

Mycosis : Fungal Infection – A Mini Review

Savita Garwa

ABSTRACT

Mycosis (plural: mycoses) is a fungal infection of animals, including humans.^[1] 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.^[2]

INTRODUCTION

Fungal infections of the skin was the 4th most common disease in 2010 affecting 984 million people.^[3] An estimation of 1.6 million people die each year of fungal infections

Individuals being treated with antibiotics are at higher risk of fungal infections.^[5]

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.^[6] Very young and very old people, also, are groups at risk.^[7] Although all are at risk of developing fungal infections, the likelihood is higher in these groups.

Mycoses are classified according to the tissue levels initially colonized.

Superficial mycoses

Superficial mycoses are limited to the outermost layers of the skin and hair.^[8]

An example of such a fungal infection is *Tinea versicolor*, a fungus infection that commonly affects the skin of young people, especially the chest, back, and upper arms and legs. *Tinea versicolor* is caused by a fungus that lives in the skin of some adults. It does not usually affect the face. This fungus produces spots that are either lighter than the skin or a reddish brown.^[9] This fungus exists in two forms, one of them causing visible spots. Factors that can cause the fungus to become more visible include high humidity, as well as immune or hormone abnormalities. However, almost all people with this very common condition are healthy.

Cutaneous mycoses

Cutaneous mycoses extend deeper into the epidermis, and also include invasive hair and nail diseases. These diseases are restricted to the keratinized layers of the skin, hair, and nails. Unlike the superficial mycoses, host immune responses may be evoked resulting in pathologic changes expressed in the deeper layers of the skin. The organisms that cause these diseases are called dermatophytes. The resulting diseases are often called ringworm (even though there is no worm involved) or tinea. Cutaneous mycoses are caused by *Microsporum*, *Trichophyton*, and *Epidermophyton* fungi, which together comprise 41 species.

One common disease is the athlete's foot which most commonly affects children before puberty^[citation needed]. It is divided in three categories: chronic interdigital athlete's foot, chronic scaly athlete's foot, and acute vesicular athlete's foot.^[10]

Subcutaneous mycoses

Subcutaneous mycoses involve the dermis, subcutaneous tissues, muscle and fascia. These infections are chronic and can be initiated by piercing trauma to the skin which allows the fungi to enter. These infections are difficult to treat and may require surgical interventions such as debridement.

Systemic mycoses due to primary pathogens

Systemic mycoses due to primary pathogens originate primarily in the lungs and may spread to many organ systems. Organisms that cause systemic mycoses are inherently virulent. In general primary pathogens that cause systemic mycoses are dimorphic.

Systemic mycoses due to opportunistic pathogens

Systemic mycoses due to opportunistic pathogens are infections of patients with immune deficiencies who would otherwise not be infected. Examples of immunocompromised conditions include AIDS, alteration of normal flora by antibiotics, immunosuppressive therapy, and metastatic cancer. Examples of opportunistic mycoses include Candidiasis, Cryptococcosis and Aspergillosis.

Prevention

Keeping the skin clean and dry, as well as maintaining good hygiene, will help larger topical mycoses. Because fungal infections are contagious, it is important to wash after touching other people or animals. Sports clothing should also be washed after use.^[4]

Treatment

Antifungal drugs are used to treat mycoses. Depending on the nature of the infection, a topical or systemic agent may be used.

Example of antifungals include: fluconazole which is the basis of many over-the-counter antifungal treatments. Another example is amphotericin B which is more potent and used in the treatment of the most severe fungal infections that show resistance to other forms of treatment and it is administered intravenously.^[6]

Drugs to treat skin infections are the azoles: ketoconazole, itraconazole, terbinafine among others.^[12]

Yeast infections in the vagina, caused by *Candida albicans*, can be treated with medicated suppositories such as tioconazole and pessaries whereas skin yeast infections are treated with medicated ointments.^[13]

**Research Scholar, Department of Biotechnology,
Mahatma Jyoti Rao Phoole University, Jaipur**

Epidemiology

Fungal infections of the skin were the 4th most common skin disease in 2010 affecting 984 million people.^[1]

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