

OCCURRENCE OF FUNGAL OTITIS IN CAMELS

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Mycotic otitis externa, a sporadic infectious disease of the ear, caused by a wide variety of fungi most of which are saprophytes occurring in diverse types of environmental substrates (Emmons *et al*, 1977; Pal, 1982). The disease is characterised by inflammation, pain, pruritis, exfoliation of epithelium and partial deafness due to occlusion of ear canal by a plug of fungal hyphae, cerumen and epithelial debris (Emmons *et al*, 1977). Among animals, mycotic otitis is frequently reported in canines (Pal, 1982; Kumar *et al*, 2002). The scarcity of report on the involvement of mycotic pathogens in camel otitis prompted the authors to put on record the cases of otomycosis in Indian dromedary.

Two male camels aged 3 and 6 years with a history of prolonged purulent discharge from the ear were brought to the college hospital for treatment. The sterilised cotton swab (Hi-Media India) was used to obtain the clinical samples from the diseased ear. The swabs dipped in 1% solution of the peptone were rubbed in affected ear to collect the specimen and were sent to the veterinary public health laboratory for fungal isolation and drug sensitivity.

The clinical and mycological details of the two camels are summarised in table 1. The direct microscopical examination of KOH mounts and Gram stained smears revealed the presence of numerous yeast cells with and without budding and pseudohyphae compatible with *Candida* spp. and separate, branched hyphae with conidiophores morphologically indistinguishable from *Aspergillus* spp. The culture of clinical material from case no. 1 on Sabouraud medium showed pure and luxuriant growth of *Candida* spp. which appeared as smooth, cream coloured and pasty.

The ear swab from case no. 2 on Sabouraud dextrose agar with chloramphenicol yielded yellow to green velvety colonies at 37°C. In Narayan stain, isolates of *Candida* showed many oval to circular yeast cells with or without budding, whereas, in case of *Aspergillus* isolates, yellow to green conidia, spiny, rough, pitted conidiophores, phialides and vesicles were noted. There was no growth of other organism on nutrient agar and BHI medium. The cultural, morphological and biochemical characteristics confirmed the identity of the isolates as *Candida albicans* and *Aspergillus flavus*. Both the isolates when tested by *in vitro* disc diffusion method which revealed the sensitivity against clotrimazole, nystatin, mercurochrome and gentian violet, but found resistant to acriflavin, salicylic acid, ampicillin, nitrofurazone and griseofulvin.

The isolation of the fungus from a clinical lesion and its demonstration in the specimen are accepted as criteria for confirming the validity of mycological diagnosis. Both the criteria were followed in the present case and thereby, established the role of *C.albicans* and *A.flavus* in the etiology of the otitis externa in these camels who had no other signs of pulmonary or systemic involvement. These opportunistic fungi are known to produce disease in immunocompromised and healthy subjects (Rippon, 1988; Pal and Torres-Rodriguez 1990 and Pal and Desai, 1998). Otomycosis is a subacute or chronic infection of the external auditory canal of man and animals. A large number of fungi such as *Aspergillus niger*, *A. flavus*, *A. fumigatus*, *A. terreus*, *A. glaucus*, *Candida albicans*, *C. tropicalis*, *C. krusei*, *Penicillium* spp., *Pseudoallescheria* spp., *Paecilomyces*, *Malassezia* spp. are implicated in the etiology of otitis externa (Chander,

Table 1. Clinical and mycological findings in otitis externa of camels.

Case No.	Breed	Age	Sex	Clinical history	Laboratory diagnosis	
					Direct microscopy*	Isolation**
1.	Kutcchi	6 years	Male	Purulent discharge from right ear for over 4-5 days	Yeast and pseudohyphae	<i>Candida albicans</i>
2.	Kutcchi	3 years	Male	Purulent discharge from right ear for the last 3 months	Hyphae and conidiophores	<i>Aspergillus flavus</i>

*Direct microscopy was done in KOH **Cultural isolation was attempted on Sabouraud Medium

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1996). It is important to mention that in tropical countries, *A. niger* is more prevalent, whereas, *C. albicans* is predominantly found in temperate zones of the world. In the present investigation one camel had otitis due to *C. albicans* and an other with *A. flavus*.

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