

PATHOGENIC FUNGI

9 Aug09, 9Aug10, 26Nov12
Madigan & Martinko, 11th edition, p 901

FUNGI: Saprophytic multicellular eukaryotes, grow in almost every niche.
A few are pathogens, **mostly opportunistic**.
Includes yeasts (single celled or dimorphic) and molds (branching hyphae).

Only 50 species are human pathogens.
Superficial mycoses are common, serious infections rare.

Three mechanisms of pathogenicity:

- 1) Allergic hypersensitivity *Aspergillus* found in leaf mold, allergenic
- 2) Intoxication mycotoxins *Aspergillus flavus* (**afatoxin**)
- 3) Infection mycoses growth of fungus on or in the body

MYCOSES three categories:

- 1) superficial (**dermatomycosis**) infects only surface layers: skin, hair, nails, live on keratin

Transmission direct contact, fomites (bathtubs, shower stalls, towels, etc)

Treatment: clean & dry!

Non-prescription: tolnaftate, undecylenic acid or Zn Undecylenate.

Prescription drugs: topical miconazole, clotrimazole, or griseofulvin

(tinea = moth larva, worm)

tinea capitis	Ringworm	<i>Microsporum</i>	scalp, esp children
tinea capitis	Favus	<i>Trichophyton</i>	scalp
tinea pedis	Athlete's Foot	<i>Epidermophyton, Trichophyton</i>	between toes
tinea cruris	Jock Itch	<i>Trichophyton, Epidermophyton</i>	inguinal

- 2) subcutaneous lower layers of the skin

Sporothrix schenckii ubiquitous in rotting wood in soil. Sporotrichosis is an occupational hazard of workers in contact with soil: Farmers, miners etc.

Treatment oral potassium iodide or oral ketoconazole

- 3) Systemic Potentially most serious.

Primary: results from direct fungal infection in healthy person

Secondary: host is predisposed to infection
(antibiotic therapy, immunosuppressed,).

Histoplasma capsulatum **histoplasmosis**, common in rural midwest more than 75% in Ohio Valley, often mild flu-like symptoms. Esp chicken farmers.

Coccidioides immitis coccidiomycosis "San Joaquin Valley fever" spores picked up from desert and blown by wind

Systemic mycoses are especially problematic in immunosuppressed and AIDS patients.
Amphotericin B only moderately effective, but is toxic to kidneys.

Stachybotrys "toxic mold," grows on cellulose, releases toxins to air.
headaches, sore throats, hair loss, flu symptoms, diarrhea, fatigue, dermatitis, general malaise, psychological depression.

Specific examples:

Aspergillosis p 632 systemic &/or respiratory, can be life threatening, treat with amphotericin B

Candida albicans p 633 **Candidiasis** by: thrush, vulvovaginal (curd-like discharge, burning, painful intercourse), treat with nystatin (p. 606-607)

Pneumocystis jiroveci (carinii) Pneumocystic pneumonia in AIDS patients:, p. 635, 636

