

Aspergillosis in a gyrfalcon (*Falco rusticolus*) in Saudi Arabia

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Abstract A mixed case of chronic tracheal (syringeal) and pulmonary (lungs and air sacs) aspergillosis was diagnosed in an adult female gyrfalcon (*Falco rusticolus*). The bird presented with a 4-week history of severe dyspnea, exercise intolerance, depression and reduced appetite. Physical examination revealed slight emaciation. Hematological analysis showed leucocytosis, heterophilia, monocytosis, and thrombocytosis. Radiographic examination showed thickening of the air sac walls and increased radiopacity within the lung field. Caseous granulomatous lesions were observed during tracheoscopy and laparoscopy procedures. Cytological examination of specimens obtained from these lesions demonstrated *Aspergillus* species, which was isolated in culture and identified as *Aspergillus flavus*.

Keywords Aspergillosis · Gyrfalcon · *Falco rusticolus* · *Aspergillus flavus* · Tracheoscopy · Laparoscopy

Introduction

Aspergillosis is an infectious, noncontagious disease of domestic and wild birds caused by ubiquitous soil saprophytes of the genus *Aspergillus*. The species most frequently isolated from infected birds are *Aspergillus fumigatus*, *Aspergillus*

flavus, *Aspergillus nidulans*, *Aspergillus niger*, and *Aspergillus terreus* (Reavill 1997). In raptors, the infection is usually acquired through inhalation of spores from the environment. Aspergillosis is a serious problem for falconers, being the commonest and most lethal disease in captive raptors (Tarello 2011). It is also one of the most common nontraumatic disorders of wild raptors (Redig et al. 1980).

The diagnosis of aspergillosis in raptors on the basis of clinical signs alone is extremely difficult, particularly with regard to the chronic form of the disease, since the clinical signs are often nonspecific and variable while fungal mycelia are rarely visible in body fluids or exudates. A definitive diagnosis of aspergillosis in these birds requires a combination of clinical and physical examination as well as laboratory procedures including hematological and blood biochemical tests, radiography, endoscopic examination, cytological examination of lesions, and serological testing. In Saudi Arabia, these facilities are not available except in specialized falcon clinics. Therefore, although aspergillosis is common among captive falcons, published descriptions of the disease in live birds in Saudi Arabia are very scanty. The same applies to aspergillosis in other avian species in Saudi Arabia where only one publication is found in the literature, describing a fatal case in an ostrich (Shathele et al. 2009). In falcons and other avian species, aspergillosis usually involves the lower respiratory tract, with the majority of cases being observed in the air sacs (Campbell 1986). The following communication describes an uncommon form of aspergillosis exhibiting both focal (tracheal/syringeal aspergilloma) and generalized (aspergillosis pneumonia and air-sacculitis) manifestations in a gyrfalcon (*Falco rusticolus*) in Saudi Arabia.

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