RESEARCH NOTE

DETECTION OF CRYPTOCOCCUS NEOFORMANS IN BIRD EXCRETA

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Abstract. We evaluated 14 samples of bird excreta from pigeons, parrots, open billed storks and crows obtained from thirteen places in Bangkok and nearby areas between April and July 2004. These bird excreta were examined for Cryptococcus neoformans by direct plating method to inspect their ability to grow at 37°C. Capsule production was examined by Indian ink preparation. They were also tested for urease and phenoloxidase enzymes. Cryptococcus neoformans var neoformans was recovered from pigeon excreta in 9.09%. This implies those having impaired immunity may get this fungus from the environment.

INTRODUCTION

Cryptococcus neoformans is a fungal pathogen that can cause infection in patients with immunodeficiency as opportunistic infection. Mortality from HIV-associated cryptococcal meningitis remains high (10-30%), even in developed countries, because of the inadequacy of current antifungal drugs and the complication of increased intracranial pressure (Bicanic and Harrison, 2005). HIV-infected children have also developed cryptococcosis. The 8-year point prevalence of cryptococcosis among hospitalized HIV-infected patients was found in one study to be 2.97% (Likasitwattanakul et al, 2004). Cryptococcosis is not only found in those HIV-infected children but also in those with systemic lupus erythematosus (Pancharoen et al, 2001). Non-HIV-related cryptococcosis has also been reported, including cutaneous cryptococcosis, pulmonary cryptococcosis and cryptococcal infection of the central nervous system (CNS) (Yao et al, 2005). Chierakul et al (2005) found that Cryptococcus neoformans was among other organisms with increased infection rates in HIV-infected patients and is the commonest condition requiring admission due to cryptococcal meningitis (15%) (Inverarity et al, 2002). Its reservoir is pigeons which come into close contact with people both healthy and those with immunodeficiency, because their eating places are limited. Many people enjoy feeding pigeons which is another way of bringing them close together. The AIDS epidemic has shown the importance of studying the epidemiology of this fungus. Thus we conducted a survey of the prevalence of C. neoformans in pigeons, crows, open billed storks and parrots.

MATERIALS AND METHODS

Thirteen locations were chosen for this
C. neoformans in Bird Excreta

Positive findings for Cryptococcus neoformans in 13 areas from 14 pooled samples of bird excreta.

<table>
<thead>
<tr>
<th>Kind of Birds</th>
<th>Total number of samples</th>
<th>Total number of positive</th>
<th>Percent of positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pigeon</td>
<td>11</td>
<td>1</td>
<td>9.09</td>
</tr>
<tr>
<td>Crow</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Open billed stork</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Parrot</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Of the 14 samples from thirteen areas examined for Cryptococcus neoformans, the fungus was found in only 1 sample (9.09%) of pigeon excreta, recovered on both Sabouraud's dextrose agar and Pal's medium. The assimilation test confirmed the fungus was C. neoformans var neoformans. The rest of the bird excreta were negative, as shown in Table 1.

RESULTS

The recovery of Cryptococcus neoformans from pigeon excreta emphasizes this opportunistic pathogen exists in the environment. Our study found the incidence of this fungus at 9.09%, while in Nepal it was found in 25% of samples (Pal, 1977). Cryptococcal meningitis is a common opportunistic infection in AIDS patients, particularly in Southeast Asia and Africa. Cryptococcosis accounts for 13-44% of all deaths in AIDS (Bicanic and Harrison, 2005). Cases also occur in patients with other forms of immunodeficiency and in apparently immunocompetent individuals. Cryptococcal antigen in the cerebrospinal fluid of those with cryptococcal meningitis has been found positive on all tested samples and Indian ink preparations were positive in 94% of cases. However, routine CSF examinations are normal in 50% of cases (Likasitwattanakul et al, 2004) which can result in a missed diagnosis. Amphotericin B,
flucytosine, fluconazole and itraconazole have been used effectively to treat this infection (Imwidthaya and Poungvarin, 2000).

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REFERENCES