

Epidemiological Transformation of Dermatophytes in India: Changing Morphological Patterns

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INTRODUCTION

Dermatophytes are keratinophilic fungi belonging to three genera: Trichophyton, Microsporum and Epidermophyton. Dermatophytes infect humans (anthropophilic), other mammals (zoophilic), or are found in soil (geophilic). They can invade the skin, hair and nails leading to pruritus, alopecia and dystrophic nails. Though majority of infections respond well to treatment, some are chronic and refractory in nature. Tropical climate, obesity, tight-fitting clothes, sharing of clothes, sport activities and overcrowding are known risk factors for fungal infections. Dermatophytoses, commonly referred to as “tinea”, are commonly seen in practice, but in recent years there has been an alarming increase in the incidence of this infection. The clinical presentation of dermatophytoses has also undergone major transformation.

Classical Presentation of Dermatophytosis

Classically, dermatophytosis presents with involvement of the glabrous skin with erythematous annular scaly plaques with active borders, popularly known as the “ring-worm”.

Tinea Corporis and Cruris

Tinea corporis is superficial dermatophytic infection of the glabrous skin (i.e. skin other than scalp, groin, palms, and soles) and tinea cruris is the infection of the groins (Figs 1.1 and 1.2). Infected patients generally have variable pruritus but can rarely be asymptomatic. Annular plaque with an advancing border is the characteristic lesion. It can involve any part of the body but occluded areas like the waist line, inframammary region and gluteal region are more commonly affected. Tinea cruris can extend to the adjoining skin and is usually associated with severe pruritus and burning sensation.



Fig. 1.1: Classical tinea corporis



Fig. 1.2: Classical tinea cruris



Fig. 1.4: Classical tinea capitis (inflammatory)

Tinea Capitis

It can manifest as noninflammatory and inflammatory types.

- Noninflammatory type:* Grey patch, black dot and seborrheic dermatitis-like pattern are seen (Fig. 1.3).
- Inflammatory type:* Kerion refers to the inflamed, thickened, abscess-like lesions



Fig. 1.3: Classical tinea capitis (noninflammatory)

over the scalp due to the host inflammatory response to infection of the hair follicles (Fig. 1.4). Favus is a rare form of tinea capitis characterised by chronic crusted plaques, usually found in endemic areas of Jammu and Kashmir in India.

Tinea Pedis

It can manifest as scaly soles or maceration and fissuring between the toes (Figs 1.5 and 1.6). Uncommonly vesicular or ulcerative lesions can also be seen.

Tinea Unguium

Also known as onychomycosis, it typically presents with subungual hyperkeratosis with discoloration of nail plate, known as the distal lateral subungual onychomycosis (DLSO). Proximal subungual onychomycosis (PSO) is less commonly seen. True nail plate involvement with chalky white plaques on nail plate is known as superficial white onychomycosis (SWO). Total nail dystrophy (TDO) can occur in advanced cases (Fig. 1.7).



Fig. 1.5: Tinea pedis



Fig. 1.6: Tinea pedis



Fig. 1.7: Onychomycosis

Changing Morphological Patterns

Dermatophytoses presenting in an atypical manner has always been reported but such occurrences have become more frequent in the recent times. It is common in immunocompromised patients but healthy individuals

may also present with atypical tinea which may cause diagnostic challenges. Pattern of presentation has been changing in the recent past due to certain known and unknown factors. Morphology, extent of involvement and association with other dermatoses can cause diagnostic dilemmas.

Extent

Dermatophytoses can present as large patches, multiple lesions, distant site involvement and extensive disease (Figs 1.8 and 1.9). Extension



Fig. 1.8: Extensive tinea corporis



Fig. 1.9: Extensive tinea corporis



Fig. 1.10: Tinea extending to scalp



Fig. 1.11: Tinea faciei

of disease from back, chest and neck on to the face and scalp has been frequently noticed (Fig. 1.10). Very extensive disease accounting for erythroderma has also been reported. Such involvement can occur in a relatively short duration of time.

Location

Uncommon locations such as face, scalp, genital and hand involvement has been noticed more frequently than before (Figs 1.11 and 1.12). Such involvement may be seen as an isolated lesion or as a part of extensive disease.

Morphology

Tinea manifesting with unusual morphology including pseudoimbricata, pustular lesions, eczematous lesions, follicular lesions and nodular lesions can be seen (Figs 1.13 to 1.15). Many of these manifestations are due to topical steroid abuse.



Fig. 1.12: Tinea of hand

Dermatophytosis with other Dermatoses

Currently dermatophytosis is the commonest disease seen in the dermatology outpatient. It is seen in association with other common and uncommon dermatoses like acne, eczemas, psoriasis, lichen planus, etc. (Figs 1.16 to 1.18).



Fig. 1.13: Tinea pseudoimbricata



Fig. 1.16: A case of psoriasis with tinea



Fig. 1.14: Pustular tinea



Fig. 1.15: Follicular tinea

Many such dermatoses require topical steroids which may aggravate dermatophytosis or lead to tinea incognito.

Steroid Modified Tinea and Tinea Incognito (Also see in Chapter 10)

Steroid modified tinea presents as a distinct entity with an extensive and modified clinical presentation. Tinea incognito manifests with lack of inflammatory advancing margins. Similar changes have been reported with topical calcineurin inhibitors. Cutaneous atrophy and striae may also accompany where there is steroid abuse (Fig. 1.17).

Differential Diagnosis

Tinea on the body may resemble psoriasis, eczema and other dermatoses (Fig. 1.18). Tinea faciei may resemble other facial dermatosis like rosacea, seborrheic dermatitis and lupus erythematosus. Noninflammatory tinea capitis may resemble seborrheic dermatitis. Inflammatory lesions may resemble psoriasis and other inflammatory scalp dermatoses. Kerion resembles a scalp abscess.

Reasons for Transformation

Reasons for the changing morphological presentation are not clearly understood. Topical steroid abuse is a known factor but there are many other poorly understood factors. These may include host factors like



Fig. 1.17: Tinea incognito due to steroid abuse

immune suppression, changing immune status like atopy, clothing patterns, travels, contact with pets and hygiene. Pathogen related factors like changes in species may also contribute. Environmental changes such as global warming may also have a role to play.



Fig. 1.18: Psoriasiform tinea

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