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## Surgical management of bovine actinomycosis in Holstein Friesian crossbred cow: A case report

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### Abstract

A four years old Holstein Friesian crossbred cow presented with the history of hard swelling on the mandibular region with open mouth breathing and excessive salivation. On observation and examination, the case was tentatively diagnosed as Bovine Actinomycosis. Pus was completely drained from the excised cavity and adjunct therapy of broad-spectrum antibiotic was administered intramuscularly for five days as a post-operative measure along with oral administration of potassium iodide. The healing was complete in 20 days with no recurrence and untoward consequences.

**Keywords:** HF crossbred cow, bovine actinomycosis, mandibular abscess

### Introduction

The primary etiologic agent of Bovine actinomycosis or lumpy jaw in cattle is gram-positive, facultative anaerobic, nonspore forming bacterium in the genus *Actinomyces bovis* of the class Actinobacteria. Bovine actinomycosis is an chronic, progressive, pyogranulomatous osteomyelitis disease in cattle causing economic loss because of its widespread occurrence and poor response to the routine clinical treatment (Blowey and Weaver, 1990) [2].

Ray, 1978 [8] reported that, bovine actinomycosis has been noticed from various parts of India. The incidence in cattle is higher where they are fed with straw and ensilage. These feeds injure the buccal mucosa and there by predispose them to infection. *A. bovis* is a symbiotic inhabitant of nasopharyngeal gastrointestinal tract, oral mucosa and female genital tract (Farooq et.al., 2010) [3] that gains access to subcutaneous soft tissue through the abrading and penetrating injury to the buccal mucosa and dental alveoli caused by sharp objects, such as wire or rough grass or sticks. Involvement of adjacent bone frequently results in facial distortion, loose teeth and dyspnoea due to swelling in the nasal cavity. The most common manifestation of this disease in cattle is a rarefying osteomyelitis of the bones of the head, particularly mandible and maxilla, though the rare cases may involve soft tissues, particularly the alimentary tract (Bertone and Rebhum, 1984) [1]. The present communication helps with the successful management of actinomycosis by early detection and treatment.

### History and Diagnosis

In June-2018, a four years old Holstein Friesian crossbred cow was presented at Vellar village of Mettur taluk, Salem district, Tamil Nadu with the history of open mouth breathing and decreased feed intake. On clinical examination, the painless swelling was noticed in inter mandibular region (Fig.1). On fine needle aspiration of swollen site, presence of yellowish pus material was noticed. It was tentatively diagnosed as a case of Actinomycosis. On clinical examination, rectal temperature, pulse rate and respiratory rate were within the normal range.

### Treatment

The surgical intervention site was prepared aseptically for open the abscess. A long incision of nearly 6-7 cm was made to expose the underlying cavity containing pus. The pus having an appearance of yellowish "sulphur granules" was removed. Debridement of the wound was achieved by sharp surgical debridement using scalpel and scissors, followed by mechanical debridement using dry cotton swabs (Farooq et.al., 2010) [3]. The cavity was flushed by using tincture iodine and the abscess cavity was packed with tincture iodine soaked gauze roll. The animal was administered with Injection Penicillin and streptomycin (DICRYST-SH) 5g/day, injection flunixin meglumine (FINADYNE) @ 2mg per kg body weight intramuscular for five days and potassium iodide 10g/day orally for seven days (Radostits *et al.*, 2005) [5].

The wound was dressed daily with tincture iodine until the wound healing complete. The wound was checked after 10 days and healing was evident (Fig. 2). Anamnesis revealed that the healing was complete in 20days.

### Discussion

Treatment of actinomycosis with Streptomycin combined with Potassium Iodide at the rate of 6-10 gm /day orally for 7-10 days have also been found effective (Radostits *et al.*, 2000 and Rajesh Kumar and Archanakumari, 2017) <sup>[6,7]</sup>. Traditional therapy for lumpy jaw includes oral or intravenous dosing of iodides and/or antibiotics such as penicillin and streptomycin but with variable results (Radostits *et al.*, 2005) <sup>[5]</sup>. As like this case study, Gopala Krishna Murhty and Dorairajaan, 2008<sup>[4]</sup> reported that oral administration of Potassium Iodide in combination with Penicillin and Streptomycin or Oxytetracycline antibiotics has also been found effective in treatment of actinomycosis in cows.



**Fig 1:** Madibular swelling on presentation



**Fig 2:** Incised wound healing after 10 days of treatment

### Conclusion

Treatment of actinomycosis / lumpy jaw in field condition can be done by using parental administration of penicillin + streptomycin (DICRYST-SH) antibiotic along with oral potassium iodide and daily cleaning and dressing of wound with iodine solutions revealed effective recovery.

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