

CASE REPORT

Gangrenous Mastitis in A Cow - A Case Report

*Subramanian. B¹., Abiramy @ Prabavathy². A., Vijayalakshmi. P³., Selvi. D⁴., Rajkumar. K⁵ and Subhash Chandra. B⁶

^{1,6}M.V.Sc Scholar, ^{2,5}Assistant Professor (S.G), ³Professor and Head,

⁴Assistant Professor

Department of Veterinary Medicine, Teaching Veterinary Clinical Campus,

Rajiv Gandhi Institute of Veterinary Education and Research, Mettupalayam, Puducherry -9

E-mail: subu41@yahoo.com (*Corresponding Author)

ABSTRACT

A three year old Cross Breed Jersey cow that calved 5 days back with the history of sudden onset of shrunken with progressive discoloration of the distal part of the left fore teat. Clinical examination revealed blackish coloured and shrunken left fore teat which was cold to touch indicating necrosis. The milk was foul smelling, discoloured and curdled. Ultrasonography of the infected quarter revealed hyperechoic streak canal and teat wall. Haemogram revealed Haemoglobin - 8 g%, Packed Cell Volume - 24%, Total Leucocyte Count - 3,700cells/mm³, Differential Leucocyte Count: Neutrophils - 64% and Leucocytes - 36%. Dung examination revealed Strongyle and Paramphistome ova. Peripheral blood smear was positive for *Theileria orientalis*. Bacteriological culture of the milk from the infected quarter revealed growth of *Escherichia coli* organism. The animal was treated by the antibiotic enrofloxacin.

Key words: *Escherichia coli*, *Theileria orientalis*, Strongyle, Paramphistome

Received 21.05.2018 Accepted 19.07.2018

© 2018 AEELS, INDIA

INTRODUCTION

Gangrenous mastitis is relatively uncommon but often fatal mastitis of cattle. It is an per acute or acute condition affecting one or more quarters of the cows udder [6]. Gangrenous mastitis is generally cause by the bacteria *Staphylococci*. Secondary invasion by *Clostridium* sp. and *E. coli* causes the severity of the lesion in soft tissues [8]. Mastitis caused by *E. coli* is commonly called as environmental mastitis [10]. Due to poor hygienic conditions the incidence of *E.coli* mastitis is high [8]. Overall loss due to mastitis in the dairy industry accounts to Rs. 7,165 crore annually in India [9].

In gangrenous mastitis the affected quarter becomes cold, blue – blackish with demarcation line of the affected tissue and eventually sloughs. Soft tissue necrosis is attributed to the alpha toxin which causes contraction and necrosis of soft muscle of blood vessels, impeding blood flow in the affected quarter. This toxin causes secretion of lysosomal enzymes from leukocytes [7].

CASE HISTORY AND OBSERVATION

A three year old Cross Bred Jersey cow calved 5 days back was brought to Large Animal Medicine Unit, Teaching Veterinary Clinical Complex, RIVER, Puducherry with the history of discoloured and shrunken distal part of the left fore teat with no milk let down. On clinical examination the left fore teat appeared black and shrunken and was cold to touch indicating necrosis. The milk was foul smelling, discoloured and watery. However, other clinical parameters were normal.

Milk samples collected from the non-affected quarters were negative for California mastitis test, Chloride test, White side test and Bromothymol blue test. The Somatic cell count was 20,000 to 100,000 with in the normal range. Ultrasonography of the infected quarter revealed hyperechoic streak canal and teat wall. Haemogram revealed Hb - 8 g%, PCV - 24%, TLC - 3,700cells/mm³, DLC: N - 64% and L - 36%. Faecal examination revealed Strongyle and *Paramphistome* ova. Peripheral blood smear was positive for *Theileria orientalis*. Bacteriological culture of the milk from the infected quarter revealed presence of *Escherichia coli*. The culture was sensitive to gentamicin, chloromphenicol, ciprofloxacin, norfloxacin, nitrofurazone and resistant to nalidixic acid, amoxicillin and co - trimazole.

TREATMENT AND DISCUSSION

The animal was treated with Inj. Enrofloxacin @ 7.5mg/kg body weight i.m (Quintas®), Inj. Meloxicam @ 0.5 mg/ kg body weight i.m (Melonex®) and Inj. Chlorpheniramine maleate 10ml i.m (Anistamin®) for 3days. Advised the owner to present the animal for further treatment for concurrent haemoprotozoan infection and worm load. But the owner was reluctant for further treatment and had sold the animal.

E.coli is a grave infective agent of mastitis during winter season of year [13]. *E.coli* enters the udder through the teat canal there it grows and start a fast inflammatory response, by rising numbers of neutrophils [14]. It acts as opportunistic pathogens. There has been a significant rise in the occurrence of *E.coli* mastitis since 1960 and it is established to be the frequent source of fatal mastitis [5].

The primary line of protection mechanism against *E.coli* invading the mammary gland is based on the local phagocytes, generally mononuclear cells [12]. There is confirmation to propose that negligible pathogens raise milk cell counts and can assist to defend the udder against mastitis [3]. Also in herds with low Somatic cell count have an elevated prevalence of environmental mastitis compared to herds with high Somatic cell count [11].

Environmental mastitis cannot be completely eliminated from a farm, the incident can be held to a minimum. Control of mastitis include washing of udder, teat, milkers hand, surrounding areas should be clean and good sanitation [2]. *E.coli* present on the udder skin cause a grave harm to the animal as well as consumer human health. More hygienic measures are required to prevent the bacterial growth, so as to improve the health of the animals as well as the cleanliness of the milk [1].

Concluded that the healing management alone is not effective action of gangrenous mastitis without, exact removal of the affected quarter is accepted which is the merely standard management for gangrenous mastitis in cattle.

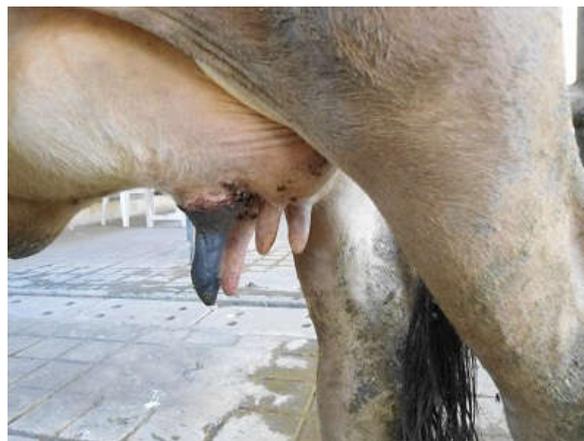


Fig.1 Affected left fore teat



Fig.2 Tip - Left fore teat - Hyperechoic streak canal and teat wall

ACKNOWLEDGEMENTS

The authors are grateful to the Dean, Rajiv Gandhi Institute of Veterinary Education and Research, Puducherry and Head, Department of Veterinary Medicine for providing necessary facilities for the work.

REFERENCES

1. Jones, G.M. (2006) Understanding the basics of mastitis. Virginia Cooperative Extension, Virginia State University USA, pp: 1-7
2. Khan, M.Z. and Khan, A. (2006) Basic facts of mastitis in dairy animals: A review. *Pak. Vet. J.*, **26**: 204-208
3. Kurek, C. (1975) Presence of coryneform organisms in cow udders. III. Fermentation and hemagglutination properties as well as pathogenicity of *C. uberis*, *Pol. Arch. Weter.* **18**: 53-62
4. Leininger, D.J., Roberson, J.R., Elvinger, F., Ward, D. and Akers R.M. (2003) Evaluation of frequent milkout for treatment of cows with experimentally induced *Escherichia coli* mastitis, *J. Am. Vet. Med. Assoc.* **222**: 63-66
5. Menzies, F.D., Bryson, D.G., McCallion, T. and Matthews, D.I. (1995) A study of mortality among suckler and dairy cows in Northern Ireland in 1992, *Vet. Rec.* **137**: 531-536
6. Phiri, A.M., Muleya, W. and Mwape, K.E. (2010), *Tropical Animal Health and Production* Vol.42, Issue 6, pp: 1057-1061
7. Quinn, P.J., Markey, B.K., Carter, M.E., Donnelly, W.J. and Leonard, F.C. (2002) *Veterinary microbiology and microbial disease*. 1st edition., Blackwell Science. pp: 43-48
8. Radostits, O.M., Gay, C.C., Hinchcliff, K.W. and Constable, P.D. (2010). *Veterinary Medicine*. A textbook of the diseases of cattle, horses, sheep, spigs and goats 10th edition., Book power Saunders, London, New York, pp:1455 - 1459
9. Rajdeep, P., Narendra, C. and Harsh, K. (2012) Detection of *E. coli* from the udder of the dairy farm buffaloes in Phagwara region, Punjab, India, *Vet. World*, Vol. **5**: 522-525
10. Sharif, A. and Muhammad, G. (2009) Mastitis control in dairy animals. *Pak. Vet. J.*, **29**: 145 - 148.
11. Suriyasathaporn, W., Schukken, Y.H., Nielen, M. and Brand, A. (2000) Low somatic cell count: a risk factor for subsequent clinical mastitis in a dairy herd, *J. Dairy Sci.* **83**: 1248-1255
12. Swain, S.D., Nelson, L.K., Hanson, A.J., Siemsen, D.W. and Quin, M.T. (2000) Host defense function in neutrophils from the American bison (*Bison bison*), *Comp. Biochem. Physiol. A Mol. Integr. Physiol.* **127**: 137- 147
13. Tabatabaai, A.H. and Firouzi, R. (2001) *Diseases of animals due to bacteria*. Tehran University Press, pp: 20-24
14. Tolle, A. (1975) Mastitis - The disease in relation to control methods, *IDF-bulletin* **85**: 3-15

CITE THIS ARTICLE

Subramanian. B, Abiramy Prabavathy. A., Vijayalakshmi. P., Selvi. D, Rajkumar. K and Subhash Chandra. B. Gangrenous Mastitis in A Cow - A Case Report. *Res. J. Chem. Env. Sci.* Vol 6[4] August 2018. 85-87