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Case Report

Isolation of Candida Spp. from Mastitis Milk

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Abstract

Crossbred cattle (Jersey x Sahiwal), eight year of age was suffering from a clinical mastitis. It was treated with cephalosporin according to antibiotic sensitivity test. The Candida species was isolated in pure form and it was subjected to five antifungal drugs viz: Ketaconazole, Fluconazole, Clotrimazole, Itraconazole and Polymixin-B. The Polymyxin B was the best effective drug against candida mastitis. Indiscriminate utilization of antibiotics without knowing the cause of infection could be a reason behind the candida mastitis.

Keywords: Antifungal, Candida, Mastitic

Introduction

Mastitis is one of the most significant disease in dairy cows. The manifestations of mastitis include various abnormalities such as a watery appearance of milk, flakes, clots, or pus in milk. The incredible dominant cases are caused by bacteria, yet recently there have been an increasing number of reports of mycotic etiology (Spanamberg *et al*., 2008). In spite of the fact that frequency of mastitis because of fungi and yeasts is normally low in dairy herds, sometimes they have been associated with clinical mastitis in dairy cattle (Costa *et al*., 1993). *Candida* species are the most frequent organism among the mycotic mastitis agents isolated from infected glands (Watts, 1988). There are many predisposing factors that may add to the continuous increase in the prevalence of bovine mycotic mastitis as generally hot climate, predominant small-scale and household rearing systems of cattle that usually associated with unsanitary milking practices, the excessive and abuse of antibiotic treatment, the misdiagnosis and consequent delay of specific antifungal therapy. This study explore the yeast in the milk of dairy cows.

Material and Methods

Collection of Milk Samples

Milk sample was collected aseptically in sterile vials from the case at Veterinary Clinical Complex, College of Veterinary and Animal Sciences, Meerut. The udder was thoroughly washed with the potassium permanganate solution (1:1000) and wiped with clean cloth to allow dry and the teats were mopped with 70% ethyl alcohol.

Media Reagents and Chemicals

The media and chemicals were obtained from Hi-media, Mumbai (India) and prepared in the laboratory as per the standard procedures (Cruickshank *et al*., 1975).

Isolation and Identification of Isolates

Milk sample directly inoculated on Brain Heart Infusion Agar (BHI), Mac Conkeys Lactose Agar (MLA) and Sabouraud Dextrose Agar (SDA) plates for microbial isolation. The inoculated plates were incubated aerobically at 37ºC for 24-48 hrs for bacterial isolation and 25ºC for one week for fungal isolation. The typical colonies were subjected to various microbiological tests methods as per described by Quinn *et al*. (2004).

In-vitro Antifungal Susceptibility Testing

All the microbial isolated were analyzed for five different antifungal discs (M/s Hi Media Laboratories Ltd., Mumbai, India) namely–Ketaconazole (50 mcg), Fluconazole (25 mcg), Clo-trimazole (10 mcg), Itraconazole (10 mcg), Polymixin-B (300 mcg). The disc diffusion method of Bauer *et al*. (1966) was employed and the interpretation was made as per the zone size interpretation chart provided by the manufacturer of discs.

Result and Discussion

Mastitis influence the milch animals and inflicting huge financial losses to the dairy sector throughout the world (Pal, 2007). The milk sample yielded pure and heavy growth of yeast on Sabouraud dextrose agar (SDA) at 37◦C within 24–48 h. Colonies are opaque, white and usually smooth with creamy texture or pasty, and microscopically it seems to comprise solely of oval to round budding blastospores. This was in the accordance with the finding of Jadhav and Pal (2013) who reported *Candida albicans* from milk of buffalo and cattle. The *in-vitro* antifungal investigation revealed Polymyxin B to be the most effective drug. The treatment of the mycotic fungi is a venture, as most of the fungi don't respond any antibiotic therapy (Tarfarosh and Purohit, 2008). Candida is typically viewed as an opportunistic yeast pathogen, and the source of contamination may be skin of the udder, milker's hands, milking machines, floors, straw, feed, medications, sanitary agents and other equipment (Krukowski *et al*., 2006). Kitamura *et al.* (1990) reported pseudohyphae, blastoconidiae, and hyphae in the mammary tissue and infiltration and granulation tissue in chronic mastitis due to *Candida maltosa* in a cow. The isolation and identification of *C. albicans* from mastic milk demonstrated that yeast was likely the etiological agent of mastitis in this case. Our investigation likewise supported by the finding of Pal (2015) who reported first time *Candida* species from the she camel in Ethopia. Extensive indiscriminate application of antibiotics for the treatment of mastitis may lead to

development of fungi in the under.

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Conflict of Interests

There is no conflict of interest.

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