Aspergillosis in free-ranging Magellanic penguins

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Poster session 5, September 23, 2022, 12:30 PM - 1:30 PM

Aspergillus is an opportunistic fungal disease caused by the Aspergillus genus, mostly by Aspergillus section Fumigati. Captive Magellanic penguins are vulnerable to Aspergillus infection, being this fungus a limiting factor during the process of rehabilitation with a mortality rate of around 50%

Objectives: The main purpose of this study was to investigate the occurrence of Aspergillus in non-captive penguins, and to evaluate the proportional mortality rate by aspergillosis in free-ranging Magellanic penguins during their migration and reproductive season.

Methods: Casuistry of Magellanic penguins were collected from the Southern coast of Brazil between June 2017 and October 2019 between Ilha do Chico beach (Southern RS, Brazil - 33°49'29.9"S 50°23'26.7"W) and the islands with the Lagoa do Peixe (Southern RS, Brazil - 31°24’S, 51°10’W 31°14’S, 50°14’W). In addition, in January 2019, penguins found dead in the reproductive colony in four islands located in Puerto Deseado-City (Santa Cruz, Patagonia, Argentina: 47°41’09’’S 67°55’30’’W) were collected. All animals were necropsied, and macroscopic alterations were observed. Samples of macroscopic lesions and/or respiratory systems were collected for histopathology and mycological culture. Only proven aspergillosis cases, defined by negative lesions at necropsy, associated with hyaline, septate, and 45° branched hyphae in histopathological slides and isolation of Aspergillus sp. in the culture were compared. Fungal isolates were identified by molecular techniques.

Results: A total of 98 Magellanic penguins were included in our study, being 89 necroposed on the Southern RS beaches, and 18 from the Patagonian colony. Two penguins collected in Southern Brazil were diagnosed with aspergillosis, both juveniles, one showing nodules in the lung parenchyma, and the other nodules and fungal colonies at the lung and air sac, resulting in a proportional mortality rate of 2.5%. Both isolates were identified as A. fumigatus sensu stricto. Regarding the carcasses collected from the reproductive colony (Patagonian islands), no penguin had anatomopathological or mycological evidence of aspergillosis.

Conclusion: Given the only known cases of aspergillosis in seabirds undergoing rehabilitation, these case reports suggest the possible manner of transmission. The absence of aspergillosis cases in the reproductive period could be attributed to the low number of carcasses included. Our study is an initial step to demonstrate aspergillosis as one of the causes of mortality also in free-living penguins, especially during the migration process, inquiring more studies, in other routes of migration, as well as in reproductive colonies.

Isolation of Cryptococcus neoformans and other yeast from pigeon droppings in Khartoum state, Sudan

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Poster session 1, September 23, 2022, 12:30 PM - 1:30 PM

Objectives: The aim of this study was to investigate the presence of Cryptococcus neoformans and other yeast species in pigeon droppings in Khartoum state, Sudan.

Methods: Sample collection A total of 120 samples were collected from pigeon droppings from Khartoum state. Pigeon droppings were collected using sterile wooden spatulas and placed directly in clean plastic bags.

Processing of samples
Approximately 2 g of pigeon droppings were added to 10 ml of sterile saline. The samples were allowed to stand for 20 min with frequent remixing. Isolation and identification of yeast isolates
A loopful of supernatant fluid from prepared samples was taken and streaked onto Sabouraud’s dextrose agar media supplemented with 0.5 mg/ml chlorphenesin incubated at 37°C for 1-2 days. All yeast isolates were identified by direct microscopic examination using the lacto-phenol cotton blue stain India ink stain and Gram’s stain. Further confirmatory tests were conducted using Crome Methid Agar (CMA) with reagent B0, germ tube production test using horse serum, and immune test.

Confirmation of identification was done using API 20C AUX and API ID 32C AUX (BioMérieux, Madrid, Spain)

Results: Cryptococcus neoformans is the most common species isolated from pigeon droppings as shown in Table 1. Different Candida species have been isolated.

| Isolated yeast         | Number |
|------------------------|--------|
| Cryptococcus neoformans| 42     |
| Candida spp            | 34     |
| Cryptococcus albicus   | 5      |
| Aspergillus sp         | 4      |
| Rhodotorula glutinis   | 3      |
| Rhodotorula mucilaginosa| 5     |
| Geotrichum capitatum   | 2      |
| Zygosaccharomyces spp  | 1      |

Conclusion: The present study concluded that there is a potential role of pigeons as a reservoir for C. neoformans and other zoonotic yeast in the environment that can affect humans and animals.