Endemic Mycoses in Solid Organ Transplant Recipients

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KEYWORDS

• Solid organ transplant • Endemic mycoses • Histoplasmosis • Blastomycosis • Coccidioidomycosis

KEY POINTS

- Endemic mycoses are thermally dimorphic fungal pathogens occupying a specific geographic range.
- Histoplasmosis, coccidioidomycosis, and blastomycosis are the chief endemic mycoses in North America.
- Infections with endemic mycoses are uncommon, but can cause serious infection in solid organ transplant recipients.

INTRODUCTION

The endemic mycoses are a group of thermally dimorphic fungal pathogens occupying a specific geographic range. This geographic restriction occurs as a result of the unique environmental requirements that best promote sporulation for each species. In North America, the chief endemic mycoses are histoplasmosis, coccidioidomycosis, and blastomycosis.

GENERAL PRINCIPLES

Although they can cause serious infections, all 3 endemic mycoses are surprisingly rare in solid organ transplant (SOT) recipients (**Table 1**).[1,2] A prospective study

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Table 1
Endemic mycoses in SOT recipients

	Histoplasmosis	Blastomycosis	Coccidioidomycosis
Principle North American areas of endemicity	Ohio and Mississippi River Valley areas	Ohio, Mississippi and Tennessee River Valley areas, Great Lakes region	Southwest USA and Northern Mexico
Cases acquired through infected allograft	Yes	No	Yes
Typical clinical presentation	Disseminated disease typically involving lungs, bone marrow, liver and spleen	Severe pulmonary disease ± dissemination often involving skin	Disseminated disease typically involving lungs, skin, bone, joints, meninges
Severity of illness compared to immunocompetent patients	Increased	Increased	Increased
Typical histologic appearance	Small yeast, 2-5 μm in size, with narrow-based budding, often clustered within macrophages	Large yeast, 8–15 μm in size, with broad-based budding and a thick, refractile cell wall	Large (10–100 μm) unique structures called spherules, containing numerous endospores.
Role of antibody detection	Limited role, test insensitive	Insensitive, limited clinical usefulness	Moderately sensitive, but if positive generally indicates current or recent infection. EIA more sensitive but less specific than immunodiffusion tests.
Role of urine antigen detection	Highly sensitive test (≥93%)	Moderately sensitive test (76%–93%)	Relatively insensitive test (≤71%)
Mortality	~10%	~25-38%	~43-62%

Abbreviations: EIA, enzyme-linked immunoassay; SOT, solid organ transplantation.