



CASE REPORT

## Management of Unilateral Suppurative Mastitis in A Four-year-old Red Sokoto Doe

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### INTRODUCTION

Mastitis is an inflammation of the mammary gland leading to a chemical and physical reaction in mammary tissues and milk produced by goats (Radostiis *et al.*, 2000). It is more frequent in dairy and meat goats raised under intensive and semi-intensive management practices. Depending on the severity of the disease, mastitis could result in decreased revenues for producers (Zamin *et al.*, 2010). Mastitis is generally associated with poor hygienic practices and is often caused by the bruising of mammary tissue or teats from traumas, insect bites or other wounds to the skin that provides an important barrier to infection (Shearer and Harris, 1992). Mastitis may also be associated with viral, bacterial or fungal infections and other toxins (Radostiis *et al.*, 2000). Under stressful conditions such as extreme temperatures, muddy and wet living conditions or a sudden change in diet, a doe's immune system is compromised which consequentially suppressed, if not completely negates the ability of the doe to fight off infection and resist the invasion of foreign bodies that causes mastitis (Leit-Browning, 2008). Another predisposing factor is the abnormal anatomy of the udder or teat. The infectious agents enter through the milk canal, interact with the mammary tissue cells and multiply (Green and Bradley, 2004). The mammary tissue reacts to these toxins released by some micro organisms and becomes inflamed (Hinckley and Leander, 1987). Does can contract infection after birth, but infection can also occur during lactation and after dry period (Leite-Browning 2008; Zamin *et al.*, 2010). Clinical mastitis is characterized by visible abnormalities in the udder or milk, and may vary greatly in severity during the course of the disease. Numerous organisms have been associated with mastitis in goats. An attribute common to nearly all of them is an ability to colonize the streak canal through which pathogens known to cause mastitis gain access to the gland. Improper milking techniques and poor milking hygiene are known to encourage infection (Shearer and Harris, 1992). *Staphylococcus aureus* is the most important pathogen in most herds. Other organisms including several species of *Streptococci* (*Streptococcus agalactia*, *Streptococcus uberis* and *Streptococcus dysgalactia*) are commonly isolated from infected udders. *Pasteurella hemolytica*, *Proteus mirabilis*, *E. coli*, *Clostridium perfringes*, and *Pasteurella*

*hemolytica* are also commonly isolated from mastitic glands and is believed to be associated with suckling kids (Green and Bradley, 2004). *Corynebacterium pseudotuberculosis* is often isolated from infected udders where there is herd problem with abscess (Aydid *et al.*, 2009). Additional organisms less commonly isolated from the mastitic glands include coliforms and Mycoplasmas. Caprine arthritis-encephalitis virus has also been incriminated (Logan *et al.*, 2004; Gregory *et al.*, 2009). Diagnosis of caprine mastitis is based on clinical signs and history of the herd, microbiology of milk culture, Somatic Cell Count (SCC), and an Enzyme-Linked Immunosorbent Assay (ELISA). However, the microbiological culture is the most reliable source of diagnosis of mastitis in goats (Radostiis *et al.*, 2000).

KEY WORDS: Red Sokoto doe, mastitis, management, Nigeria

### CASE REPORT

A four-year-old Red Sokoto doe weighing 23 kg was presented to the Large Animal Clinic of the Veterinary Teaching Hospital, Usmanu Danfodiyo University, Sokoto, with a major complaint of an enlarged left mammary gland that is visibly dragging on the ground. The doe kidded three kids about three months prior to presentation and the kids all died. The doe was managed semi-intensively with two other does and one ewe. They fed on maize bran, bean husks and fresh grasses. The owner observed a gradual enlargement of the left mammary gland until it became large enough to be dragging on the ground. There was no history of previous medication or vaccination in the flock.

### Clinical Examination

On physical examination, the rectal temperature, pulse and respiratory rates were 40.1°C, 84 beats/minute and 34 cycles/minute respectively. The submandibular and supramammary lymph nodes were enlarged. The left half of the udder was enlarged,

distended and dragged on the examination floor relative to the other half that appeared normal. On palpation, the mass was hard, warm to touch, and the patient resisted palpation of the udder; there was scar formation on the mammary gland which is an indication of previous injury sustained. The mass measured 25x13 cm compared to the normal half which measured 11x6cm. On aspiration, a thick fluid was recovered.

Fine needle aspirate (FNA) sample was taken for cytology and bacteriological evaluation, blood sample was taken for Packed Cell Volume (PCV), Complete Blood Count (CBC) and hemo parasitic analysis. Faecal sample was also taken for routine parasitological investigation.

### Management

Pre-surgically, the patient was placed on right lateral recumbency exposing the affected udder. Local anesthesia was achieved by mammary gland ring block with plain 2% lignocaine given to effect preceded by mild sedation with 2% xylazine at dose rate of 0.025 mg/kg. The proposed area to be lanced was scrubbed with 0.3% chlorhexidine gluconate and rinsed with alcohol. Cruciate incision of about 1cm was made on the caudal part of the gland, about four liters of fluid (serosanguinous and pus) was recovered after which the cavity was drained properly and flushed with 0.2% chlorhexidine gluconate. Procaine penicillin and streptomycin hydrochloride at a dose rate of 20,000I.U/kg and 10mg/kg respectively was administered intramuscularly for seven days along with daily flushing with 0.2% chlorhexidine gluconate for fourteen days.

### Laboratory result

Cytology showed predominantly leukocytic cells, bacteriological culture yielded *Staphylococcus spp*, *Streptococcus spp* and *Corynebacterium spp*, while parasitological fecal analysis showed *Eimeria oocyst* (+). The PCV and complete blood count were within normal range. Based on clinical signs and laboratory result, confirmatory diagnosis of suppurative mastitis was made.

### DISCUSSION AND RECOMMENDATION

Mastitis in dairy and non dairy goats, like mastitis in dairy cows, is a disease of

considerable economic importance worldwide. According to Zamin *et al.* (2010), mastitis has caused colossal damage to livestock production by increasing the culling of morbid animals due to poor management and lack of therapeutics and control measures.

The dairy goat industry is rapidly gaining importance throughout the world in recent years. Therefore, any factor that adversely affects the quantity and quality of goat milk is of great financial interest. Milk quality is mainly affected by bacterial contamination of the mammary gland, which causes clinical or subclinical mastitis. The chronic clinical suppurative mastitis we handled might have contaminated the colostrums and inhibited milk production which is vital in the survival of the kids. It is putative that the infected colostrums consumed by the three kids after birth led to an overwhelming septicemia and eventual death from septic shock. We therefore recommend early reporting of all cases of mastitis especially in gravid or nursing animals. Ante natal and post natal care in the nearest veterinary clinic is also advocated as this will ensure a healthy udder which is of paramount importance in the life of the pregnant doe as well as the unborn kids.

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### REFERENCES

- AYDID, I., KAV, K., and CELIK, H. C. (2009): Identification and Antimicrobial Susceptibility of Subclinical Mastitis Pathogens Isolated from Hair Goats' Milk. *J. of Anim. and Vet. Advan.* **8** (6): 1086-1090.
- GREEN, M. and BRADLEY, A. (2004): Clinical forum in *Staphylococcus aureus* mastitis in cattle, *Cattle pract.* **9** (3): 1-9.
- GREGORY, L., BIRGEL, E. H., LARA, C S., ANGELINI, M., ARAUJO, W. P., RIZZO, H., MAIORKA, P. C., CASTRO, R. S., KIRALY, A. C., and BENESI, F. J. (2009): Clinical Features of Suppurative Mastitis Caused by Caprine Arthritis Encephalitis Virus. *Braz. J. of Vet. Pathol.* **2**(2): 64-68.
- HINCKLEY, L.S., and LEANDER, W.F. (1987): Diagnosis of Mastitis in Goats. *Agri. Pract. J.* **22**(4):711-712.
- LEITE-BROWNING, M. L. (2008): Bacterial Profile in Mastitis. *Ext. Anim. Scien. J.* **46**(7): 26.28.
- LOGAN, S., TARPLEEY, H. L., and LATIMER, K. S. (2004): Caprine Arthritis-Encephalitis Virus. *Vet. Clin. Path.*

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- J.* **15**(3): 44-45.
- RADOSTITS, O.M., GAY, C.C., and DOUGLAS, C.B. (2000): Mastitis in Goats In: Veterinary Medicine, A Text book of the Diseases of Cattle, Sheep, Goats, Pigs and Horses, Ninth Edition, Book Power Publishers. 669-670.
- SHEARER, J. K., and HARRIS, B. (1992): Mastitis in Dairy Goats. *Univ. of Flor. Ext. J.* **37**(4): 31-33.
- ZAMIN, A., GHULAM, M., TANVIR, M., RIFATULLAH, K., SHABANA, N., HASIB, A., FAROOK, A. F., MUHAMMAD, N. M. and ABDULRAHIM, U. (2010): Prevalence of Caprine Sub-Clinical Mastitis, its Etiological Agents and their Sensitivity to Antibiotics in Indigenous Breed of Kohat, *Pakist. J. of Life Sci.* **8**(1): 63-67.
- SEIFU, G.L., LEANDER, W.F and PIQUE, M.R. (2007): Characterization of *Staphylococcus aureus* in Gangrenous Caprine Mastitis. *Pakist. J. of Life Sci.* **11**(3): 34-35.