

# Moniliasis in an Asian elephant (*Elephas maximus*) - A case study

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## Abstract

An Asian elephant (*Elephas maximus*) was suffering from chronic diarrhea, anorexia, and dehydration. The case was treated with antibiotics for a week, without any marked improvement. A non-responsive diarrheic Asian elephant's faecal sample was submitted to our laboratory for bacterial isolation and identification. The sample was processed for colibacillosis, salmonellosis and paratuberculosis. The sample was found to be positive for *Escherichia coli* and negative for *Salmonella* and *Mycobacterium paratuberculosis*. After 48 hours of incubation period at 37°C, wrinkled, creamy white, raised colonies were noticed over blood agar. Oval or spherical shaped budding yeast cells were observed on Gram's staining. Monomorphic form of these yeast cell colonies were later confirmed as *Candida albicans* by germ tube test. The presence of *Candida albicans* in association with enterotoxigenic *Escherichia coli* (ETEC) might have caused severe enteric infection in an Asian elephant.

**Key words:** Asian elephant, *Candida albicans*

Wild animals in captive or free range suffer with many fungal infections such as ringworm, moniliasis, coccidiomycosis, cryptococcosis, nocordiosis, phycomycosis, histoplasmosis etc. (Wallach and Boever, 1983). Fungal infection among wild animals many a time goes unnoticed or under reported. *Candida* infection is showing an upsurge in incidence in human beings (Julian *et al.*, 2003). The major clinical condition by *Candida* in humans is thrush, whereas in animals it is associated with mastitis, abortion, endometritis, infertility, dermatitis and thrush (Jand *et al.*, 2003, Scott 1988. and Mishra and Panda, 1986). In wild animals *Candida* infection either alone or in association with bacteria are recorded in black bucks, mouse, oposums, kangaroos, primates, bear, exotic swine, dolphins and wild bird (Wallach and Boever, 1983). Elementary canal infection due to *Candida albicans* reported in humans, domestic animals and wild animals (Flower and Miller, 2008, Jand *et al.*, 2003. and Finn, 1969), which is often follow extended therapy of broad spectrum antibiotics, corticosteroids, immunosuppressive drugs and also avitaminosis-A and chronic diseases are the major contributing factors in increasing the incidence of disease in wild animals. However reports on such systemic fungal infection with *Candida albicans* in elephants are scanty. Hence, this case study reports the systemic fungal infection of moniliasis in captive Asian elephant.

An Asian elephant (*Elephas maximus*) at Chhattbir zoo (Punjab) was suffering from diarrhea, dehydration and was treated by zoo veterinarian with broad spectrum antibiotics for a week, without any marked improvement. A non-responsive diarrheic Asian elephant's faecal sample was submitted to our laboratory for bacterial isolation and identification. The received faecal sample was processed for *Escherichia coli*, *Salmonella* and *Mycobacterium paratuberculosis* using standard faecal culture and isolation methods (Quinn *et al.*, 2007). Array of different selective plates (Mac Conkey Lactose Agar, Brilliant Green Agar, Eosine Methylene Blue Agar, Xylose Lactose Turgital-4 Agar) were used for identification of *Escherichia coli* and *Salmonella*. Whereas, modified Zheil Neelson's acid fast staining technique was carried out for detection of *Mycobacterium paratuberculosis* and to detect any other bacteria sample was streaked over blood agar. The results indicated that the faecal sample was positive for enterotoxigenic *Escherichia coli* (*E. coli* – O60) and negative for

*Salmonella* and *Mycobacterium paratuberculosis*. After 48 hours of incubation period at 37°C, wrinkled, creamy white, raised colonies were noticed over blood agar. Oval or spherical shaped budding yeast cells were observed on Gram's staining. Monomorphic form of these yeast cell colonies were suspected to be *Candida species* and were later confirmed as *Candida albicans* by germ tube test (Quinn *et al.*, 2007). *Candida albicans* have the ability to grow on blood agar, therefore they often isolated from specimen submitted for bacterial culture. There are many species of *Candida species* isolated from animals including both pathogenic and non pathogenic species. Of these *Candida albicans* is most frequent and significant. To differentiate pathogenic *Candida species* from non pathogenic *Candida species* a simple germ tube test was performed. The germ tube test allows rapid differentiation of *Candida albicans* from most of the other non pathogenic *Candida species* (Sridevi *et al.*, 2008).

In this case, isolation and identification of *Candida albicans* confirms the moniliasis, which was characterized by anorexia, diarrhea and dehydration. Presence of *Candida albicans* in association with enterotoxigenic *Escherichia coli* (O60) might have caused severe enteric infection in an Asian elephant. Later, zoo veterinarian was intimated to take up necessary treatment against moniliasis.

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