

Lab -2-

How to Diagnose Fungus Diseases

Mycoses

A mycosis :(plural: Mycoses) is a fungalinfection of animals, including humans. Mycoses are common, and a variety of environmental and physiological conditions can contribute to the development of fungal diseases. Inhalation of fungal spores or localized colonization of the skin may initiate persistent infections; therefore, mycoses often start in the lungs or on the skin.

Causes

People are at risk of fungal infections when they are taking strong antibiotics for a long time because antibiotics kill not only damaging bacteria, but healthy bacteria as well. This alters the balance of microorganisms in the mouth, vagina, intestines and other places in the body, and results in an overgrowth of fungus.

Individuals with weakened immune systems are also at risk of developing fungal infections. This is the case of people with HIV/AIDS, people under steroid treatments, and people taking chemotherapy. People with diabetes also tend to develop fungal infections.

Types of Mycoses

Mycoses are classified according to the **tissue** levels:

1-Superficial mycosis: mycosis which infect the stratum corneum of the epidermis of the skin , hair and nail .

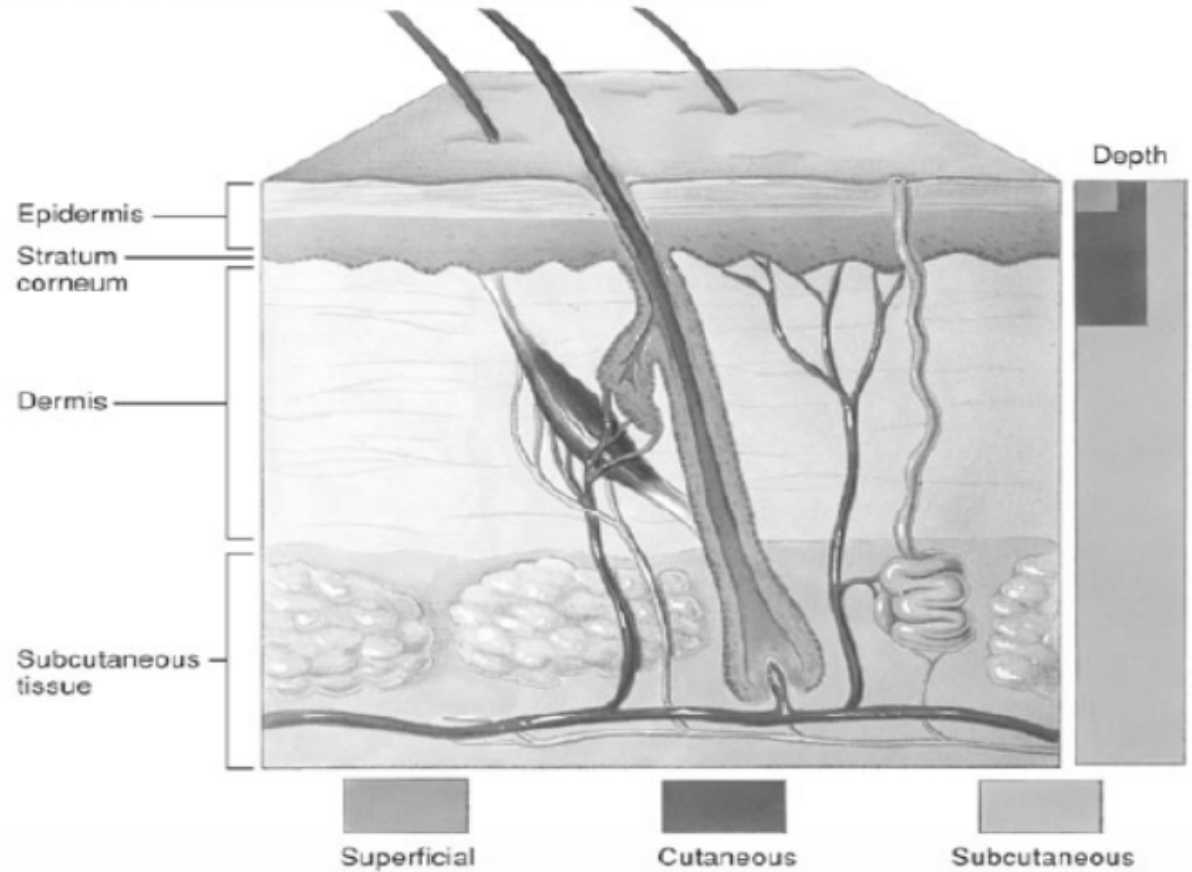
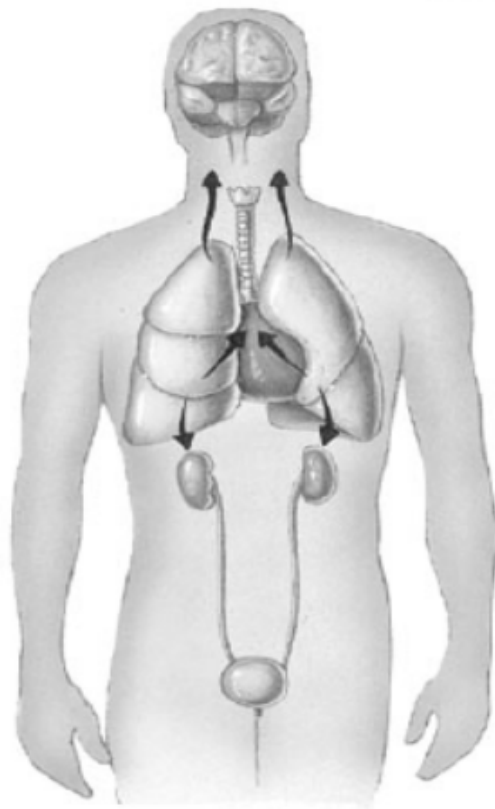
2-Cutaneous mycosis : which involve the outer layers of the skin and cause an allergic or inflammatory response.

3-Subcutaneous mycosis : usually involving fungi of low inherent virulence which have been introduced to the tissues through a wound , and which remain localized or spread only by direct mycelia growth.

4-Systemic mycosis:- Which are caused by true pathogenic fungi .

Levels of invasion

Copyright © The McGraw-Hill Companies, Inc. Permission required for reproduction or display.



Diagnosing Fungus Diseases

1. Clinical Clues
2. Culture of Etiologic Agent
3. Appearance in Tissue

1.) Clinical Clues:

- a. Chronic, slowly evolving
- b. History: soil/airborne – skin and lungs
- c. Compromised: genetic or induced
- d. Clinical picture – only suggestive
- e. Serology & chemistry: of little value in mycology

2.) Culture of Etiologic Agent:

- a. Sabourauds (SAB) is most useful medium. Incubate at 25° C, rarely 35° C.
- b. Sabourauds + antibiotics (Mycosel) for dermatophytes and non-yeast pathogens.
- c. Potato dextrose agar or blood agar are cheap and useful.
- d. Brain heart infusion agar used to culture yeast phase at 35° C.

3.) Appearance in Tissue

a. Direct Examination: KOH examination of tissue
(10 or 20%)

b. Histopathology:

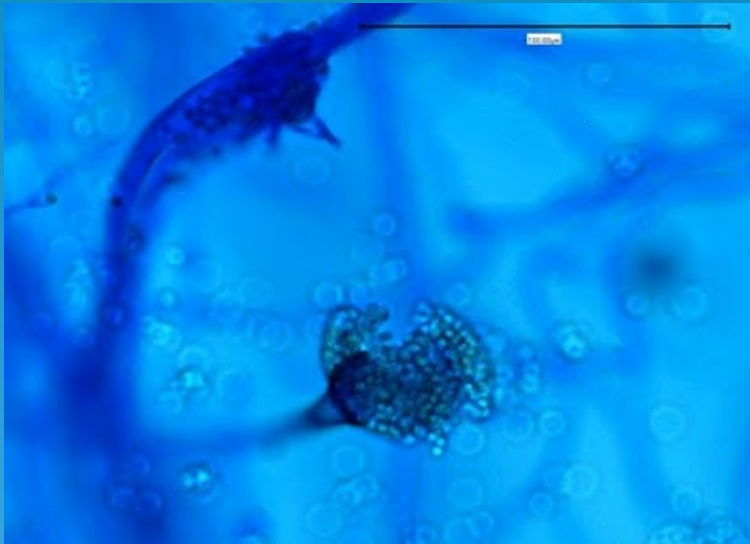
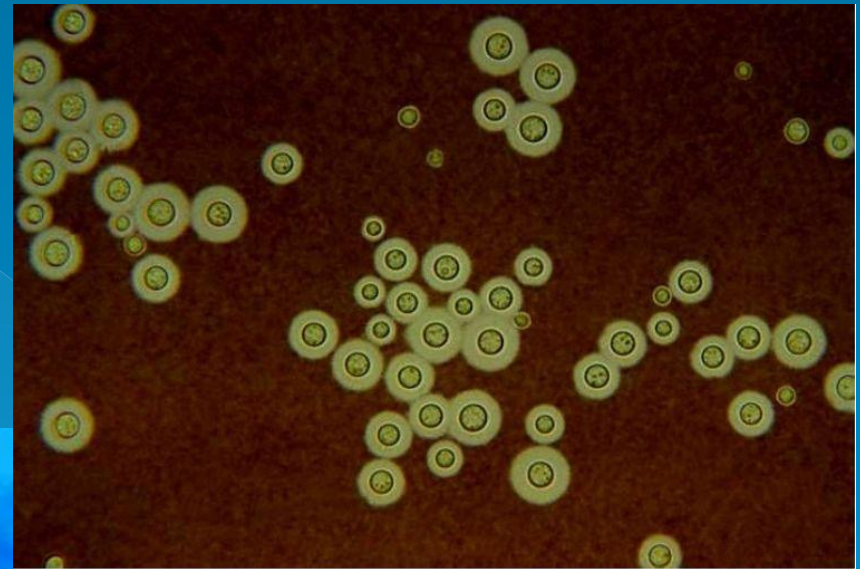
Periodic Acid-Schiff is best;
Silver excellent (e.g., GMS);

3.) Appearance in Tissue (con't.)

fungi causing human diseases are seen in tissue in one of six different ways:

1.) Yeasts

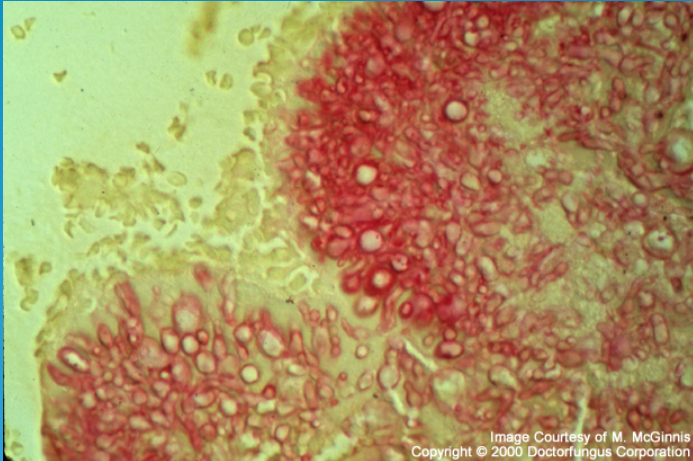
2.) Sporangia



3.) Hyphae



4.) Granules



5.) Fission (sclerotic) bodies



6.) Yeast and hyphae together

