Molecular Diagnosis and Management of Goat Pox In Tellicherry Goats

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Abstract

25 Tellicherry goats were observed suddenly with bilateral nasal discharge, respiratory distress, nodular eruptions, papule like hard swelling, erythematous lesion in ear pinna and also perianal region. Three goats died and were sent for post mortem examination. The post mortem examination findings and molecular diagnosis confirmed Goat pox antigen with secondary bacterial infection. Bacterial isolation revealed gram negative rods and their antibiotic sensitivity reveals sensitive to Enrofloxacin and Ciprofloxacin. Goats were treated with Enrofloxacin, Meloxicam and supportive therapy for 5 days with no further mortality in ailing animals. All goats recovered completely after 7 days of therapy.

Keywords: Goat pox; management; Tellicherry goat

Introduction

Small ruminant farming is an important agri based activities in India and plays a significant role in the economy and nutrition of landless, small and marginal farmers in the country. Capripox is caused by strains of capripoxvirus of Poxviridae family and produces a characteristic clinical disease in fully susceptible breeds of sheep and goats. Some strains are equally pathogenic in both sheep and goats. Sources of virus include cutaneous lesions, saliva, nasal secretions and faeces (Bhanuprakash et al., 2011). The present study describes the incidence, diagnosis and management of Goat pox infection in Tellicherry goats.

History and Clinical observations

A group (25) of female Tellicherry goats were observed suddenly with bilateral nasal discharge, respiratory distress, nodular eruptions, papule like hard swelling of 1 cm diameter, erythematous lesion in ear pinna and also perianal region. Out of which, three goats died and were sent to post mortem examination. The post mortem results were general body condition of carcass was poor, both lips were thickened with nodular eruptions, alopecia with erythematous lesions in ear pinna, below tail and perianal region. Tracheal mucosa was filled with frothy fluid and congested, lungs showed consolidation and emphysematous changes. Heart blood swab and organs like lung, liver, spleen were collected and sent to Central University Laboratory (CUL), TANUVAS for bacterial, fungal isolation and viral antigen detection studies.

Diagnosis and Treatment

Goat pox antigen was detected from necropsy tissues by PCR-restriction fragment length polymorphism (RFLP). Bacterial isolation revealed gram negative rods and their antibiotic sensitivity reveals sensitive to Enrofloxacin and Ciprofloxacin, intermediate to Gentamicin, Cefotaxime, Norfloxacin and Ceftriaxone, resistant to Sulfamethazole, Penicillin G, Tetracycline, Doxycyclin and Amoxicillin. Ailing 22 goats with similar clinical presentation were treated with Inj. Enrofloxacin (QuinIntas®) @ 5mg/kg b. wt i.v, Inj. Meloxicam (Melonex®) @ 0.5 mg/kg b. wt i.v Inj. Chlorphenra-ramine maleate a total dose of 2ml i.m and Inj. Tribivet® (Thiamine, Pyridoxine and Cyanocobalamin) 2ml IM for 5 days no further mortality in ailing animals with recovered completely after 7 days of therapy.

Discussion

Incidence of goat pox virus was investigated in the present study. Clinical and post-mortem
findings were highly suggestive of goat pox virus as the causative agent. The results of PCR-RFLP further confirmed that death was due to infection with goat pox virus. Polymerase chain reaction (PCR) assays can detect capripoxvirus genomes in tissue samples or cultures, but cannot identify whether the virus is Sheep Pox Virus or Goat Pox Virus. However, these two viruses can be distinguished if PCR is combined with a restriction fragment length polymorphism (RFLP) assay (Hosamani et al., 2004).

In the present study, severity of disease was high, severe generalized pock lesions were observed over cutaneous surface and particularly in lungs of affected animals is characteristic of goat pox infection (Venkatesan et al., 2010). In affected animals there is an initial rise in rectal temperature to above 40°C, followed in 2-5 days by development of macules (small circumscribed areas of hyperaemia) which are most obvious on unpigmented skin and then of papules (hard swellings of between 0.5 and 1 cm in diameter) which may cover body or be restricted to groin, axilla and perineum. As papules on mucous membranes of eyes and nose ulcerate, so discharge becomes mucopurulent and mucosa of mouth, anus and prepuce or vagina become necrotic. Breathing may become laboured and noisy due to pressure on upper respiratory tract from swollen retropharyngeal lymph nodes, due to developing lung lesions. The skin lesions are susceptible to fly strike and secondary pneumonia is common (Mondal et al., 2004).

Invariably there is high mortality in unprotected imported breeds of sheep and goats following capripox virus infection (Babiuk et al., 2008).

Bacterial organisms like Pasteurella sp and Klebsiella sp. has been frequently recovered as an opportunist or secondary invader in immunosuppressed and stressed animals. These organisms enhance the severity of infection by favoring tissue damage. Suitable antibacterial therapy is always followed to lower mortality pattern associated with goat pox infection (Rao and Bandyopadhyay, 2000).

References


