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ORIGINAL ARTICLE/ARTICLE ORIGINAL

Isolation and comparative investigation of vaginal mycoflora in feline population of urban and dairy cattle herds

Identification et comparaison de la flore vaginale des chats domestiques, errants, et de ceux vivant auprès de troupeaux de bovins laitiers

M.T. Garoussi [a,*], S. Eidi [b], M. Mehravaran [c]

[a] *Department of Theriogenology, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran*
[b] *Section of Mycology, Department of Pathobiology, Faculty of Veterinary Medicine, Ferdowsi University of Mashhad, Mashhad, Iran*
[c] *Graduated student from Faculty of Veterinary Medicine, Ferdowsi University of Mashhad, Mashhad, Iran*

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Short hair;
Vagina

Summary
Objective. — The aim of this work was to identify the predominant fungal species present at vaginal site in different healthy cats including households, stray and cats in industrial dairy cattle herds.
Materials and methods. — Fungal isolates of vaginal fluids of 100 cats were collected using the sterilized cotton swabs from discharges of vagina. The isolates were identified according to their morphological characteristics and biochemical profile. Were included 34%, 33% and 33% households, stray cats and cats of industrial dairy cattle herds of Mashhad-Iran, respectively. They were short hair cats.
Result. — Vaginal fungi were isolated from 69% of feline population. Fungal isolates were obtained from vagina of 22%, 25% and 22% of households, stray cats and cats of industrial dairy cattle herds, respectively. There were no significant differences among the cats. The highest fungal agent was recovered in cats of 1—2 years old. Twenty two different isolates were recovered in this study. The most frequently recovered species samples were *Penicillum*

* Corresponding author at: Department of Theriogenology, Faculty of Veterinary Medicine, University of Tehran, P.O. Box: 14155-6453, Tehran, Iran.
E-mail address: garoussi@ut.ac.ir (M.T. Garoussi).

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spp. (11%) followed by *Aspergillus section Nidulanti* (4%). However, the vagina of healthy cats could be contaminated by 2—4 different fungal agents.
Conclusion. — It is concluded that fungal infections can occur in vaginal cavity of different healthy kinds of cats.

MOTS CLÉS
Chats ;
Mycoflore ;
Chats errants ;
Chats domestiques ;
Chats de troupeaux laitiers ;
Poils courts ;
Vagin

Résumé
Objectif. — Le but de ce travail était d'identifier les espèces fongiques prédominantes présentes dans le vagin chez différents chats bien portants: chats domestiques, chats errants, chats proches des troupeaux de bovins pour production laitière.
Matériel et méthodes. — Les isolats fongiques des sécrétions vaginales de 100 chats ont été collectés en utilisant les tampons de coton stérile pour les secrétions vaginales. Les isolats ont été identifiés en fonction de leurs caractéristiques morphologiques et biochimiques. Ont été inclus respectivement 34 %, 33 % et 33 % de chats domestiques, de chats errants et de chats des troupeaux de bovins producteurs de lait à Mashhad en Iran. Il s'agissait de chats à poils courts.
Résultats. — Des champignons ont été isolés à partir de 69 % de la population féline. Des isolats de champignons ont été obtenus à partir du vagin chez 22 %, 25 % et 22 % des chats domestiques, des chats errants et des chats de troupeaux de bovins laitiers, respectivement. Il n'y avait pas de différences significatives entre les chats. La plus grande fréquence d'isolement fongique concernait les chats de 1 à 2 ans. Vingt-deux isolats différents ont été récupérés dans cette étude. Les espèces le plus fréquemment récupérés étaient *Penicillum* spp. (11 %) et *Aspergillus section Nidulanti* (4 %). Toutefois, le vagin de chats en bonne santé pouvait être contaminé par 2 à 4 agents fongiques différents.
Conclusion. — On en conclut que les infections fongiques peuvent se produire dans la cavité vaginale de différents types de chats sains.

Introduction

Knowledge of the microorganisms present in the animal environment is essential for better understanding of pathological processes. Inflammation of the vulva and vagina may occur in prepubertal or mature (intact or spayed) bitches. It is rare in queens and is seen in cats less than one year of age. Vulvo-Vaginitis usually is due to bacterial infection and fungal agents can be isolated as the secondary infect. Infections of genital system such as vaginitis, cervicitis, and endometritis are important diseases that may affect on feline reproduction system. Therefore, it is important to detect continuous or occasional vaginal microbial populations, and to understand their potential role as an endogenous source of infection [2,7,18].

Yeasts are found on a wide variety of substances such as soil, plants, water, fruits, trees and exudates of animals. About 100 fungal species have been identified as pathogenic for humans and animals in such conditions as long-term antibiotic therapy, intrauterine antibiotic therapy and traumatic implantation [25]. The reproductive tracts of different animals are the major reservoir of yeasts such as *Candida albicans* and *Candida neoformans* [4]. Fungi are found in the normal vaginal microbiota of canines, and vary according to the stage of the estrous cycle, which is known to constitute an endogenous source of infection [5]. It was shown that *Candida* spp., *Malassezia pachydermatis*, *Saccharomyces cerevisiae* and *Rhodotorula* spp. are part of the normal canine mycoflora at multiple anatomical sites. They can be colonized in vaginal, oral and perianal mucosa [3].

Some opportunistic fungal of genital system of animals have been reported. However, some mycotic agents can be pathologic in cows [9,24], dogs [12] and horses [4]. They can be constituted an endogenous source of infection in dogs [5,12]. It is shown that vagina of lions can be contaminated by different fungal agents [12]. The prevalence of vulvovaginitis in women due to fungal agents (especially with the origin of *Candida* spp.) has been reported [23]. It was reported that almost 75% of women had fungal infection at least one episode of vulvi-vaginitis in their lifetime [8]. Fungal infections of the domestic feline female reproductive system have not received much attention in the past. Since cats are kept as a pet and they may leave near cattle herd and also the population of stray cats in urban society is rising, cross fungal contamination might be important as the sanitation hazards.

The aim of this investigation was therefore to determine the prevalence of vaginal mycoflora contamination in different kinds of feline population included households, stray and cats in industrial dairy cattle herds.

Materials and Methods

Samples were obtained from vaginal fluids of 100 short hair cats using sterilized cotton swabs. They were included 34 (34%), 33 (33%) and 33 (33%) households, stray cats and cats of industrial dairy cattle herds of Mashhad-Iran, respectively.

The samples were transferred to sterilized Stuart transport media (Difco Laboratories. USA) and were brought on ice to the mycology laboratory of Faculty of Veterinary Medicine, Ferdowsi University of Mashhad, Mashhad-Iran. They were inoculated in Sabouraud Dextrose Agar 4% at