

***Actinobacillosis (Woody tongue)

It is a chronic granulomatous disease of deeper structure of tongue, oral cavity and adjacent lymph nodes of cattle, small ruminants, horse and man. The disease is characterized by formation of fibrous tissue with chronic suppuration.

Cause :- *Actinobacillus lignieresii* is a small non. motile gram negative bacillus.



Actinobacillus lignieresii affecting submandibular lymph nodes and soft tissues in a cow

Pathogenesis

The organism affects the soft structures and spread through lymphatic to regional lymph nodes. Infection occurs in soft tissue more than bone. Infection occurs through wound infection caused by sharp object like awns. The organism initiates granulomatous inflammation around it beside

diffuse fibrosis leading to enlarged firm tongue (woody tongue). The presence of eosinophilic clubs is due to combination of the product of host reaction and invading organisms

Signs

The tongue may be enlarged and protruded from the mouth

Moreover, anorexia, salivation and abnormal position of tongue are seen. The affected lymph nodes are enlarged.

Lesions

The tongue is the most affected organ besides neighboring lymph nodes of head, gum, palate and pharynx. The tongue is enlarged hard in consistency beside glistening cut surface (woody tongue). Circular or irregular granuloma of about 5cm in size of white, gray or yellowish whites colors and firm in consistency display the normal

structure are seen. In cut section, irregular yellowish granules of 2. 3mm in diameter called sulfur granules are seen. Lesions may be found in the wall of forestomach, skin, liver and lungs.

Microscopically, the granulomata consist of gram negative bacilli in the center surrounded by palisade eosinophilic club shaped structure (Indian club) appearing as rosette

The radiating clubs followed by layer of neutrophils surrounded by epithelioid cells and finally fibrous connective tissue.



Typical appearance of actinobacillosis in cattle. Note the enlarged tongue hanging from the mouth, which will be very firm upon palpation, hence the common name for the disease "wooden tongue."



Actinobacillosis in a cow. Note the characteristic large granulomas embedded in the tongue.

Treatment of respiratory disease in swine involves the use of antibiotics, including penicillin, tetracycline, spectinomycin, cephalosporins



***Actinomycosis (Lumpy jaw)

It is a chronic infectious suppurative granulomatous disease of cattle , but many species may be infected under natural infection. It is characterized by hard , irregular chronic focal suppurative inflammation in the mandible and maxilla.

Cause :-
positive



Actinomyces bovis, a gram.
rod shaped anaerobe
microorganism

Actinomycosis in a cow. Note the typical enlargement of the mandible.

Route of infection :- The infection occurs through wound infection caused by sharp pieces of feed or foreign material. The organism is commonly present in the mouth cavity

Pathogenesis :- Microorganisms gain entry through wound infection caused by sharp object. The microorganisms have affinity toward the hard tissue. The organism initiates granulomatous inflammation around. The presence of eosinophilic clubs is due to combination of the product of host reaction and invading organisms.

If an alveolar periostitis occurs, the infection can easily be transported by the venous or lymphatic circulation, probably within the cytoplasm of the macrophages, into the bone marrow or it may invade the bone marrow by direct contact.

Generalized disease involved hard tissue is recorded in dog.

Lesions:- Hard irregular enlargement of the mandibular and maxillary bones, which give the disease its common name (lumpy jaw) is seen

Enlarged and honeycombed bone is due to destructive rarefaction and regenerative process.

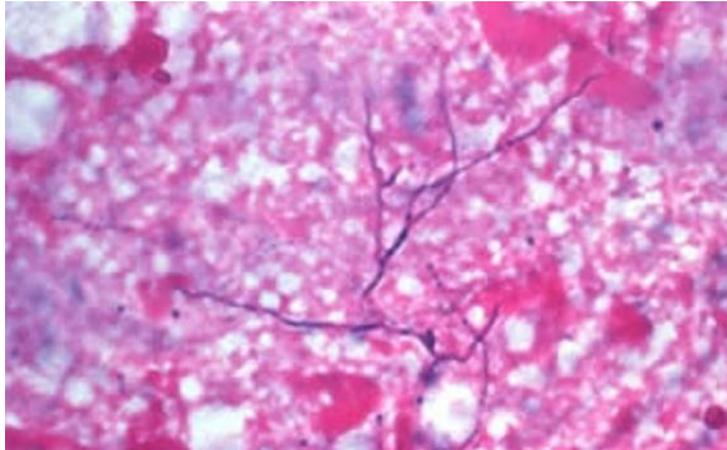
The cut surface is white and glistening results from diffuse fibrous tissue proliferation in which small abscesses are embedded. Sinus tracts may be drainage through skin or oral cavity, yellowish pus containing hard in masses called sulfur granules. Similar lesions may be seen in lungs and lymph nodes.

Microscopically, early lesion shows acute suppurative inflammation with the accumulation of neutrophils. Later on, macrophages, lymphocytes, fibroblasts, and later giant cells appear in the area forming The classic lesion in this case consists of centrally located eosinophilic bacterial colonies surrounded by radiating brightly eosinophilic short clubs

A large number of neutrophils and epithelioid cells followed by layers of giant cells, lymphocytes and plasma cells. Finally the lesion is encircled by thick dense zone of mature fibrous connective tissue. The colonies may become calcified and stained blue.



Lumpy jaw in a Holstein, showing the classic mandibular lesion of suppurative and proliferative osteomyelitis caused by *Actinomyces bovis*



Actinomyces bovis, gram-stained smear, high power. Note the characteristic branching nature of these slender gram-positive rods.



Actinomycosis in cattle, radiograph.