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Bilateral mastectomy for successful management of acute gangrenous mastitis in non-descriptive doe

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Abstract

This case report describes the clinical management of a severe gangrenous mastitis in a 37.4 kg adult doe. Ten years old ND female goat was presented at Veterinary Dispensary, Elanthaikudam, with the complaint of large swelling of udder and the milk colour was changed from 1st week of kidding and the udder was painful to touch. We observed both quarter of the doe had swelling of 14.50 cm in diameter and was cold upon touch. The milk from the affected quarter was red-black in colour, and the skin of the quarter was indurate with gangrenous red-black discoloration. The surgical site was cleaned and disinfected and the patient was stabilized with fluid therapy. After sedation left lateral recumbency was achieved using high epidural anaesthesia. Ring block was done with 2% lidocaine hydrochloride dosed at 20 ml. Bleeding was managed by ligation and artery forceps. Mastectomy was performed by removing affected both quarter along with other gangrenous tissue and muscles. After removal an extra covering of skin, the final closure was done by simple continuous suture inside and skin with non-absorbable one performed by using sterilized silk (size-2) with a simple interrupted pattern. Proper post-operative care with antibiotic and analgesic therapy was maintained for next seven days. This gangrenous mastitis case was successfully corrected only through surgical approach.

Keywords: Bilateral mastectomy, Gangrenous mastitis, Non-descriptive doe

Introduction

Mastitis is an important economic disease of goats in many countries in Asia due to the significant economic losses and severe public health implications it poses (Koop *et al.*, 2016)^[3]. Gangrenous mastitis in goats is a serious clinical inflammatory process involving the mammary gland. Manifestation of clinical findings usually occurs during the first few weeks of lactation involving all or one mammary gland. The disease is transmitted by ascending through the teat canal with agents from the environment, animal or from milking process (Ribeiro *et al.*, 2007)^[5]. The most predominant pathogen associated with mastitis in goats are members of the genus *Staphylococci*. Even though, studies have shown that only certain strains of *S. aureus* were associated with sub-clinical mastitis in goats. It was, however, observed that *S. aureus* is the main etiologic agent of clinical mastitis with classic symptoms of gangrenous mastitis (Contreras *et al.*, 2003)^[1]. Other etiologic agents include, coagulase negative *Staphylococcus*, *Streptococcus spp*, *E. coli*, *Pasteurella spp*, *Norcadia*, *Arcanobacter*, *Clostridium*, and *Pseudomonas spp* (Sarker *et al.*, 2015)^[6]. The diagnosis and treatment of mastitis in goat are done for aesthetic value, animal welfare and economic reasons. Diagnosis is by clinical signs, California Mastitis Test (CMT).

Case Presentation

A 10 years old weighing 37.4kg ND adult doe was presented to the Veterinary Dispensary, Elnathaikudam, Ariyalur District, and Tamil Nadu. The doe had a history of inappetite and milk colour was changed for past 4 days and treatment was given by local quack.

Physical examination

The doe was anorexic and with bluish discoloration of mammary glands was noticed. Clinical examination revealed a rectal temperature of 40.2 °C and a pulse of 62 beats/ minutes, respiratory rate 25/min and slightly pale mucous membrane. The both quarter of the doe had swelling of 16.42 cm in diameter and was cold upon touch, The milk from the affected quarter was red-black in colour and the skin of the quarter was indurate with gangrenous red black discoloration (Fig 1). Palpation of the udder showed response to pain and the presence of blood tinged foul smelling exudates. The condition was tentatively diagnosed as bacterial mastitis.

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Fig 1: A and B Physical examination



Fig 4: Post-operative care

Surgical procedure

The doe was controlled by left lateral recumbency with epidural anaesthesia (Last Lumbar and first sacral vertebrae) using 2% solution of Lignocaine HCl dosed at 5 ml. Ring block was also done locally with 2% Lignocaine dosed at 25 ml. Antiseptic washing was done properly. About 6-7 cm skin incision at the border of the affected each quarter was performed (Fig 2). External Pudendal artery was crushed by artery forceps and ligated using catgut to stop bleeding and subsequently bleeding from other minor mammary vessels was managed with the help of artery forceps. Then both quarters were removed and the area was sprayed by 0.5% Metronidazole with saline to protect the secondary bacterial infection. Finally after mastectomy, the skin was closed with proper apposition and normal skin tension. It was confirmed that there was no more gangrenous or dead tissue inside the suture (Fig 3 and 4).



Fig 2: Surgical techniques



Fig 3: Surgical techniques

Post-Operative care and Management

As post-operative care, DNS 500 ml, Cefotaxime dosed at 50 mg/kg body wt, Ketoprofen dosed at 3.3 mg/kg body wt and pheniramine maleate dosed at 1 mg/kg body wt, Inj. B-complex were administered intravenously and Inj. Vit AD3E are administered intramuscularly for seven days. Follow up observation revealed normal feeding after 7 days of operation.

Discussion

The prevalence of subclinical mastitis alone in goats in many regions of the world was reported to range between 9-50% (Zhao *et al.*, 2015) [8]. In mastitis, there occurs a complete destruction of all involved tissues. The affected gland may initially appear hyperaemic and warm and then progresses to cyanotic and cold. The secreted milk may appear straw coloured or serum-like with a tinge of blood and mixed gas. In addition, the animal may be recumbent and fatality can reach up to about 30-40% if left untreated (White, 2007) [7]. Gross changes of the affected side of the udder was enlarged and swollen and showed a purplish to black skin discoloration. In wide-ranging, antibiotics don't give satisfactory result as they don't reach to the affected tissue. As a result development of gangrene processes, surgical management was found more effective on gangrenous mastitis of my study in accordance with several other case reports (Pal *et al.*, 2011 and Jesse *et al.*, 2016) [4,2].

Conclusion

This case reported the clinical management of gangrenous mastitis in a doe. The doe was medically treated with antibiotics but was eventually recommended for mastectomy. Prognosis of the condition post surgically was good as the doe recovered completely. Unilateral or bilateral mastectomy can be an alternative for the management of gangrenous mastitis in goats even though it prevents them from milk production in the future.

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