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PULMONARY DISEASE BOARD REVIEW MANUAL

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Fungal Diseases of the Lung

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Table of Contents

Introduction	2
General Considerations	2
Diagnosis of the Endemic Mycoses	4
Histoplasmosis	5
Blastomycosis	7
Coccidioidomycosis	8
Summary Points	11
Board Review Questions	11
Answers	12
Suggested Readings	12

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INTRODUCTION

The North American continent is the home of 3 major endemic mycoses affecting the lung: histoplasmosis, blastomycosis, and coccidioidomycosis. Whereas histoplasmosis and blastomycosis are sometimes found on other continents, coccidioidomycosis is restricted entirely to North and South America. Consequently, these 3 fungal diseases are generally thought of as geographically restricted fungal infections. In the United States, the endemic mycoses mostly occur in large contiguous areas of the country, with the areas affected by histoplasmosis and blastomycosis overlapping. The etiology of all 3 mycoses involves inhalation of aerosolized spores of soil organisms.

This manual will review in greater detail the epidemiology, etiology, and diagnosis of these fungal diseases, using a case-presentation format to illustrate its major clinical points. Treatment strategies for each of the mycoses will also be discussed, as will the increased risk posed by these fungal diseases to immunologically compromised patients.

GENERAL CONSIDERATIONS

EPIDEMIOLOGY OF THE ENDEMIC MYCOSES

Histoplasmosis and blastomycosis are both endemic in most of the midwestern and southwestern United

States, whereas coccidioidomycosis is endemic in a large part of the southwestern United States and adjacent areas of Mexico. All 3 diseases can be extremely common in their respective geographic area, and each is capable of infecting otherwise healthy hosts, although the most serious forms of the diseases usually occur in immunologically compromised patients. If a patient does not reside in and has not traveled to an area where a mycosis is endemic, the likelihood of having 1 of these fungal diseases becomes extremely remote.

Histoplasmosis is most common in the southeastern and southcentral United States, especially along major waterways (eg, the watershed area of the Ohio and Missouri rivers). In contrast, the 2 areas in which blastomycosis is most highly endemic are The Delta region of Arkansas and Mississippi and the states bordering the Great Lakes; blastomycosis frequently is seen in patients who engage in outdoor activities such as hunting or orienteering in these areas. Finally, coccidioidomycosis is endemic to the desert of the southwestern United States, specifically at elevations below 3500 ft. Although coccidioidomycosis is exceedingly rare in patients who do not reside in or have not traveled to this endemic area, there have been reports of patients developing coccidioidomycosis after inhaling infective particles from fomites (eg, cotton, sand) transported from the endemic zone.

ETIOLOGY OF THE ENDEMIC MYCOSES

Histoplasmosis, blastomycosis, and coccidioidomycosis share many etiologic characteristics. The causative