



E-ISSN: 2320-7078

P-ISSN: 2349-6800

www.entomoljournal.com

JEZS 2020; 8(2): 1304-1306

© 2020 JEZS

Received: 15-01-2020

Accepted: 19-02-2020

Jupaka Shashank

Ph.D. Scholar, Department of
Veterinary Medicine, PVNR
TVU Rajendranagar,
Hyderabad, Telangana, India

G Abhinav Kumar Reddy

PG Scholar, Department of
Veterinary Medicine, PVNR
TVU Rajendranagar,
Hyderabad, Telangana, India

K Ramesh

Ph.D. Scholar, Department of
Veterinary Medicine, PVNR
TVU Rajendranagar,
Hyderabad, Telangana, India

Diagnostic and therapeutic management of clinical mastitis in a cow

Jupaka Shashank, G Abhinav Kumar Reddy and K Ramesh

Abstract

4-year aged cow is presented to the Veterinary Clinical Complex (VCC), College of Veterinary Science, Rajendranagar, Hyderabad with a history of off-feed, depressed, and swollen mammary glands from 4 days, and decreased milk yield. By Physical examination and palpation of the animal, noticed symptoms like pain on swollen udder, flakes during milking, milk is turned into yellowish brown colour, and animal body temperature is increased upto 104^oF. Finally diagnosed as mastitis by all these symptoms, cultural examination and antibiotic sensitivity test, and given treatment for 5 days continuously. Seen complete recovery from mastitis with in a 5 days of treatment.

Keywords: Cow, mastitis, Hyderabad

1. Introduction

Mastitis is one of the most important economical diseases of dairy cattle (Bramley AJ, 1992)^[1]. Generally, the clinical form of mastitis divided into mild, moderate or severe. In mild cases, visible abnormality is limited to the milk only i.e. clots, flakes or watery milk. Of course, one has to look to see such changes. If cows are not fore-stripped before the milking unit is attached, mild clinical mastitis will go unnoticed. In the case of moderate clinical mastitis, both milk and udder show abnormalities. In severe cases milk, udder, and cow are affected (Ganguly S, 2014)^[2]. The animal may have a fever, off-feed, depressed and down. Severe clinical mastitis is often called acute mastitis. Generally, the mastitis is produced by a variety of gram positive and negative bacterial species and is characterized by inflammation of parenchyma of the mammary gland with physical, chemical and bacteriological changes in the milk and pathological changes in the granular tissues (Radostits *et al.*, 2007)^[3]. It is also defined as inflammation of mammary gland or udder tissue parenchyma which is caused by bacteria and its toxins (Sharma *et al.*, 2006)^[4]. The bacterial contamination of milk from affected cows render it unfit for human consumption and provide a mechanism of spread of diseases like tuberculosis, sore-throat, Q-fever, brucellosis, leptospirosis etc. and has zoonotic importance (Sharif *et al.*, 2009)^[5]. Usually there are two ways to classify the cases of mastitis. Contagious and Environmental. Contagious pathogens are spread cow-to-cow, typically during milking as infected mammary glands serve as the primary reservoir for such microbes. Contagious pathogens include *Staphylococcus aureus*, *Streptococcus agalactiae*, and *Mycoplasma Spp.* (Gallin *et al.*, 1992)^[6]. Environmental pathogens are those which primarily reside in the cow's normal habitat. Cows are primarily exposed to these pathogens between milkings when teat ends come in contact with contaminated bedding, manure, contaminated water, or soil. Common environmental pathogens include *Escherichia coli*, *Klebsiella spp.*, and environmental streptococci such as *Streptococci uberis* and *Streptococci dysgalactiae* (Smith *et al.*, 1985)^[7]. There are many other microorganisms that have been isolated from cases of mastitis and are associated with the cow's environment.

2. Material and Methods

The present investigation was carried out in the diagnostic laboratory, Department of Veterinary Clinical Complex, and Department of Veterinary Microbiology, College of Veterinary Science, Rajendranagar, Hyderabad. The owner of the animal brought with a history of inappetence and pyrexia and swollen mammary glands from 4 days and decreased milk yield. For detailed examination, milk is collected from animal aseptically in sterile conditions in a tray with black background, identified milk flakes (Fig. 1).

Corresponding Author:**Jupaka Shashank**

Ph.D. Scholar, Department of
Veterinary Medicine, PVNR
TVU Rajendranagar,
Hyderabad, Telangana, India

Apart from knowing of pH, the milk is collected and pH strips are placed in the milk sample and observed (Fig. 2). Done cultural examination with Mannitol salt agar. MSA has high salt condition where only *Staphylococcus aureus* can survive (Fig. 3). Done gram staining for identifying of bacterial organisms especially staphylococcus organisms (Fig. 4)., Done Antibiotic sensitivity test and apart from this, Antibiotic discs like Streptomycin (S10), Ampicillin (AMP10), Oflaxacin (OF2), Ceftriaxone (CTR), Enrofloxacin (EX5), Ciprofloxacin (CIP5) are placed on Muller Hinton Agar (MHA) plates with definite distance and incubate for 24hrs, and also Haematological parameters recorded from affected animal (Table.1).

3. Results

By history, clinical signs, consistency (flakes) and pH (7-8) of milk, interpreted the cattle is suffering with mastitis. The result of antibiotic sensitivity test is more sensitive for Ceftriaxone. So given Inj. GARD PLUS – (Cefaperazone + Sulbactam)-1 gm for 5 days I/M, Inj. Flunixin meglumine-15 ml I/M, Inj. Avil-15 ml I/M, and Inj. INTAVITA (Vitamin A, D3, E) – 5 ml deep I/M, Inj. Toxol- 20 ml I/M for 5 days. Intra mammary infusion like Mammitel – (Cloxacillin sodium + Colistin sulphate), Oint: Uddocare, BID., and Oral Nutrition like Mammidium powder @50 gms daily P/O for 5days. For topical Wisprec spray is advised which is anti-inflammatory. Finally, animal has recovered from mastitis in 5 days of continuous treatment (Fig. 5).



Fig 3: Golden yellow pigment colonies of *Staphylococcus* by Cultural Examination

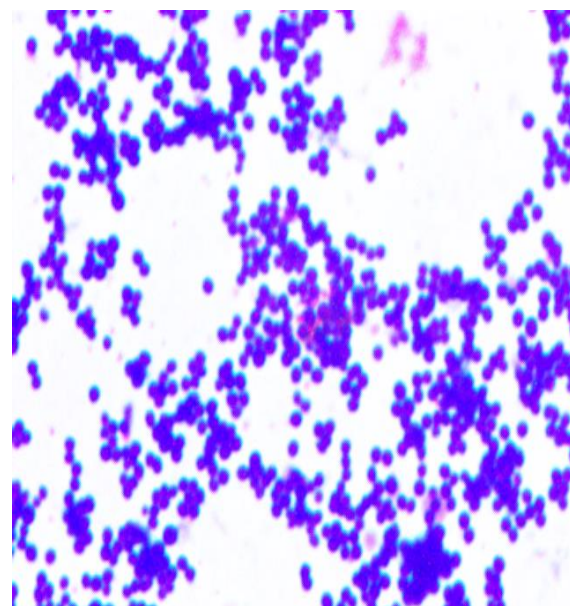


Fig 4: *Staphylococcus* organisms by Gram staining Cultural Examination



Fig 1: Collecting mastitis suspected milk in a tray, (Identifying flakes in milk)



Fig 2: Examining pH of Milk, (Recorded as 7- 8, positive for mastitis.).

Table 1: Haematological parameters in mastitis affected Cow

Parameters	Haematological analysis	
	Mastitis cow (Present case)	Normal values
Hemoglobin (g/dl)	10.2	8.0-15.0
PCV (%)	26	24-46
RBC (10 ⁶ /μl)	6.2	5-10
PCV (%)	26	24-46
WBC (10 ³ /μl)	8.5	4-6
Neutrophils (%)	64	50-55
Lymphocytes (%)	43	60-63
Monocytes (%)	2	1-3
Eosinophils (%)	3	0-1

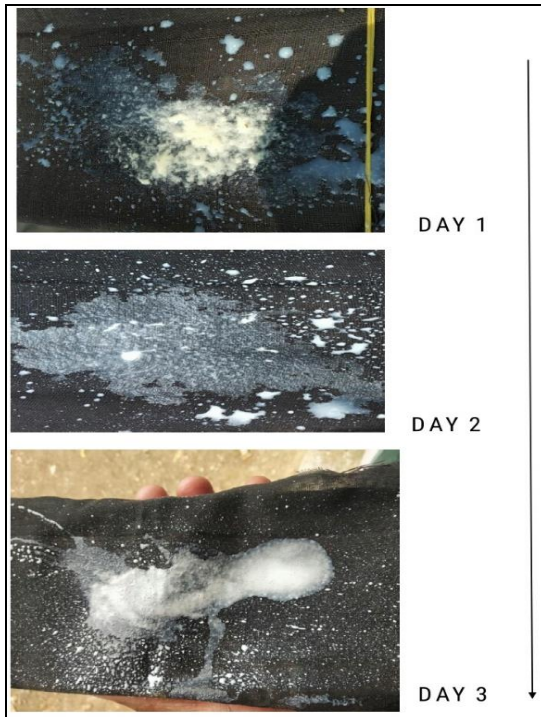


Fig 5: Post-treatment examining milk, (Negative for flakes)

4. Discussion

Mastitis in dairy cow is a highly prevalent infectious disease, causing considerable economic loss worldwide [(Halasa *et al.*, 2007), (Rajala *et al.*, 1999)]^[8, 9]. Generally Mild mastitis can often disappear in a few days with no treatment or with massage and hand stripping of the quarter (Barkema *et al.*, 1999)^[10]. However, the bacteria may still be there. The main treatment of mastitis is commonly administered by intramammary infusion of an ointment or intramuscular or intravenous injection of antibiotics. Intramammary antibiotics should be the first-line treatment for cows with mild uncomplicated mastitis in a single quarter. Systemic antibiotics should be used when more than one quarter is affected, when udder changes are marked or when the cow is obviously ill. Combination therapy, with both systemic and intramammary antibiotics, may increase bacteriological cure rates fastly (Hillerton *et al.*, 1995)^[11]. In this case we used GARD PLUS (cefoperazone sodium and sulbactam sodium), it is a third-generation cephalosporin antibiotic and given prognosis good by using of this. Treatment with intramammary antibiotics remains the basis of most mastitis treatment (Sharma N, 2007)^[12]. In this case we used mammitel intramammary infusion. Mastitis may result in changes in the milk, udder of cow or any combination. Fore milking is the best method of early mastitis detection - clots, flakes, and changes in colour or consistency can be seen when milk is stripped on a dark surface. In this case we given INTAVITA (Vitamin A, D3 and E), and Mammidium powder (Multi vitamin and mineral), Vitamin A and Zn affect the epithelial health, physical defence barriers of the udder, and alter the quality and quantity of keratin plug. Cu, Zn, Se, and vitamins A and E influence the phagocytic cells functions in cattle. The killing ability of immune cells is shown to be increased by nutritional supplementation with Vitamin E, which has consistently been shown to improve neutrophil function in dairy cows (Politis *et al.*, 1996)^[13]. The mammidium powder helps to recovery from mastitis and promotes udder good health (Sharif *et al.*, 2009)^[14].

5. Conclusion

The cow was negative for milk flakes at 3days post treatment, coinciding with improved general clinical conditions, recovering from udder swelling and started milk yield. These results showed that intramammary infusion of mammitel associated with the antibiotic therapy is highly effective for treating multiple quarter mastitis. It is also essential to understand the risks, benefits and possible side effects of all therapies administered when creating a long-term treatment plan.

6. Acknowledgement

The author wish to express sincere thanks to staff and students of College of Veterinary Science, Hyderabad. for providing the support and technical assistance in completion of this study.

7. References

1. Bramley AJ. Mastitis. In: Bovine Medicine - Diseases and Husbandry of Cattle (Ed. A. H), 1992.
2. Ganguly S. A comprehensive and illustrious review on clinical and diagnostic aspects of mastitis infection in high yielding lactating cows. World J Pharma. Res. 2014; 3(9):352-360.
3. Radostits OM, Gay CC, Hinchcliff KW, Constable PD. Mastitis in: Veterinary Medicine: Textbook of diseases of cattle, sheep, pigs, goats and horses 10th edition. Balliere Tindall, London, 2007, 674-762.
4. Sharma N, Gautam A, Upadhyay SR, Hussain K, Soodan JS, Gupta SK. Role of antioxidants in udder health: a review. Indian J Field Vet. 2006; 2(1):73-76.
5. Sharif A, Umer M, Muhammad G. Mastitis control in dairy production. J Agric. Soc. Sci. 2009; 5:102-105.
6. Gallin JI, Goldstein IM, Snyderman R. Inflammation: Basic Principles and Clinical Correlates. 2nd ed. Raven Press. New York, NY, 1992.
7. Smith KL, Todhunter DA and Schoenberger PS. Environmental mastitis: cause, prevalence, prevention. J Dairy Sci. 1985; 68:1531.
8. Halasa T, Huijps K, Osteras O, Hogeveen H, Economic effects of bovine mastitis and mastitis management: a review, Vet. Quarterly. 2007; 29(1):18-31,
9. Rajala-Schultz PJ, Grohn YT, McCulloch CE, Guard CL. Effects of clinical mastitis on milk yield in dairy cows, J Dairy Science, 1999; 82(6):1213-1220,
10. Barkema HW, Schukken YH, Lam TJGM, Beiboer ML, Benedictus G, Brand A. Management practices associated with the incidence rate of clinical mastitis. J Dairy Sci. 1999; 82:1643-1654.
11. Hillerton JE, Bramley AJ, Staker RT, McKinnon CH. Patterns of intramammary infection and clinical mastitis over a 5-year period in a closely monitored herd applying mastitis control measures. J Dairy Res. 1995; 62:39-50.
12. Sharma N. Alternative approach to control intramammary infection in dairy cows- A review. Asian J Anim. Vet. Adv. 2007; 2(2):50-62.
13. Politis I, Hidioglou N, White JH, Gilmore JA, Williams SN, Scherf H, Frigg M. Effects of vitamin E on mammary and blood leukocyte function with emphasis on chemotaxis in periparturient dairy cows. American. J. Vet. Res. 1996; 57:468-471.
14. Sharif A, Umer M, Muhammad G. Mastitis control in dairy production. J Agric. Soc. Sci. 2009; 5:102-105.