

***Actinomycosis (Lumpy Jaw)***

***ETIOLOGY***

*Actinomyces bovis* is a gram-positive, rod-shaped bacterium of the genus *Actinomyces* the primary cause but other bacteria may be present in extensive lesions including non-bovis *Actinomyces*.

***EPIDEMIOLOGY***

The disease is sporadic but common in cattle. Occasional cases occur in pigs and horses and rarely in goats. *Actinomyces bovis* is a common inhabitant of the bovine. Mouth and infection is presumed to occur through wounds to the buccal mucosa caused by sharp pieces of feed or foreign material. Infection of the alimentary tract wall is probably related to laceration by sharp foreign bodies.

***Mode of infection:***

***Source of infection:*** Pus discharged from the lesions is the main source of infection to susceptible animals.

***Mode of transmission:*** infection is presumed to occur through wounds or abrasions of buccal mucosa by sharp pieces of food or foreign agents or through dental alveoli.

***PATHOGENESIS***

In the jawbones a rarefying osteomyelitis is produced. The lesion is characteristically granulomatous both in this site and where visceral involvement occurs. The effects on the animal are purely physical. Involvement of the jaw causes interference with prehension and mastication, and when the alimentary tract is involved there is physical interference with ruminal movement and digestion, both resulting in partial starvation. Rarely, localization occurs in other organs, caused apparently by hematogenous spread from these primary lesions.

*Clinical signs*

- 1- Actinomycosis of the jaw commences as a painless, bony swelling which appears on the mandible or maxilla, usually at the level of the central molar teeth.
- 2- lesions enlarge rapidly within a few weeks. The swellings are very hard, immovable and, in the later stages, painful to the touch. They usually break through the skin and discharge through one or more openings.
- 3- The discharge of pus is small in amount and consists of sticky, honey-like fluid containing minute, hard, yellow white granules (Sulfur granules).
- 4- In severe cases, spread to contiguous soft tissues may be extensive and involve the muscles and fascia of the throat. Excessive swelling of the maxilla may cause dyspnea. Involvement of the local lymph nodes does not occur.
- 5- The most common form of actinomycosis of soft tissues is involvement of the esophageal groove region, with spread to the lower esophagus and the anterior wall of the reticulum. The syndrome is one of impaired digestion.

*Diagnosis*

- 1- **Field diagnosis:** It depends on history of feeding on sharp objects, chronic nature of the disease and signs of thickening lower edge of mandible
- 2- **Laboratory diagnosis:** Examination of smears prepared from pus or crushed sulfur granules (washing of granules in saline, granules placed on slide in a drop of saline, put cover slip and is crushed by gentle pressure) after staining by gram stain to detect gram positive rods forming slightly branched filaments (in the center of crushed granules).

- 3- X-rays to see rarefying of bone due to severe periostitis with multifocal radiolucencies due to bone rarefaction.

***Differential diagnosis***

- 1- Abscesses of the cheek muscles and throat region
- 2- Bony neoplasm, tooth root infection, bone fractures and bone sinusitis.
- 3- Indigestion caused by visceral actinomycosis is confused with other causes of indigestion.

***Treatment***

- 1- Treatment is with surgical debridement and antibacterial therapy, particularly iodides as detailed under actinobacillosis.
- 2- Repeat cryotherapy with liquid nitrogen is reported to be effective.
- 3- Streptomycin 20mg/Kg I/M for three days with iodide may be indicated but streptomycin with pencillin (22,00 IU/Kg) for 14-30 days have been the drug of choice.