



# LUMPY JAW IN A COW AND ITS SUCCESSFUL THERAPEUTIC MANAGEMENT

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Lumpy jaw or actinomycosis is a localized, chronic, progressive, granulomatous abscess that most frequently involves the mandible, the maxillae, or other bony tissues in the head and caused by *Actinomyces bovis* (Militerno, 2008). The Most common manifestation in cattle is rarefying osteomyelitis of the bones of head. In rare cases it may involve soft tissues, particularly the alimentary tract (Bertone and Rebhum, 1984). Involvement of bone frequently results in facial distortion, loose teeth and dyspnoea. Actinomycosis has also been described in goats, sheep, horses, pigs, dogs and humans (Palmer, 1993). Diagnosis is often based on clinical signs and can be confirmed by demonstration of sulphur granules in the purulent material and culture of the organism from the lesion. Various treatment protocol including surgical intervention and antibiotic therapy have been reported with variable levels of success (Brunton *et al.*, 2005). The present paper describes a case of lumpy jaw in a cow confirmed by demonstration of sulphur granules, cultural isolation and identification and successfully treated by surgical debridement and antibacterial therapy.

A four year old Holstein Friesian crossbred cow was presented to the University Veterinary Hospital with a complaint of large swelling on the lower jaw with purulent discharge. The condition was persisting since two weeks and was not showing any improvement by treatment with ceftriaxone for 3 days by the local veterinarian. Clinical examination of the animal revealed an immovable hard swelling at the level of second molar tooth on the lower jaw with opening through the skin discharging purulent material. All the clinical parameters were normal except

slightly elevated temperature. Submandibular lymphnodes were also enlarged. The oral cavity was examined which did not reveal presence of any lesions or foreign bodies. The condition was tentatively diagnosed as actinomycosis.

Purulent material from the lesion was collected in sterile containers and was subjected to direct microscopical and cultural examination. A portion of the purulent discharge from the lesion was mixed with 10 ml normal saline, centrifuged at 3000xg for five minutes to collect the sediment. The smears prepared from the sediment were stained with Gram's stain which revealed characteristic appearance of sulphur granules with Gram positive bacillary organisms in the centre and Gram negative club shaped structures in the periphery (Fig. 1). Presence of typical sulphur granules is considered as confirmative for diagnosis of actinomycosis (Farooq *et al.*, 2010; Iqbal *et al.*, 2012).

Pus material was also inoculated into blood agar in presence of 10 per cent carbon

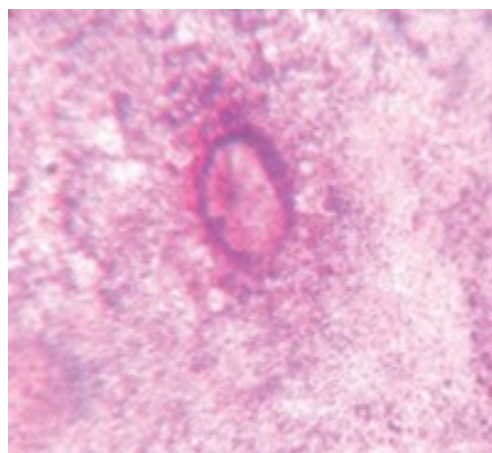


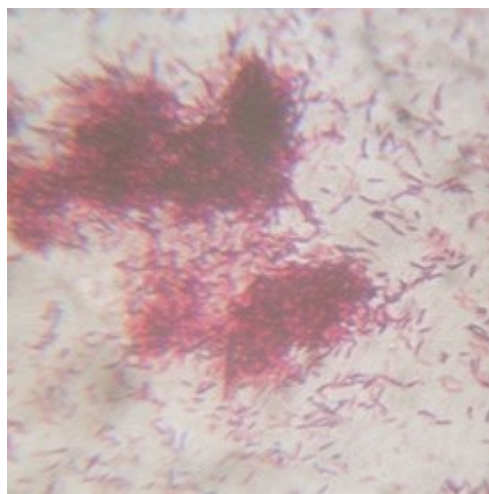
Fig. 1. Sulphur granules



**Fig. 2.** Nonhaemolytic colonies of *A. bovis* in blood agar

dioxide in a candle jar, which yielded non haemolytic greyish white colonies after 24-48 h at 37°C (Fig. 2). Microscopical examination of Gram's stained smears from the culture revealed typical Gram positive branching filaments (Fig. 3). The isolate was nonmotile and non acid fast (Barrow and Feltham, 2004). Antibioqram of the isolate revealed sensitivity to penicillin, streptomycin, enrofloxacin, ciprofloxacin, tetracycline and chloramphenicol and resistance to co-trimoxazole and cephalosporin. Haematological parameters were within the normal ranges.

The case was treated by surgical and mechanical debridement along with antibiotic therapy using penicillin–streptomycin combination (Dicrysticin) and oral potassium iodide @ 8g daily for seven days. Examination after seven days revealed much improvement in the condition and advised treatment with potassium iodide for seven more days. After 30 days the swelling was greatly reduced and animal regained its appetite. The treatment resulted in complete recovery by six weeks with no recurrence and complications. Actinomycosis involving ramus of mandible of a crossbred heifer and its successful treatment with broad spectrum antibiotics was also reported by Iqbal *et al.* (2012). Mehta *et al.* (2012) reported failure of oral treatment with potassium iodide @ 8 g daily for eight days in a Jersey cross bull and subsequent recovery by treatment with sodium iodide @ 30g intravenously twice at an interval of eight days along with antibiotics, anti-inflammatory and B complex vitamins. The combination of oral or



**Fig. 3.** Gram positive rods of *A. bovis* from culture

intravenous iodides and antibiotic penicillin–streptomycin was proved to be effective in this case as suggested by Radostits *et al.* (2007) and Brunton (2005). Because *A. bovis* is part of the normal oral flora in ruminants, control focuses on avoiding coarse, stemmy feeds or feeds with plant awns that might damage the mucosal epithelium.

### Summary

A clinical case of lumpy jaw in a cow confirmed by demonstration of sulphur granules, cultural isolation and identification and its successful treatment by surgical debridement and antibacterial therapy is discussed

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