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Clinical management of actinomycosis in bovines

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Abstract

Actinomycosis has been recorded 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. Field level successful treatment of actinomycosis in cattle can be done by parental administration of Penicillin in combination with Streptomycin along with oral administration of Potassium Iodide and daily dressing of local wound with Providone Iodine.

Keywords: Clinical, Management, Actinomycosis, Bovines

Introduction

Actinomycosis is a chronic infectious, inflammatory disease caused by *Actinomycesbovis* in cattle and *A.israelii* in humans, characterized by lumpy, often suppurating tumors, draining sinuses that discharge “sulfur granules”. (Victoria Cirillo-Hyland *et.al.*, 1993) [8]. The condition is also called as “lumpy jaw” in cattle and was first time described by LeBlanc in 1826 (Joyce, T M, 1938) [2]. Lumpy jaw occurs in cattle throughout the world. The diseases affect all breeds, age, and sex of cattle. Usually only a small percentage of animals are affected at any one time. Lumpy jaw is a chronic, progressive, indurated, granulomatous, suppurative abscess that most frequently involves the mandible, the maxillae, or other bony tissues in the head. *A.bovis* is the etiologic agent of lumpy jaw in cattle. Actinomycosesspp are normal flora of the oral and nasopharyngeal mucous membranes. Actinomyces are gram-positive, non-acid-fast rods, many of which are filamentous or branching.

Actinomycosis has been recorded from various parts of India (Ray, 1978) [7]. 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 introduced to underlying soft tissue, via penetrating wounds of the oral mucosa. Actinomycosis in cattle is manifested by chronic osteomyelitis and rarefaction of the bones particularly of the mandible and maxilla results in facial distortion, loose teeth that finally leads to serious impairment in feeding. But, serologically and clinically positive case of pulmonary actinomycosis of cattle has also been recorded (Biever *et al.*, 1969) [1].

Diagnosis can be based on clinical signs alone, but demonstration of gram-positive rods in yellowish “sulfur granules” from aspirated purulent material, as well as bacteriologic culture and histopathology, are confirmatory. The organism appears as long filaments, rods, and cocci in exudate from active lesions.

Case History and Observation

Six cases of cattle (four female & two male) and two buffaloes aged 4-8 years were found suspected to suffering with actinomycosis. They have developed hard, painless, diffused swelling of the jaw and throat regions with unusual mastication. Clinical examination of the animals revealed the involvement of soft tissues with yellowish pus discharge containing sulfur granules. The animals were examined as suspected cases of actinomycosis needing further investigation. The site of lesions was cleaned and fluid was collected using sterilized syringes. The fluid was immediately transferred into sterilized tubes for investigation of the causative organism. Microscopic examination of the smears prepared from the collected fluid revealed gram positive bacteria with branching filaments. Both the clinical and microscopic examinations confirm the presence of *Actinomycesbovis*.

Treatment and Discussion

Actinomycesbovis found sensitive to Penicillin, Streptomycin, Tetracycline, Bacitracin, Cloxacilin and Co-trimoxazole. Dicrystin- DS has also recorded sensitive (Gopal Krishna Murthy and Dorairajan, 2008) [3]. The affected animals were treated with injection penicillin along with Streptomycin Sulphate at the rate of 10 mg / kg body weight (Dicrystin-S,) daily along with Potassium Iodide 10 gram orally daily for 7 to 10 days.

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Local dressing with Povidone Iodine (Betadine, Wine-Medicare pvt. ltd.) of the wounds in the mandible region was done daily till the local healing of wounds was completed. Five animals get cured in 7 days. However in two animals for complete recovery, treatment was continuing for 10 days. One animal died due to progressive anorexia & emaciation, it may be due to difficulty in mastication. Treatment of actinomycosis with Streptomycin combined with Potassium Iodide at the rate of 6-10 gm /day orally for 7-10 days (Radostits *et al.*, 2000)^[6] have also been found effective. Oral administration of Potassium Iodide in combination with Penicillin and Streptomycin or Oxytetracycline has also been found effective in treatment of actinomycosis in cows (Pal *et al.*, 1994, Hussain 2006 and Gopala Krishna Murthy and Dorairajan, 2008)^[5, 4, 3].

Conclusion

Based upon this study, it could be concluded that in field level successful treatment of actinomycosis in cattle can be done by parental administration of Penicillin in combination with Streptomycin along with oral administration of Potassium Iodide and daily dressing of local wound with Povidone Iodine.

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