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Muksha Kini MA

Department of Veterinary
Epidemiology and Preventive
Medicine, College of Veterinary
and Animal Sciences Pookode,
Wayanad, Kerala, India

Smitha JP

Department of Veterinary
Epidemiology and Preventive
Medicine, College of Veterinary
and Animal Sciences Pookode,
Wayanad, Kerala, India

Deepa PM

Department of Veterinary
Epidemiology and Preventive
Medicine, College of Veterinary
and Animal Sciences Pookode-
Wayanad, Kerala, India

Vijaya Kumar

Department of Veterinary
Epidemiology and Preventive
Medicine, College of Veterinary
and Animal Sciences Pookode-
673576, Wayanad, Kerala, India

Prejit

Department of Veterinary
Epidemiology and Preventive
Medicine, College of Veterinary
and Animal Sciences Pookode-
673576, Wayanad, Kerala, India

Correspondence

Muksha Kini MA

Department of Veterinary
Epidemiology and Preventive
Medicine, College of Veterinary
and Animal Sciences Pookode-
673576, Wayanad, Kerala, India

Aetiology of clinical goat mastitis and their occurrence in Wayanad District

Muksha Kini MA, Smitha JP, Deepa PM, Vijaya Kumar and Prejit

Abstract

Mastitis is regarded as one of the most important diseases of economic importance in livestock sector. Goat mastitis can result in considerable economic loss to the marginal farmer in terms of ill health among goats and the kids as well. This study was conducted to identify the etiological agents causing clinical mastitis in goats in the district of Wayanad where cases of gangrenous mastitis had showed an increasing trend during the past years. Various organisms identified were staphylococci (64.4%) followed by *E. coli*, *Klebsiella* spp. & *Pseudomonas* spp. (8.8% each) and *Streptococcus* spp. & *Enterobacter* spp. (4.4% each). The most common staphylococcal organism isolated was *S. aureus* that contributed to 51 per cent of the staphylococcal isolates.

Keywords: Gangrenous mastitis, goat mastitis, *S. aureus*, *Staphylococcus* spp., *E. coli*, *Klebsiella*

Introduction

Mastitis in goats is a messy disease, which if not treated initially may result in huge economic loss. The systemic involvement in gangrenous form of mastitis is a major complication in goats which is usually difficult to be cured, if presented late. The toxemia-associated death due to mastitis in goats has a case fatality rate of about 30-40 per cent (Menzies and Ramanoon, 2001) [4]. It is also a great concern with respect to health of kids as inadequate and poor quality of milk can result in their stunted growth and consequent death. As the goats are mainly reared for their meat, this poor growth in early stage can cause considerable economic loss to the farmer. *Staphylococcus* spp. had been common pathogens isolated from goats suffering from mastitis and that too *S. aureus* was the major pathogen (Najeeb *et al.*, 2013) [5] especially in gangrenous form (Ribeiro *et al.*, 2007) [8]. In this context, the present study was conducted to elucidate data regarding aetiological agents involved in goat mastitis and their occurrence in the district of Wayanad.

Materials and Methods

Milk samples were collected from goats showing clinical signs of mastitis presented to the Teaching Veterinary Clinical Complex, College of Veterinary and Animal Sciences, Pookode and nearby veterinary hospitals in Wayanad district between April 2017 to June 2018. A total of 45 samples were collected aseptically from goats showing clinical mastitis in sterile screw cap vials and immediately transported in 4 °C chiller box. The milk was cultured on brain heart infusion agar (BHIA) plates and incubated at 37 °C for 24-48 hrs. The colony obtained were subjected to Gram's staining. Preliminary biochemical tests such as catalase and oxidase were also conducted. Further identification of organisms was carried out by streaking in various selective media like Mannitol salt agar, Mac Conkey agar, EMB agar and specific biochemical tests such as IMViC and sugar fermentation tests were done according to Quinn *et al.* (2004) [7].

Results and Discussion

Out of the 45 isolates obtained, the most common pathogen identified was *Staphylococcus* spp. (64%). *Staphylococcus aureus* was isolated from 15 samples (51%), followed by 13 Coagulase Negative *Staphylococcus* (CNS) isolates (44.8%) and one isolate of *S. intermedius* (3.4%). Sugar fermentation, Voges-Proskauer, urease and nitrate tests were carried out to identify CNS isolates. Sugar fermentation tests revealed five isolates were *Staphylococcus hominis*, two *S. capre*, two *S. lugduensis*, three *S. xyloses* and two *S. chromogenes*. *Streptococcus* spp. was isolated from two samples each (4.4% each). *E. coli*, *Klebsiella* spp. and *Pseudomonas* spp. were isolated from four samples each (8.8% each); *Enterobacter* spp. was isolated from two samples each (4.4% each).

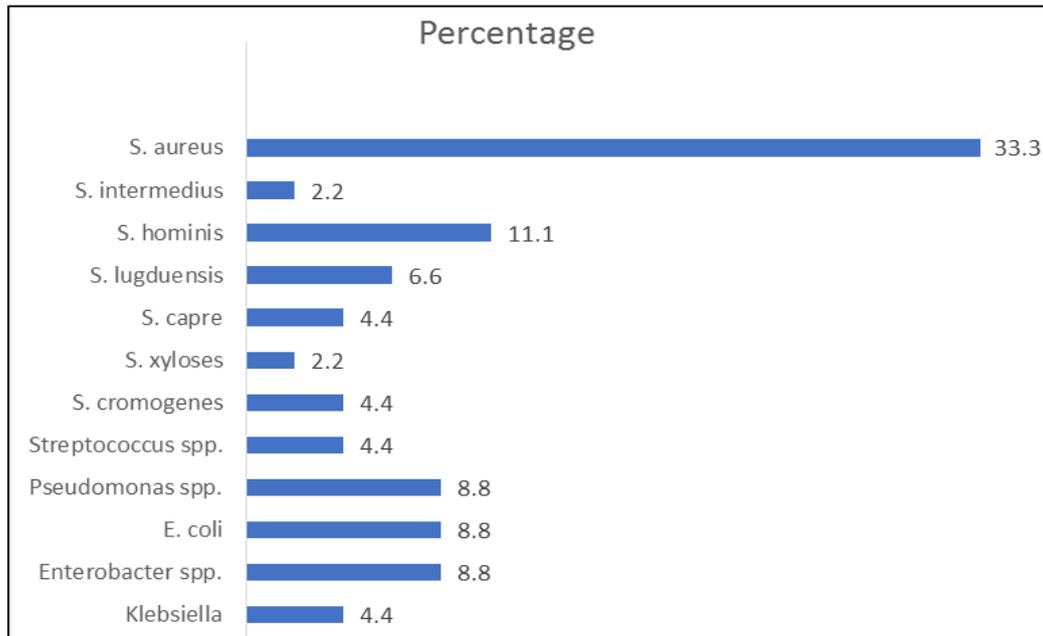


Fig 1: Occurrence of aetiological agents

The data are shown in fig 1. Similar observations were made by Kalogridou-Vassiliadou (1991) ^[2], who found that 61 per cent of the isolates obtained from goat mastitis belonged to *Staphylococcus* spp. and 4.3 per cent to coliforms. Ogilvie (1998) ^[6] also noted the most common pathogen isolated from goat mastitis as *S. aureus*. The results in this study are on par with the findings of Najeeb *et al.* (2013) ^[5] who concluded that *S. aureus* contributed to 61.4 per cent and *Streptococcus* spp. and *Pseudomonas* spp. contributed to 9.59 per cent and 6.85 per cent respectively. Another study also revealed *Staphylococcus* spp. as the major pathogen contributing to 73.5 per cent among the isolates followed by *Streptococcus* spp. (9.7%). A study by Ajuwape *et al.* (2005) ^[1] showed that *Staphylococcus* spp. was a major pathogen with 50 per cent CNS followed by *Streptococcus* spp. and *E. coli* (9.4% each) and *Klebsiella* spp. (5.7%)

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