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# Clinical mastitis in an Etawah crossbreed ewe

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**ABSTRACT:** Mastitis in small ruminants presents significant challenges in veterinary medicine owing to its impact on animal welfare and productivity. This case study documents clinical mastitis in a four-year-old postpartum Etawah crossbred ewe. During the physical examination, inflammation was noted in the right mammary gland. The ewe's condition deteriorated due to open sores, which developed because of the friction between the mammary gland skin and the floor while the ewe was recumbent. The lesion expanded, producing purulent exudate that eventually formed scabs. Discontinuing milking in the affected mammary gland adversely affects its health, as milk accumulation in the alveoli facilitates bacterial growth and proliferation. The treatment regimen included penicillin and sulpidon; however, the ewe's condition continued to decline, indicating ineffectiveness of the treatment.

**Keywords:**
mammary gland, bacteria, inflammation, Etawah crossbreed, ewe

## ■ INTRODUCTION

Goats offer a promising avenue for agricultural development in Indonesia owing to their adaptability and high productivity (Widyastuti *et al*. 2023). Their milk is rich in essential minerals, such as calcium and phosphorus, has a higher protein content than cow's milk, and is a nutritional powerhouse that we should appreciate (Suwito 2014). However, the threat of mastitis, a mammary gland infection caused by mechanical injuries, thermal damage, bacteria, or chemicals, poses a significant challenge in the dairy farming industry. This can significantly reduce the income of milk producers by affecting milk yield and quality (Jamali *et al*. 2018, Shearer & Harris 2003).

Mastitis manifests in various forms, including clinical, subclinical, and chronic. Visible pathological changes in the mammary gland and qualitative and quantitative changes in milk composition characterise clinical mastitis. Subclinical mastitis, often detected by an elevated Somatic Cell Count, presents no overt clinical symptoms, but may lead to decreased milk production. Chronic mastitis is a persistent infection that displays clinical or subclinical symptoms over an extended period of time (Arce & Vincete 2016). The prevalence of clinical mastitis in dairy goat's ranges from 5% to 30% and is influenced by environmental conditions and management practices (Kalogridou-Vassiliadou 1991). However, sub-clinical mastitis leads up to 75% depending on the geographical location and management practices (Nabih *et al*. 2018).

Factors such as lactation methods, farm management, and environmental hygiene can affect the incidence of clinical mastitis in dairy goats. *Staphylococcus aureus* has been identified as a primary pathogen in clinical and subclinical mastitis in small ruminants, including crossbred Etawah dairy goats (Contreras *et al*. 2007). The susceptibility of dairy goats to staphylococcal infections in Indonesia is sparse, particularly intramammary infections among small ruminants (Windria *et al*. 2016). This study evaluated mastitis in an Etawah crossbred ewe to enhance its management in dairy goats.

## ■ CASE

**Signalment**: The subject of this case report is a four-year-old Etawah crossbreed ewe, which has undergone two parturition cycles. This ewe has been housed for one year in isolated, stilt-supported pens measuring 1.5 x 2 m within the Reproduction Unit Cages at the Faculty of Animal Husbandry, Universitas Padjadjaran. **Anamnesis**: Two days postpartum, the Etawah crossbreed ewe exhibited symptoms of collapse, with notable swelling in the right mammary gland, while the left gland appeared normal. Despite these issues, the ewe continued to nurse from the unaffected gland, and milking was restricted to healthy glands.


Figure 1. Clinical mastitis in a Etawah crossbreed ewe. (A) The swollen right mammary glands (blue arrow), (B) Wound and scabs on mammary glands (red arrow).

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**Clinical Symptoms**: The ewe displayed wounds and significant swelling of the right mammary gland. The condition deteriorated further when the ewe lay down, leading to the formation of scabs and the extension of wounds. The affected mammary glands emit a noxious odour and produce a purulent discharge. **Prognosis**: The prognosis is considered dubious. **Therapy**: Treatment involved administering 5 ml of Penicillin G Procaine at 200,000 IU/mL intramuscularly for three days. Additionally, 10 mL of sulpidon containing 250 mg of dipyrone and 2% lidocaine was administered intramuscularly as an antipyretic and analgesic intramuscularly for three days.

## ■ RESULTS AND DISCUSSION

Mastitis markedly deteriorates the overall health and milk productivity of goats, initiating when microorganisms enter the mammary gland through the teat canal after breastfeeding or milking. These pathogens proliferate within alveoli, impeding milk production and triggering an inflammatory response. Moreover, the management practices in dairy goat farming, such as milking hygiene and biosecurity measures, play a crucial role in the prevalence and control of mastitis (Jabbar *et al*. 2020)

Various strategies have been developed to restore mammary health, mitigate inflammation, and eradicate bacterial infections. Typically, antibiotics are administered via intramuscular, oral, systemic, or intravenous routes. Broad-spectrum antibiotics, such as amoxicillin, chloramphenicol, and tetracycline, have proven effective against many bacterial strains associated with mastitis (Razi *et al*. 2013). However, increasing antibiotic resistance significantly challenges the treatment of mastitis. Concurrently, nonsteroidal anti-inflammatory drugs such as flunixin meglumine and ketoprofen are used to alleviate pain and reduce swelling. In addition, dehydrated goats may receive intravenous fluids to aid recovery, and a diet rich in vitamins, minerals, and nutrients is crucial. Milking the affected gland helps clear the infection, relieve glandular pressure, and prevent milk stasis.

Postpartum goats frequently suffer from clinical mastitis due to hormonal changes and increased milk production, which weaken the immune system and increase bacterial susceptibility. In this study, prognosis was determined by mammary gland lesions worsened by friction with the cage floor, allowing bacterial entry and secondary infections, marked by purulent exudates. Ceasing milk production increases gland pressure, aggravating the condition. Additionally, stopping milking halts teat dipping, which is crucial for disinfection, leading to scabbing as the body repairs tissue and indirectly stopping milk production (Bradley & Green, 2004).

Despite intramuscular treatment with penicillin and sulpidon, the clinical response was inadequate. The direct intramammary administration of penicillin may target pathogens more effectively. Ceftiofur sodium is the preferred treatment for clinical and subclinical mastitis in Beetal goats, emphasising the need for antibiotics selected based on local antibiograms (Jabbar *et al*. 2020). In addition, management strategies and strict hygiene are crucial for preventing mastitis. In this case, mammary gland function is compromised, which prevents milk production.

## ■ CONCLUSION

The treatment of clinical mastitis in Etawah crossbred goats with penicillin and sulpidon is ineffective. Enforcing strict hygiene and sanitation protocols during milk production and handling is essential to minimise public health risks.

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## ■ REFERENCES

Arce C, Vicente RE. 2016. Factors affecting somatic cell count in dairy goats: A review. Spanish Journal of Agricultura Research. 12(1):133-150.

Bradley AJ, Green MJ. 2004. The importance of the nonlactating period in the epidemiology of intramammary infection and strategies for prevention. Veterinary Clinics: Food Animal Practice. 20(3):547–568.

Contreras AD, Sanchez SA, Corrales JC, Marco JC, Paape MJ, Gonzalo C. 2007. Mastitis in small ruminants. Small Ruminant Research. 68(1-2): 145-153.

Jabbar A, Saleem MH, Iqbal MZ, Qasim M, Ashraf M, Tolba MM, Nasser HA, Sajjad H, Hassan A, Imran M, Ahmad I. 2020. Epidemiology and antibiogram of common mastitis-causing bacteria in Beetal goats. Veterinary world. 13(12):2596.

Jamali H, Barkema HW, Jacques M, Levallée-Bourget E, Malou-in F, Saini V, Stryhn H, Dufour S. 2018. Invited review: Incidence, risk factors, and effects on clinical mastitis recurrence in dairy cows. Journal of dairy science. 101(6):4729–4746.

Nabih A, Hussein HA, El-Wakeel SA, El-Razik KAA, Gomaa A. 2018. Corynebacterium pseudotuberculosis mastitis in Egyptian dairy goats. Veterinary World. 11(11):1574-1580.

Razi KMA, Rahman B, Flores-Gutiérrez G, Rahman MT. 2013. Prevalence of caprine subclinical mastitis in Mymensingh area, Bangladesh and characterization of associated bacterial agents and the risk factors. Microbes and Health. 1(1):1-5.

Shearer JK, Harris. 2003. Mastitis in dairy goats. IFAS Extension. University of Florida. https://ufdcimages.uflib.ufl.edu/IR/00/00/47/55/00001/DS12000.pdf

Kalogridou-Vassiliadou. 1991. Mastitis-related pathogens in goat milk. Small Ruminant Research. 4(2):203-221

Suwito W, Widagdo SN, Bambang S, Agnesia ETHW. 2014. Faktorfaktor risiko mastitis subklinis pada kambing peranakan etawah di Kabupaten Sleman, Yogyakarta. Jurnal Veteriner. 15(1):130–138.

Widyastuti R, Setiawan R, Solihati N, Darodjah S, Hidajat K, Mauludin MA, Lubis A, Syamsuanarno MRAA, Prastowo S, Saili T, Boediono A. 2023. Farmer characteristics and knowledge of reproductive management practice in traditional dairy goat farming at Simpay tampomas farmers group, Sumedang, West Java Indonesia. Advances in Animal and Veterinary Sciences. 11(11):1823-1829.

Windria S, Widianingrum DC, Salasia SSO. 2016. Identification of *Staphylococcus aureus* and coagulase negative staphylococci isolates from mastitis milk of Etawah crossbred goat. Research Journal of microbiology. 11(1):11-19.