin overlying lymph vessels and Nodes.
- Mucosal lesions confined to the upper respiratory tract and eyes. The nasal infection is usually accompanied by mucopurulent discharge containing large numbers of the fungus.

Clinical Signs

Cases of epizootic lymphangitis can be grouped into four different forms, namely:

- Cutaneous.
- Respiratory.
- Ocular.
- Asymptomatic carriers.

Cutaneous form:

- After which the disease was named, is the most common.
- Indolent (not painful)ulcer develop at the site of entry several weeks to 3 months after infection, an open granulomatous ulcer along the course of a lymphatic vessels, which become cord like and thickened under the skin, Lymph vessels stand out prominently and small hard nodules approximately 1cm in diameter continues to appear on their course (farcy pipe).

- Nodules\rupture discharging thick creamy pus or to undergo alternating periods of discharge and closure for some weeks before healing with residual scar formation.
- Lesions are most common in the forelimbs, the chest wall, vulva, scrotum and the neck. In severe cases, skin over the entire body may be affected.

Cutaneous form

- The neighboring glands are swollen and hard. The ulcers heal with difficulty, even under treatment, and they may break out again after an apparent cure. Gradually the animal becomes thin and loses weight.

Chronic debilitating form of EZL in Sudan

- Ocular form: Manifested as keratitis and conjunctivitis, The disease may start as lesion in the conjunctiva or nictitating membrane. Producing first a small papule and serous conjunctival discharge, later they ulcerate producing flat button-like growth of granulation tissue. Eyes become extensively swollen.

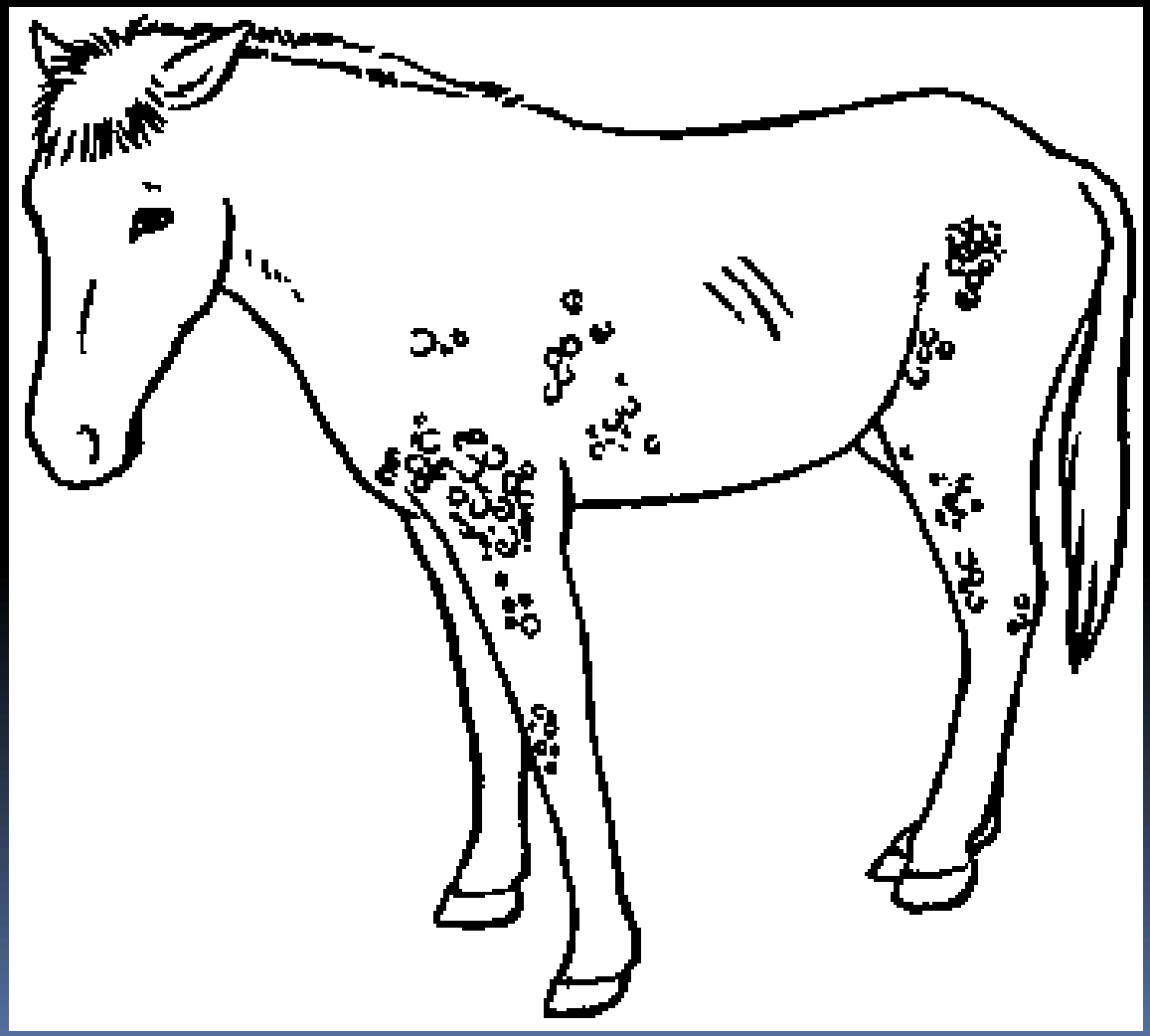
Ocular form

Nasal and Respiratory form: The respiratory form of the disease is characterised by lesions which are mostly confined to the upper respiratory tract. This form usually occurs as a late development in the cutaneous form of the disease .

- yellowish papules or nodular lesions and ulcers may occasionally appear on nostrils, external nares and the nasal mucosa just inside the nostrils without involving the nasal septum. These lesions usually bleeds easily and may be seen in the lungs

- Asymptomatic carriers can be identified clinically by the identification of fibro-calcific skin lesions at previous sites of infection positive reactions to serological tests

Most common sites for lesions



EZL Affecting the brisket region of a donkey in Ethiopia.

Spread of the disease

- *H. farciminosum* is introduced via open wounds. Transmission generally involves direct or indirect infection of wounds by flies contaminated by feeding on the open wounds of infected animals. (The organism has been isolated from the gastrointestinal tract of flies.
- Use of contaminated grooming equipment or tack. It can remain infective in soil for up to 15 days.

Control

- Elimination of the infection. This is achieved by culling infected horses and application of strict hygiene practices to prevent spread of the organism.
- Vaccination has been utilized on a limited scale in areas where enzootic lymphangitis is endemic, e.g. Iraq, but is not authorized for widespread use.

Treatment

There is no effective treatment.

- Clean abscesses with iodine solution, with intravenous dosing of iodide; this type of treatment is a satisfactory procedure, particularly in endemic areas.

The intravenous. injection of 100 ml of sodium iodide of a 10% solution, repeated weekly for four weeks, gives good results.

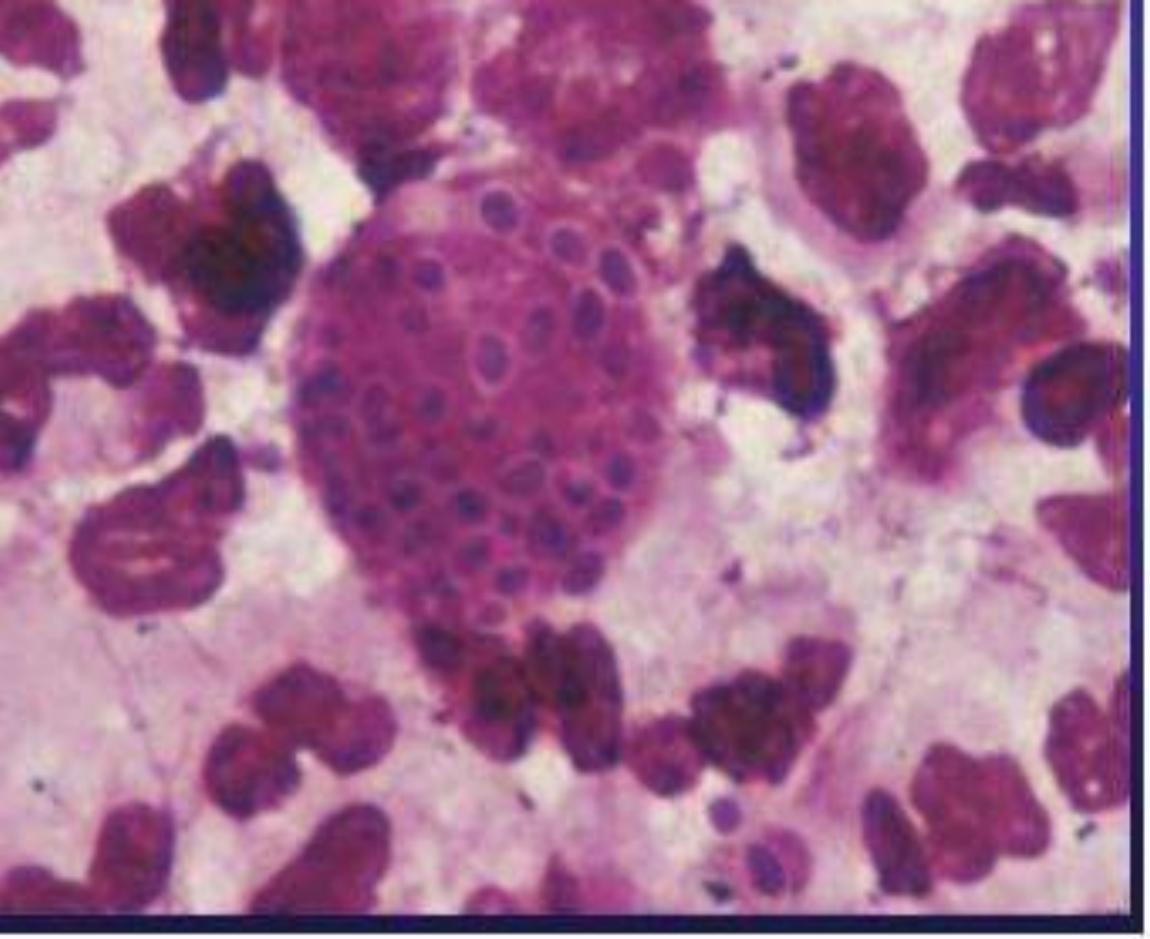
Treatment

- antifungal drugs (amphotericin B): Intravenous injection of amphotericin B at a dose of 0.2 mg/kg body weight three times on alternate days.
- Surgical excision of lesions or the scabs are removed and the areas cleaned daily with an iodine solution for seven days. The lesions should heal fully within four weeks.

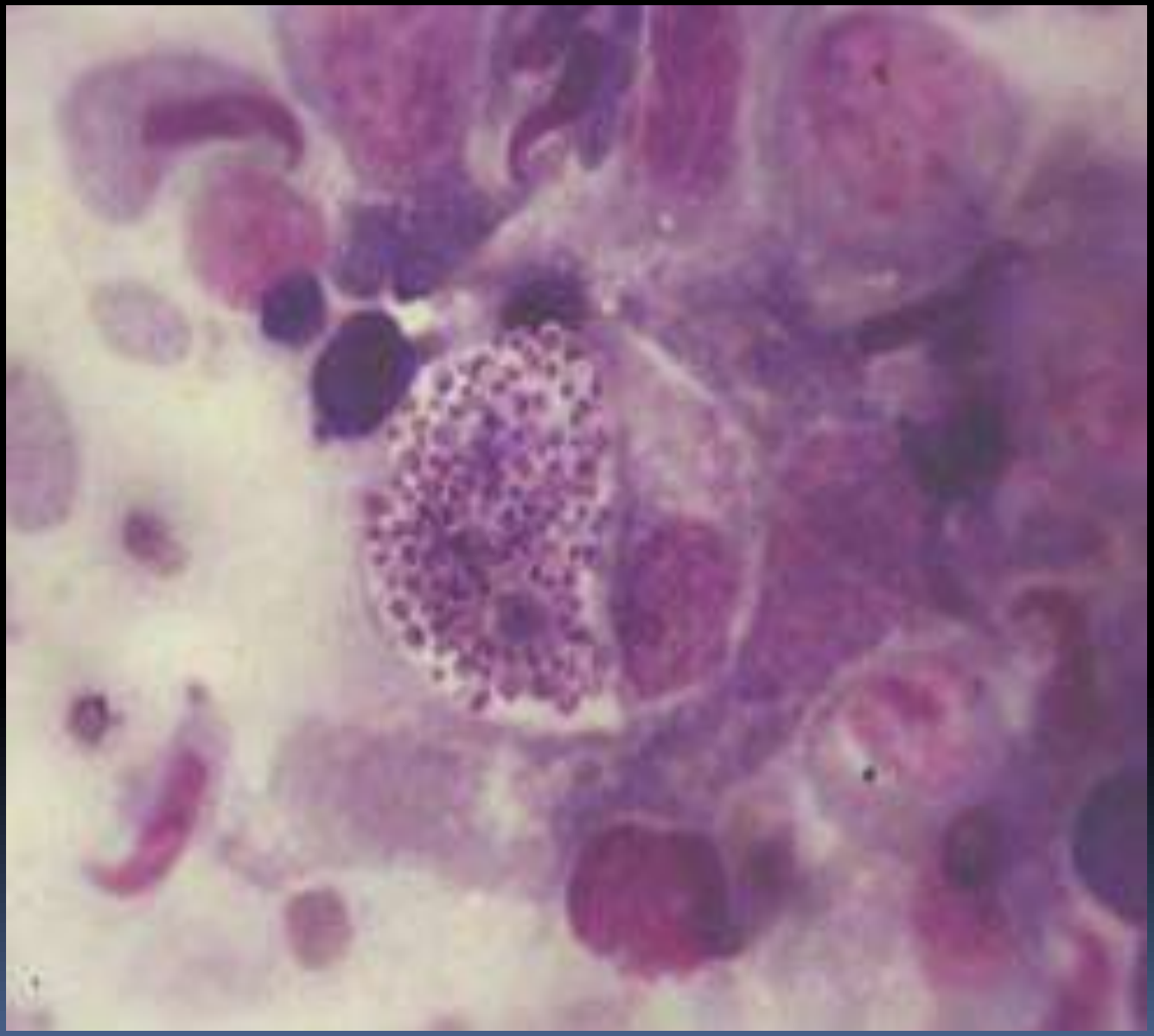
Diagnosis

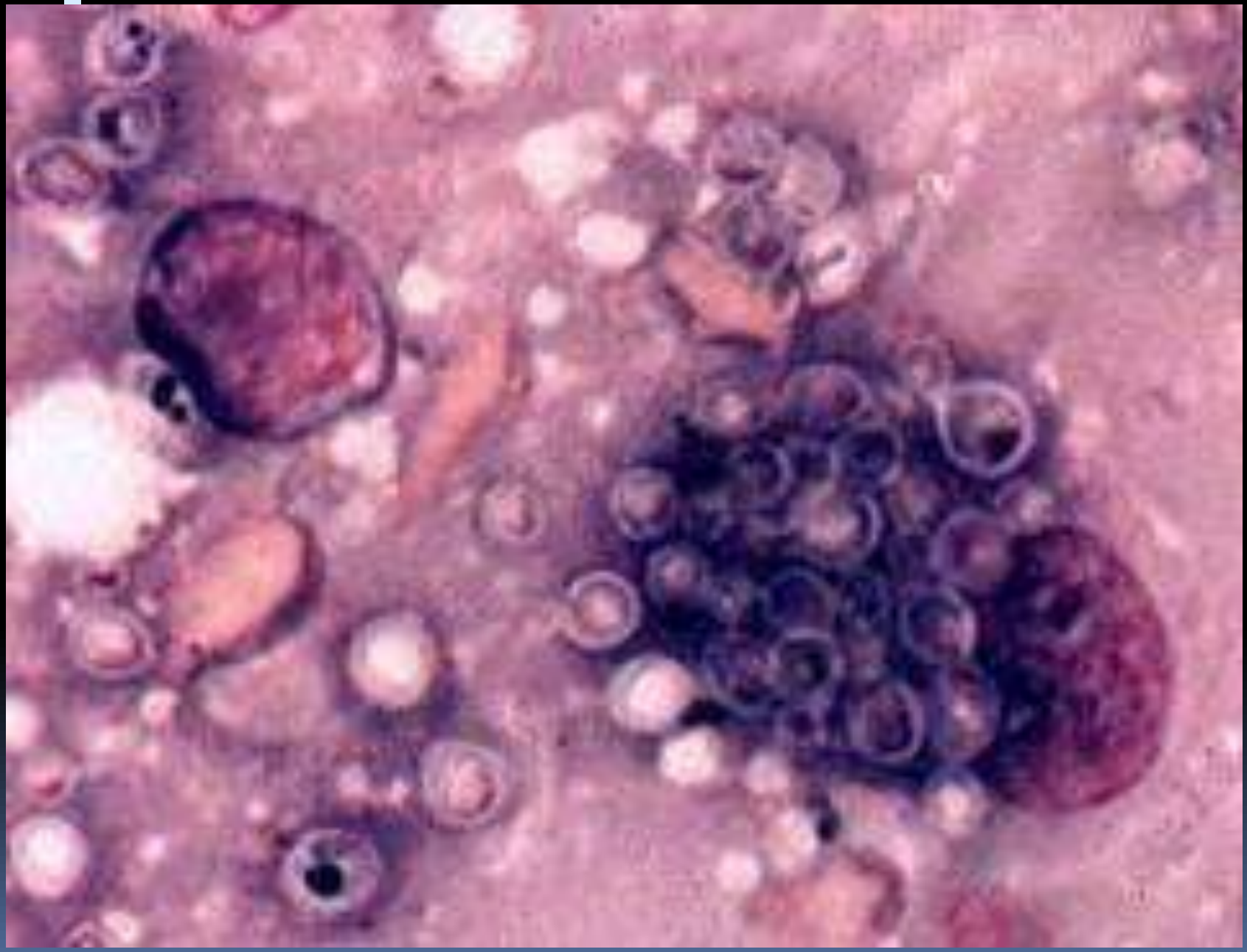
Sample :pus from an unopened nodule aseptically collected; if just ulcers are present swabs are deeply collected from the area.

Direct smear: Prepared from pus stained with Gram stain reveals large number of almond – like, oval to ovoid gram positive yeast . freely scattered in the field or mostly found inside the cytoplasm of giant macrophages. Yeasts are surrounded by a double contoured wall appearing as unstained structures. This is diagnostic for EZL. Culture is difficult and needs weeks of incubation and may fail



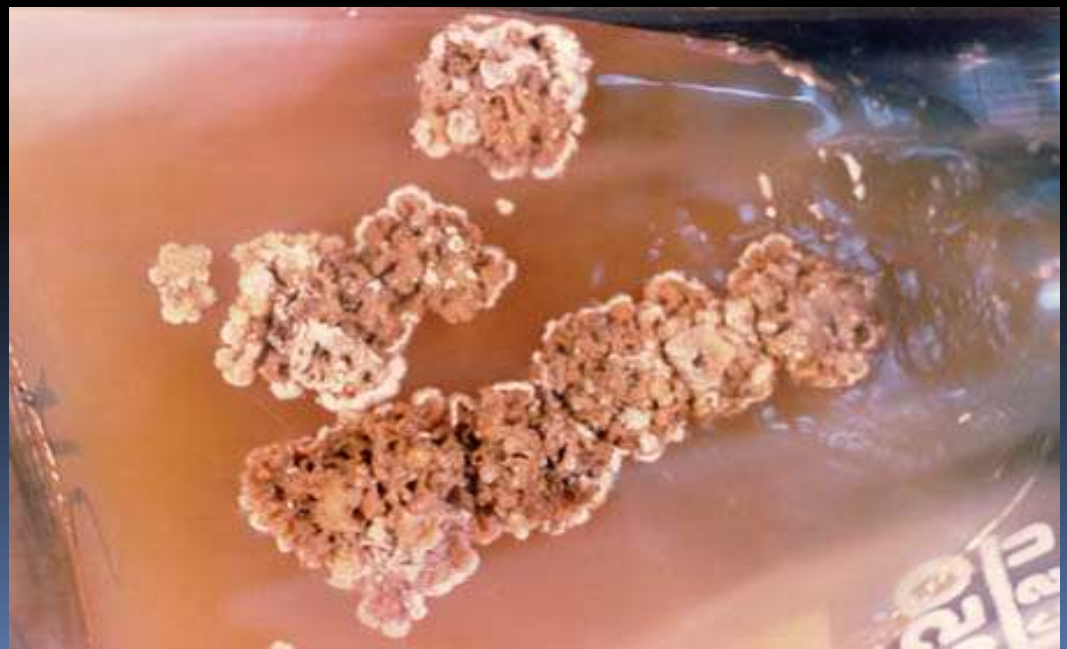
Yeast form of H. farciminosum inside giant macrophage. Notice Gram positive oval or ovoid yeasts bodies with double contoured wall appearin as a clear area surrounding the yeasts..





Colony morphology

- . Raised, rough edges, lighter in colour at periphery, adherent colonies of *H. farciminosum* in mycobiotic agar after 42 days incubation at 26 °C.



Diagnosis

- This disease is distinguished from glanders/farcy by the presence of the *Histoplasma* organisms in the pus, and failure of the mallein test to produce a reaction. Both Glanders and epizootic lymphangitis may be present in the same animal. Serology can be used to assist diagnosis.