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Fungal Mastitis: Diagnosis, treatment and control

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Abstract

Mastitis is caused by a wide variety of pathogens that causes great economic losses in terms of damages to dairy industry by decreasing milk production and through increasing costs of treatment. Mastitis is caused by mainly by bacteria and other organisms but fungi alone or in association with other pathogens have found to cause mastitis in India and cause economic loss to farmers and livestock owners.

Introduction

Mastitis is most devastating disease condition in terms of economic losses throughout the world. The incidence of mastitis due to fungi is usually low in dairy herds. But in recent year increase the of udder infection caused by candida, yeast, *Aspergillus* and other molds. Chronic cases of mastitis with poor or no response to antibiotic therapy one study shows that in chronic mastitis percentage of fungal mastitis among cattle by culture, out of all mycological cultures represents 92.5%, the isolated fungi were *C. albicans* 60% *aspergillus fumigates* 22.5%, *Aspergillus niger* 10%.

Etiology

Many pathogenic funguses common to cause fungal mastitis. Most common causes are: *Aspergillus fumigates*, *Aspergillus terreus*, *Candida albicans*, *Candida krusei*, *candida pseudotropicalis*, *Cryptococcus neoformans*, *Rhodoturella rubra*, *Trichosporum cutaneum*, and



Nocardia spp. Among these candida yeast and aspergillous spp are more common cause of fungal mastitis. Cattles and buffaloes are most susceptible but sheep, goat, horse and pig may also affect.

Transmission of fungal mastitis depends on fungal characters and transmission mechanism. The occurrence is more in first phase of lactation and older animals are more prone to infection. Ingestion of fungi contaminated feed, poor hygienic condition, infected dairy utensils and infected teat cup may act as a source of infection. *Cryptococcal* mastitis may spread due to droppings of pigeon in dairy farms. Soil and the surroundings may be infected with excreta of pigeon. Infection may spread through milker's hand milking machines.

Diagnosis

Clinical symptoms: Yeast and yeast like fungi cause chronic form of mastitis characterized by hardness of udder, reduction in milk yield with watery and flakes was noticed. Mammary secretions were either thick or yellowish or had many flakes and some contained blood.

- History of the case non response to antibiotics.
- Laboratory diagnosis: Isolation and identification of fungi in different specific media. After that identification by staining with lacto phenol cotton blue stain. Biochemical tests like Rennold and Brand effect, sugar fermentation reaction using glucose, lactose, sucrose and urease activity.
- In recent years a multiplex PCR method was developed to identify simultaneously multiple fungal pathogens in a single reaction.

Treatment and control

Fungal mastitis is resistant to antibiotics. antifungal preparations are used for treatment and its control.

- Various antifungal preparations like nystatin, amphotricin-B has been used against fungal mastitis caused by *candida* spp.
- Micozole, I/V followed by thiobendazole orally, and sulphamethoxy pyridazine has been used successfully.



- Intramammary Infusion: Iodine in oil, providine iodine, and Merthiolate (20 ml of 0.1%) solution may use.
- Potassium iodide orally and Sodium Iodide (10%) solution may be given through I/V route.
- Some herbal preparations containing garlic oil extracts, allium sativum and sesame oil are effective against fungal mastitis.

Effective control of fungal mastitis is very difficult but by adopting some control measures it may be controlled successfully.

Proper, early, and confirmatory diagnosis is very essential for early control of disease. Following detection, immediate treatment should be rendered with appropriate drugs. The hygiene of the udder should be maintained by cleaning and teat dipping in Iodophor solutions. Feeds with fungal contamination should be avoided. The chronic nonresponsive cases should be culled and disposed. Dairy utensils and hands of milker should be cleaned properly. The complete milking should be done and every milking and milk should not be left in teats.

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