

# EMERGENCY TREATMENT OF MASTITIS IN FIVE ZAANEN GOATS MEDICATED WITH A PARENTERAL FORMULATION OF TETRACYCLINE. TECHNICAL NOTE

## Tratamiento de emergencia para la mastitis aguda de cinco cabras Zaanen utilizando un preparado parenteral de tetraciclina: Nota Técnica

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### ABSTRACT

In this report it was described the emergency treatment of an acute case of mastitis in five Zaanen goats, in which initial treatment was carried out using an intramammary commercial presentation, the commercial medication was not available to continue medication: As an alternative it was decided to medicate the affected goats with a parenteral preparation of Oxytetracycline, Emergency treatment was carried out both via, by intramuscular and intramammary routes; the outcome of this treatment was adequate, mastitis was controlled and the microbiological finding showed that *Staphylococcus aureus* was the causal agent. All five goats were dried off and subjected to a zynchro program for further kidding, after kidding both udders were milked and production was similar to previous milkings.

**Key words:** Mastitis, milking goat, oxytetracyclin.

### RESUMEN

En este reporte fue descrito un tratamiento de emergencia en un brote de mastitis de cinco cabras Zaanen, el tratamiento inicial con medicación intramamaria no fue posible continuarla por inaccesibilidad del producto, como alternativa se decidió medicar a las cabras afectadas con una preparación de oxite-traciclina inyectable, el tratamiento se administró por vía intramuscular y asimismo intramamaria, el resultado de este tratamiento fue satisfactorio, la mastitis fue controlada y el estudio microbiológico de las ubres afectadas dio como agente causal al *Staphylococcus aureus*. En las cinco cabras se terminó la lactancia para posteriormente incluirlas en un programa de sincronización del estro y apareamiento, después del siguiente

parto, la producción láctea de las cabras motivo de este reporte, fue similar a lactancias previas.

**Palabras clave:** Mastitis, cabra lechera, oxitetraciclina.

### INTRODUCTION

Mastitis in dairy goats (*Capra hircus*) is a continuous threat that affects the productive life of goats. The acute onset of mastitis requires an immediate action for its treatment. Both the infection and the treatment increases cost and decreases production to the goat farmer, due to the possibility of early culling of good milk producing goats, and also affecting the replacement program of the herd [3, 8]:

Mastitis is an inflammation of the mammary gland, regardless of cause. It is characterized by physical, chemical, and usually bacteriological changes in the milk and by pathological changes in the udder. Among bacterias causing mastitis in sheep (*Ovis aries*) and goats, the following microorganisms can be listed: *Streptococcus* spp, *Staphylococcus aureus*, *Pastereulla haemolyticum* and coliform organisms such as *Escherichia coli* [7].

This disease can be subclinical, acute, or chronic. Clinical is described as that which has visible abnormalities to the udder and/or the milk. Acute is characterized as showing redness and swelling to the udders. The goat may also experience a fever and be lethargic. This form can be fatal if not treated. Subclinical mastitis is usually diagnosed after the cellular content of the milk has been measured.

The application of udder ointments and the administration of intra mammary and intramuscular antibiotics are the recommended treatment for small ruminants [1, 2].

## MATERIALS AND METHODS

In this communication, an outbreak of mastitis in a goat dairy farm located in the Santa Fe District of Zapotlanejo, Jalisco, Mexico is described, in which five Zaanen goats with an average age of 2 years showed signs of severe mastitis on the early afternoon of a weekend. Milk production previous to the infection was in the order of two liters per day. Body condition was considered optimal. At the onset of the infection, symptoms of mastitis included udders that were hard and hot to the touch. The udders were tender and the milk in some goats was stringy and contained blood.

Treatment was initiated with an antibiotic formulation for the treatment of mastitis that contained the following ingredients: 0.025 mg dexamethazone; 100,000 IU of Spyramicin and 20 mg of neomicin per mL of vehicle, (Laboratorios Andoci, Mexico) the mastitis medication was infused in to the affected udder. Insertion was carefully carried out, in order to cause less disruption of the keratin lining of the streak canal which represents the udder's first line of defense to infection. After three infusions of the commercial preparation; treatment was not continued due to inaccessibility of the commercial preparation in the farm. The short inventory of antibiotics in the farm and poor veterinary emergency service, as a last resource, the use of a commercial antibiotic for parenteral application was contemplated; this contained 200 mg/mL of tetracycline in a pyrrolidine solution with a pH of 7.58. The recommendation that was given consisted in the administration at 12 hrs intervals of 10 mL of the parenteral solution of tetracycline in the affected gland using a male cat catheter together with an im injection of the same preparation at 24 hrs interval for 10 consecutive days. The affected udder was milked at 8 hrs intervals for the period of treatment. Daily samples of milk were submitted to the microbiology lab with the aim of identifying the causal bacteria. The sample was transported to the laboratory at the Regional University Campus of The High Lands of the State of Jalisco, Mexico, and immediately inoculated on MacConkey and blood agar and incubated (shell Lab, Modelo 1525, Sheldon Manufacturing Co. USA) at 37.0°C for 24 to 48 hours. After 24 – 48 hrs, representative bacterial colonies were selected and subcultured into MacConkey and blood agar for 24 hours. Colonial morphology was used as the first identification step for the bacterial isolates. The bacterial isolates were then identified by the Gram staining and biochemical characterization according to standard procedures [4].

## RESULTS AND DISCUSSION

After two days of the initial treatment it was observed that the affected udder continued with notorious pain during palpation, heat, swelling, redness and reduced as well as altered milk secretion from the affected udder, goats refused to eat and remained segregated from the rest of the herd. When

the intramuscular and intramammary administration of tetracycline was initiated, it was observed that on the third day of treatment, the affected goat commenced eating and joined the rest of the goat herd, it was noted that during milking a continuous discharge of black clots was present. On close examination this clots were considered to be of tissue debris and antibiotic residues, similar findings are reported by Karzis *et al.* [6]. The temperature of the treated udder returned to normal. The presence of black clots in the milk of the affected udder was present until several days after treatment. Twenty days after treatment was initiated, the affected goats were considered clinically healthy and in an apparent state of good health, the microbiology of the milk samples showed that *the noxious agent was Staphylococcus aureus*.

Furthermore, when the affected goats were mated, the outcome of pregnancy produced twins and milk production was similar to the one reported before suffering from the mastitis.

The presented results in this report shows that in clinical cases, when emergency treatment must be instituted, it is possible to consider the use of preparations that are not considered for intra mammary use. Such is the case of some parenteral antibiotics, thus permitting emergency treatment of mammary infections avoiding the loss of productive animals [5]. Information about mastitis incidence in Mexico is limited and mastitis incidence in this Country is considered high [1]. Taking in to consideration that milk goat production in Mexico is the highest in Latin America [5]; this technical note is an important contribution for the emergency treatment of mastitis in goats.

## CONCLUSIONS

Without doubt that the best therapeutic attitude of the goat farmer is to follow the direct instructions given by a qualified Veterinarian, therefore it can be concluded that the use of parenteral antibiotics can be considered for intra mammary application in an emergency such as the one here described together with improving technical support to goat farmers in order to improve handling and health measures of goat herds.

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