

CASEOUS LYMPHADENITIS IN BEETAL GOATS AT AN ORGANIZED FARM

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ABSTRACT

Caseous lymphadenitis caused by *Corynebacterium pseudotuberculosis* is a common disease of small ruminants. Twelve cases of this disease were recorded at an organized goat farm that had a total strength of 70 animals. *C. pseudotuberculosis* was isolated from these cases which was confirmed on the basis of biochemical and sugar fermentation tests. Antimicrobial sensitivity pattern revealed that the organisms were sensitive to ciprofloxacin, cephalexin, enrofloxacin, oxytetracycline, cotrimoxazole, cephalothin and tetracycline. Resistance to streptomycin, norfloxacin, oxacillin and nitrofurantion was observed while chloramphenicol and ampicillin gave the intermediate sensitivity. The affected animals were treated with antimicrobials and supportive therapy in recommended doses. The pus material from the abscess area was drained with the care that the material did not soil the bedding or floor of the farm.

Key words: Caseous lymphadenitis, Beetal goats

Caseous lymphadenitis (CLA), caused by *Corynebacterium pseudotuberculosis*, is a chronic contagious disease affecting mainly sheep and goats. The disease is worldwide in nature and is transmitted mainly through contamination of superficial wounds. The ability of the organism to survive in the animal's environment for several weeks contributes to its ability to spread within a flock. Economic losses result mostly from condemnation of infected carcasses and devaluation of hides. The objective of this study was to report this disease at an organized Beetal goat farm in Bathinda district of Punjab state.

MATERIALS AND METHODS

The present study was carried out at an organized Beetal goat farm from January to December, 2010. At this farm, semi-intensive management system was practiced; the animals were allowed to graze during the day for 4-8 h and housed in an enclosed shed during night. Cases with high fever, anorexia, anemia, and palpable enlargements of one or more of the superficial lymphnodes were observed. Tentatively, these cases were diagnosed as that of CLA. The pus samples and aspirates of lymphnodes were collected in nutrient broth for bacterial isolation.

Bacteriological investigations: Primary isolation was attempted on sheep blood agar plates by streaking a drop of nutrient broth with bacterial growth. The

plates after inoculation were incubated at 37°C for 24-48 h. Identification and confirmation of the organism was done on the basis of morphological, biochemical and sugar fermentation tests. The organisms were Gram stained and observed to study Gram's reaction, shape and arrangement. The biochemical tests included nitrate reduction, catalase and urease. Sugar fermentation reaction was also carried out with glucose, maltose, mannose and sucrose.

Antimicrobial sensitivity pattern: Antimicrobial sensitivity pattern of the organisms was determined by modified Kirby-Bauer method (Carter, 1973) on Mueller Hinton Agar (MHA) plates. The antimicrobial discs (Hi Media) used were chloramphenicol (30 mcg), enrofloxacin (10 mcg), oxytetracycline (30 mcg), cotrimoxazole (25 mcg), ciprofloxacin (10 mcg), streptomycin (10 mcg), cephalexin (30 mcg), cephalothin (30 mcg), ampicillin (25 mcg), norfloxacin (10 mcg), oxacillin (1 mcg), nitrofurantoin (100 mcg) and tetracycline (30 mcg). The diameter of the zone of inhibition was measured and results were interpreted as per the zone of inhibition size chart supplied by the manufacturer.

RESULTS AND DISCUSSION

The goat farm had a total strength of 70 animals and during the year 2010, 12 cases of CLA were observed. The most common clinical findings in the affected animals were enlargement of superficial lymphnodes i.e. mandibular, prescapular, prefemoral

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and supramammary lymphnodes. The enlarged lymphnodes ruptured and exposed tough fibrous capsule discharging thick greenish pus. In addition to lymphnode enlargement, the affected animals had high fever, anorexia, emaciation, pneumonia which was followed by death in severe cases. The clinical signs like pneumonia, arthritis and mastitis were also observed in a few animals in this study. Ghanbarpour and Khaleghiyani (2005) and Sharpe *et al.* (2010) also reported the cases of CLA in goats with more or less similar findings.

The organisms were isolated on inoculation of pus material on blood agar plates. Medium sized, creamy white colonies appeared on incubation of these plates at 37°C for 24 h. These colonies were surrounded by a narrow zone of hemolysis following 48 h of incubation. Gram staining of smears showed Gram positive cocci and coccobacilli in groups, pairs as well as singly. The organisms were confirmed as *C. pseudotuberculosis* by biochemical characterization and sugar fermentation tests. The organisms were catalase and urease positive and nitrate negative. The absence of nitrate reduction by isolates in this study was consistent with previous reports with biovar ovis in sheep and goats (Paton *et al.*, 2004; Connor *et al.*, 2007). The organisms were able to ferment the glucose, mannose and maltose but not the sucrose. The results of sugar fermentation of this study are in accordance with the findings of earlier workers (Barksdale *et al.*, 1981; Muckle and Gyles, 1982).

The antibiogram revealed that the organism were sensitive to ciprofloxacin, cephalexin, enrofloxacin, oxytetracycline, cotrimoxazole, cephalothin and tetracycline. Resistance to streptomycin, norfloxacin, oxacillin and nitrofurantion was observed while chloramphenicol and ampicillin gave the intermediate sensitivity. Varied sensitivity of *C. pseudotuberculosis* to different antimicrobials has been reported earlier (Muckle and Gyles, 1982; Skalka *et al.*, 1998; Connor *et al.*, 2007). In a study, Garg *et al.* (1985) reported that strains of *C. pseudotuberculosis* were strongly resistant to penicillin but susceptible to neomycin.

The infection appeared to proliferate on contact of infected animals/fomites with the farm animals due to semi-intensive farming. It has been reported that the infection spreads due to congregation of large number of susceptible animals in a defined area. The organism can survive for a longer duration in the soil (Augustine and Renshaw, 1986). Infection of abrasions and wounds with pus containing the organisms or with contaminated soil would lead to infection in healthy population. The chronic and often sub-clinical nature of the disease

makes it difficult to control and prevent the disease fully, which in turn leads to considerable economic losses to the farmers (Baird and Fontaine, 2007). Control of the spread of CLA is of utmost importance to ensure healthy marketable animals. To control and prevent the disease, various types of approaches can be made like medicinal/surgical treatment, culling and vaccination etc. In this study, we drained the pus after giving an incision at lower part of the abscess area with the care that the pus material from infected lymph nodes/abscess area was collected and disposed it off as biologic waste. The pus material was not allowed to drain into bedding or soil. The affected animals were also treated with antimicrobials based on sensitivity pattern along with supportive therapy in recommended doses for 4-6 days.

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