



FUNGAL DISEASES



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INTRODUCTION

Fungal Infections are common throughout much of the natural world.

In humans Fungal Infections occur when an invading fungus takes over an area of the body and is too much for the immune system to handle.

Fungi can live in the air, soil, water and plants. There are also some fungi that live naturally in the human body.

Fungal Infection is a mycosis.

Out of the 150000 species of fungi, about 50 species are causing diseases in human beings.

CLASSIFICATION OF FUNGAL INFECTION

Superficial Mycoses

Cutaneous Mycoses

Subcutaneous Mycoses

Systemic Mycoses

Opportunistic Fungi

Mycotoxicosis

SUPERFICIAL MYCOSES

These Fungal diseases affect the hair and dead layers of the skin.

Piedra _ Colonization of the hair shaft black or white nodules.

Tinea Nigra _ Brown or Black Superficial skin lesions.

Tinea Capitis – Folliculitiis on the scalp and eyebrows.

Favus – Destruction of hair follicle.

Pityriasis – Dermatitis characterized by Redness of the skin and itching.

CUTANEOUS MYCOSES

These fungal diseases affect the skin, hair and nails.

They are caused by a group of fungi called dermatophytes.

The common dermatophytoses often grow in a radial pattern on the skin with an elevated margin that gives the appearance of a circular worm beneath the cutaneous layer.

Hence this disease is commonly called ring worm.

CUTANEOUS MYCOSES

- Tinea capitis
- Tinea pedis
- Tinea corporis
- Tinea cruris
- Tinea barbae
- Tinea unguium



Tinea pedis :
Also known as athlete's foot, it affects the feet.



Tinea unguium:
Ringworm of the fingernails and toenails



Tinea corporis:
It affects the arms, legs and trunk



Tinea manuum:
Ringworm of the hands and palms



Tinea cruris:
Known as Jock Itch, this affects the groin area



Tinea capitis
Ringworm affecting the scalp



Tinea barbae:
Ringworm of facial hair (beard)



Tinea faciei:
Also known as face fungus, it affects parts of the face

Tinea corporis – body ringworm



RINGWORM SYMPTOMS

The outside of this ring is red and may appear raised or pumpy while the inside of the ring will remain clear or become scaly.

Ring worm is highly contagious and it can be transmitted by skin to skin contact, or from contact with pets such as dogs.

Ringworm fungus also infects soil and mud. So people play or work in infected dirt may catch ringworm as well.



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PREVENTION AND TREATMENT

Keeping the skin clean and dry can help avoid infections.



Tinea Pedis – Athlete's Foot Infection



ATHLETES FOOT SYMPTOMS

Redness or blisters on the affected area.

Infected skin may be soft or layers may start to breakdown.

Peeling or cracking skin.

The skin may scale and peel away.

Itching, Stinging, or Burning sensations in the infected area.

PREVENTION AND TREATMENT

In this methods include allowing the feet plenty of air to breath and keeping them clean and dry.



JOCKITCH SYMPTOMS AND TREATMENT

Redness in the groin.

Chafing, Irritation, Itching or Burning in the infected area.

A red rash with a circular shape and raised edges.

Cracking Flaking or dry peding of the skin in the infected area.



Listerine Wash For Jock Itch



SUBCUTANEOUS MYCOSES

These fungal diseases affect the subcutaneous tissue below the skin and occasionally bones.

Sporotrichosis is the common diseases of this type. Subcutaneous infections, over 35 spp produce chronic inflammatory disease of subcutaneous tissues and lymphatic's,

eg. Sporotrichosis (Ulcerated lesion at site of inculsation followed by multiple nodules)

SYSTEMIC MYCOSES

These diseases affect the internal organs and may spread throughout the body.

OPPORTUNISTIC FUNGI

Certain fungi could not infect healthy persons.

But they infect person in whom the immune system remains weak.

Weakened immune function may occur due to:

Inherited immunodeficiency disease.

Drugs that suppress immune system. Cancer, Chemotherapy, Corticosteroids, drugs to prevent .

Organ transplant rejection.

Radiation therapy.

IMPORTANT FUNGAL DISEASES

Candidiasis

Aspergillosis

Dermatophytosis.

CANDIDIASIS

Candidiasis is a yeast infection that is caused by a fungal microorganisms most often the fungus *Candida albicans*.

Oral candidiasis or thrush is a fairly common disease in newborns.

It is caused by a dimorphic fungi.

These are normal micro biota of gastro intestinal tract, respiratory tract and mouth.

Candidiasis is a sexually transmitted disease.

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Cutaneous candidiasis is the most common form of candidiasis.

It involves the outermost layer of the skin.

This localized superficial infection is noninvasive and is not very dangerous, but causes localized irritation.

The most common and important forms of candidal skin infections are as follows:

Intertrigo

Erosio interdigitalis blastomycetica

Diaper rash

Candidal balanitis

Perianal candidiasis

Candidal folliculitis

CANDIDIASIS SYMPTOMS

Candidiasis can also be a symptom of a serious disease such as HIV/ AIDS or Diabetes.

Mouth yeast infection , include the development of yellow white patchy lesions in the mouth and tongue.

Itchy skin

Skin inflammation

Small blisters,

Skin rash

Rash in skin folds.



TREATMENT

The first step treatment is prevention.

Prevention measures include maintaining good oral and perianal hygiene and using antibiotics only when truly needed.

A treatment plan may also includes medications.

Including prescription topical or oral antifungal medications, such as fluconazole.

CONT.,

The treatment involves long term therapy with antifungal agents at increasing doses with oral and usually vaginal nystatin, ketoconazole.

Use of antiallergens specific for *Candida* and modification of diet including restriction of sugar and other simple carbohydrates have also been suggested.

Moldy environments should be avoided.



DIAGNOSIS

- Diagnosis of the disease is by the microscopic examination of superficial crusts, pus, and granulation tissue or fungal culture.
- Surgical excision, electrodesiccation, or use of topical antifungal such as thiabendazole, 5- fluorocytosine, and amphotericin B are used to treat the disease in the early stages.
- Advanced cases may require systemic treatment for long periods of time with itraconazole and terbinafine.

ASPERGILLOSIS

Aspergillosis species are ubiquitous in the environment.

They are especially common in the soil and decaying vegetation.

The septate dichotomously branched fungal hyphae usually colonize the respiratory tract lungs and sinuses.

Several factors, such as immunological status of the patient, some other chronic disease, chemotherapy disruption of normal flora, and an inflammatory response due to the use of antimicrobial agents and steroids, effect the symptoms and the severity of infection.

Aspergillosis is a large spectrum of diseases caused by the of the genus *Aspergillus*.

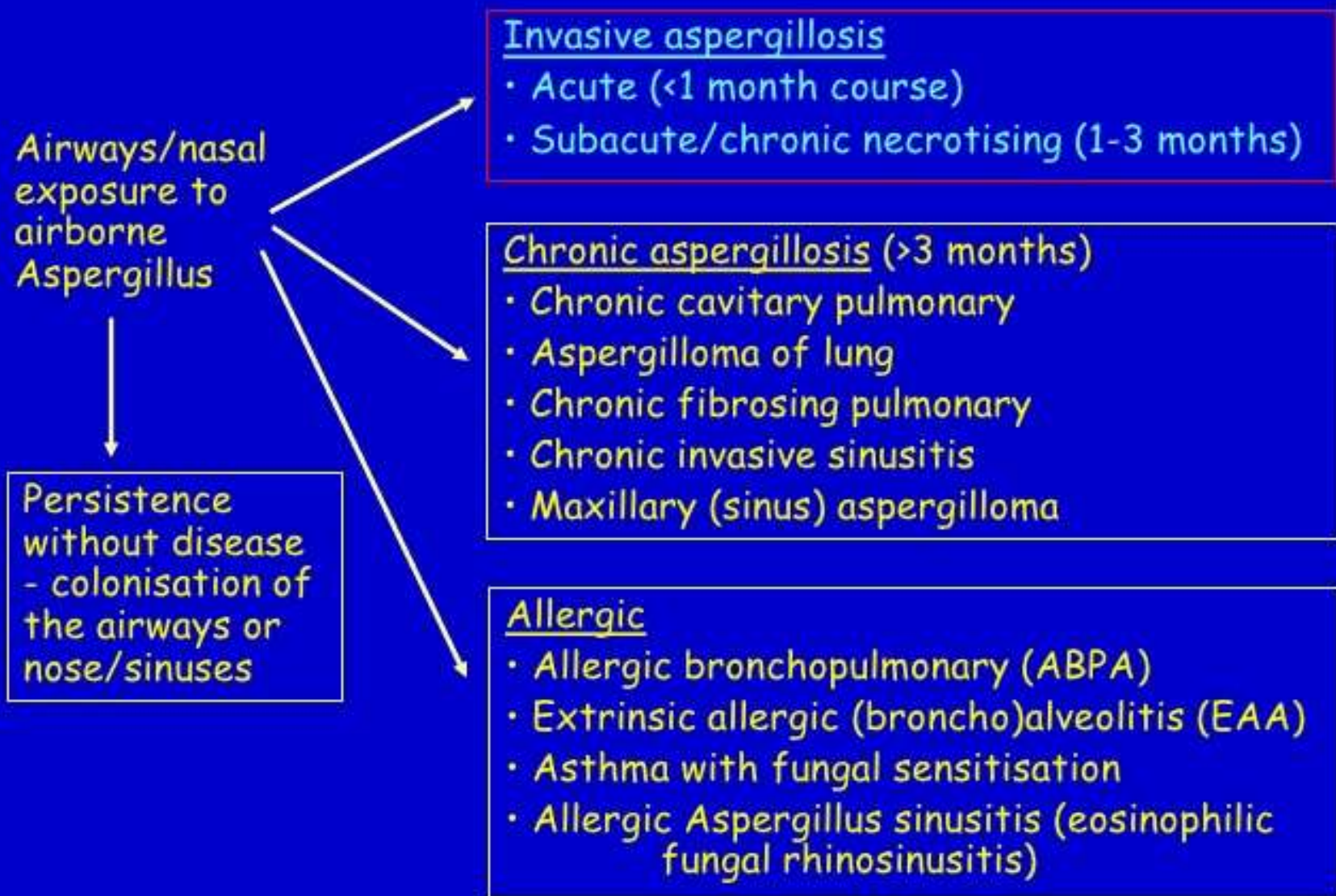
Three main types of aspergillosis followed by:

Allergic bronchopulmonary aspergillosis

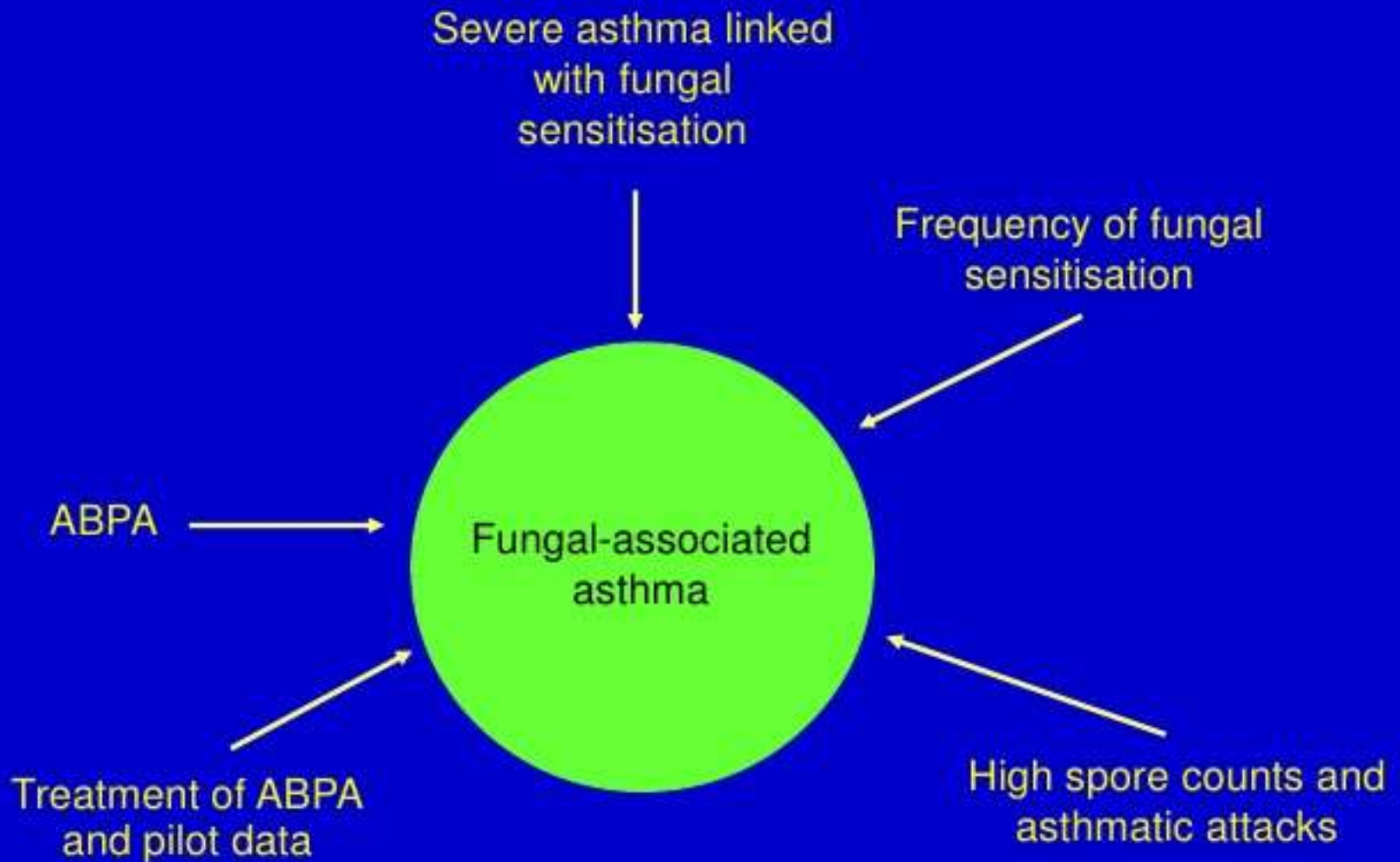
Pulmonary aspergillosis

Invasive aspergillosis

CLASSIFICATION OF ASPERGILLOSIS



Fungal-associated asthma – evidence

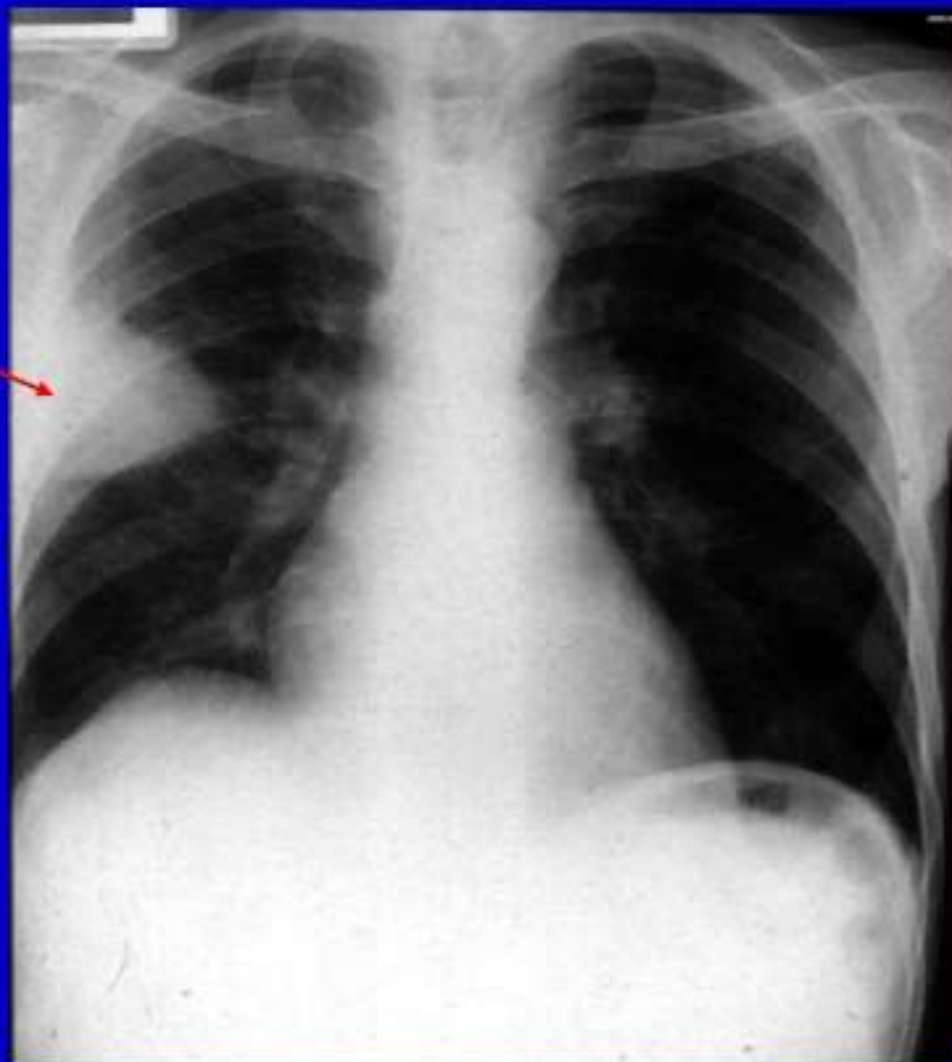


Invasive pulmonary aspergillosis

IPA



Normal lung



IPA occurs in ~7%
of acute leukaemia
patients, 10-15%
allogeneic BMT
patients

TREATMENT

Allergic aspergillosis has been successfully treated with corticosteroids and itraconazole.

Aspergillomas are removed surgically.

Invasive aspergillosis may be treated with voriconazole, amphotericin B and itraconazole.



Dermatophytosis

- Fungal infections of the **Keratinized** tissues of the body : scalp, glabrous skin, and nails
- caused group of fungi known as **dermatophytes** which are **primary pathogens**.

Transmission:

- **Geophilic species:** soil saprophytes.
- **Zoophilic species:** animals (goats, sheep, camel, cows, horses) .
- **Anthropophilic species:** humans.
- **From one body area to another.**

CONT..

Three dermatophytic fungi Epidermophyton, Trichophyton, Microsporum cause skin and hair infections.

They are the agents that are associated with the tinea as a series of fungal diseases having Latin binomial names.

These disease are as follows:

Tinea capitis,

Tinea corporis,

Tinea pedis,

Tinea cruris,

Tinea barbae,

Tinea unguium,

Tinea manuum.

TREATMENT

Treatment strategy includes the use of topical antifungal agents such as selenium sulfide shampoo, zinc pyrithione shampoo, ciclopirox olamine, and benzoyl peroxide and oral medication with either ketoconazole, fluconazole, or itraconazole.





THANK YOU