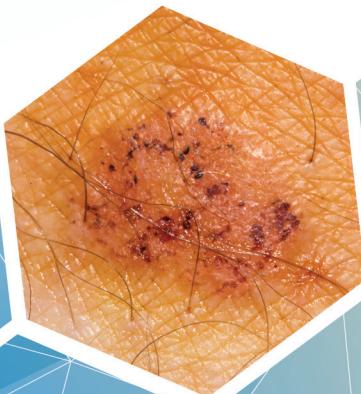
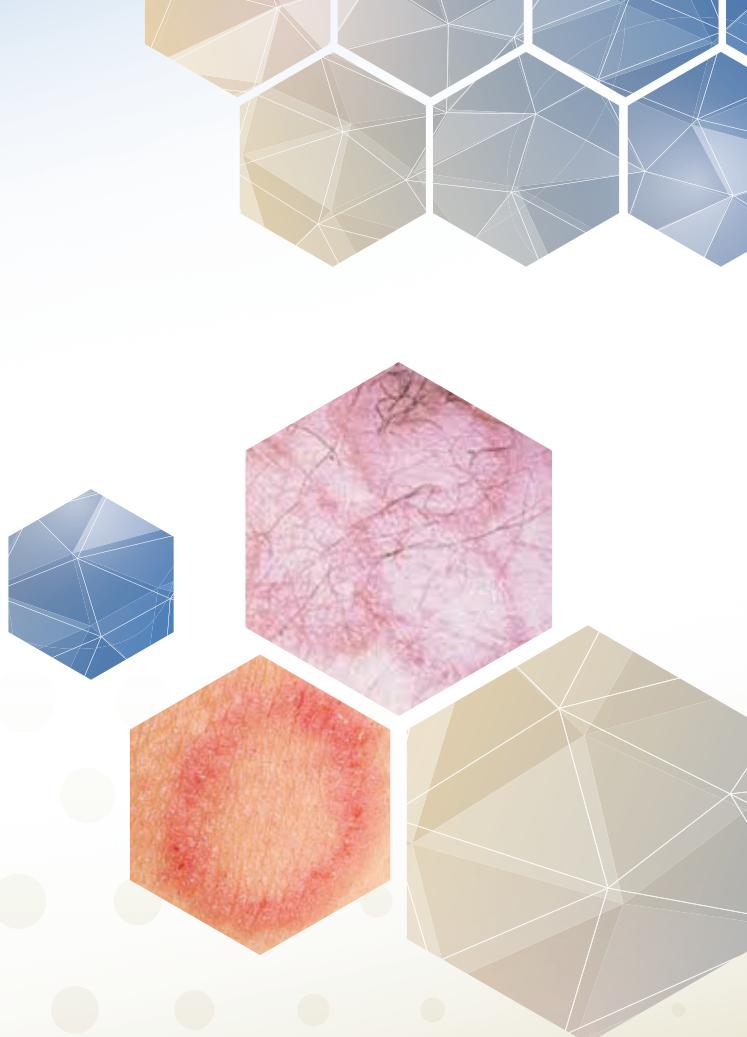


A GUIDE TO DERMATOPHYTIC FUNGAL INFECTIONS



Dermatophytosis

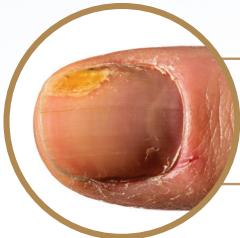
- Dermatophytosis is a fungal infection of the keratinized structures of the body such as skin, hair and nails caused by dermatophytes.
- Dermatophytes are a group of filamentous fungi with the ability to degrade keratinized structures.
- Tinea infection is the commonly used term for dermatophytosis.¹
- Due to their ring-like growth pattern, these are often described with the term 'ringworm'.²



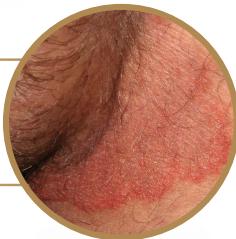
Types of Tinea Infections



Tinea pedis (feet)



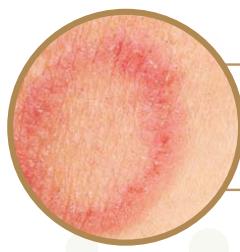
Tinea unguium/
onychomycosis (nails).^{1,2}



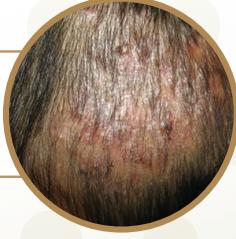
Tinea cruris (groin)



Tinea faciei (face)



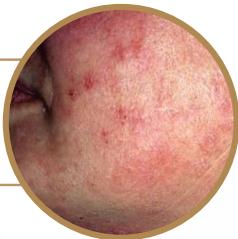
Tinea corporis (body)



Tinea capitis (scalp,
eyebrows, and eyelashes)



Tinea manuum (hand)



Tinea barbae (beard and
moustache)



Lamifin®

Terbinafine Hydrochloride 1% w/w Cream

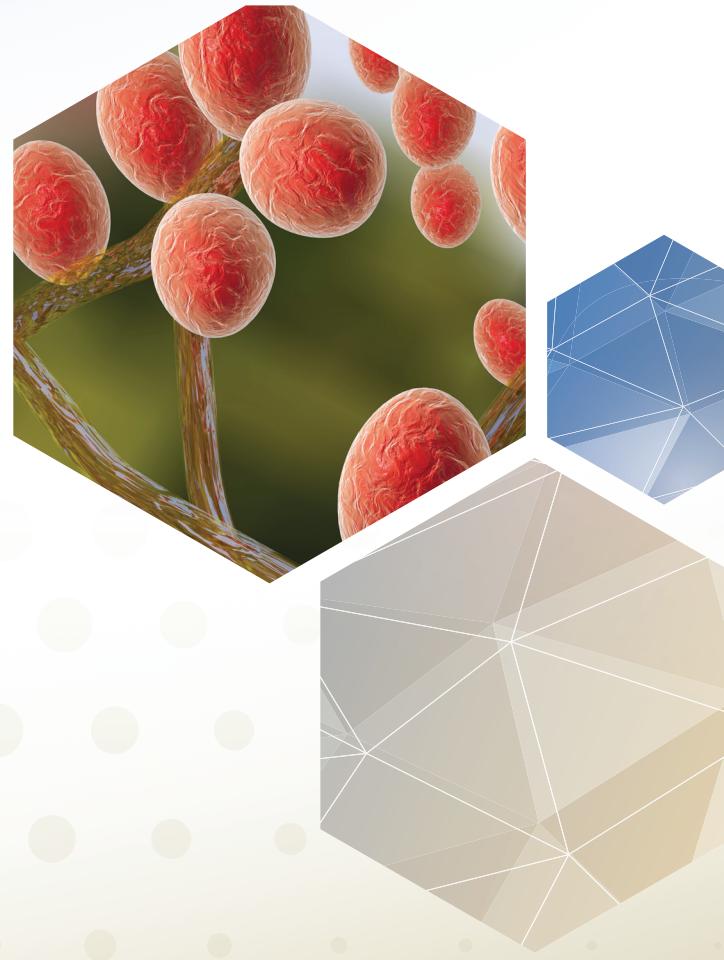
3

Lamifin®

Terbinafine Hydrochloride 1% w/w Lotion

Causes and Transmission of Tinea infections

- It is caused by a group of fungi known as dermatophytes such as *Trichophyton rubrum*, *Microsporum gypseum* and *Epidermophyton floccosum* and the transmission of dermatophytic infection can be direct due to contact with infected humans or animals or indirect.



- The infection can be transmitted to humans by anthropophilic (between people), geophilic (from soil) and zoophilic (from animals) spread.^{3,4}

Clinical features



The symptoms often depend on the part of the body is infected and generally include:



Itchy skin



Ring-shaped rash



Red, scaly, cracked skin

Symptoms typically appear between 4 to 14 days after the skin comes in contact with the fungi.² It may last for months or years depending upon host immune response.⁴

Area specific symptoms of dermatophytosis



Feet (tinea pedis or “athlete’s foot”):

The symptoms of ringworm on the feet include red, swollen, peeling, itchy skin between the toes. The sole and heel of the foot may also be affected. In severe cases, the skin on the feet can blister.



Scalp (tinea capitis): On the scalp it usually looks like a scaly, itchy, red, circular bald spot. The bald spot can grow in size and multiple spots might develop if the infection spreads. Ringworm on the scalp is more common in children than it is in adults.



Groin (tinea cruris or “jock itch”):

On the groin looks like scaly, itchy, red spots, usually on the inner sides of the skin folds of the thigh.



Nails (Tinea unguium/ onychomycosis):

It is more common in toenails than fingernails. Nails become discolored (yellow, brown, or white), thick, and fragile-more likely to crack and break.²

Diagnosis



The presence of a dermatophyte infection is confirmed by microscopy and culture of skin scrapings. Histopathological examination of skin or nails using periodic acid-Schiff (PAS) stains can reveal fungal elements.⁵

Differential diagnosis

Differential diagnosis of tinea infections

	Tinea corporis	Tinea cruris	Tinea pedis	Tinea capitis	Onychomycosis
Differential diagnosis	<ul style="list-style-type: none">■ Annular psoriasis■ Atopic dermatitis■ Erythema multiforme■ Fixed drug eruption■ Granuloma annulare■ Lupus erythematosus■ Nummular eczema■ Pityriasis rosea herald patch■ Seborrheic dermatitis	<ul style="list-style-type: none">■ Candidal intertrigo■ Erythrasma■ Inverse psoriasis■ Seborrheic dermatitis	<ul style="list-style-type: none">■ Contact dermatitis■ Dyshidrotic eczema■ Foot eczema■ Juvenile plantar dermatosis■ Psoriasis	<ul style="list-style-type: none">■ Alopecia areata■ Atopic dermatitis■ Bacterial scalp abscess■ Psoriasis■ Seborrheic dermatitis■ Trichotillomania	<ul style="list-style-type: none">■ Repeated lowgrade trauma■ Psoriasis■ Lichen planus

Source: Ely JW, rosenfeld S, stone MS. Diagnosis and Management of Tinea Infections. Am Fam Physician. 2014 Nov 15;90(10):702-711.

Prevention

Washing hands in running water with soap and after playing with pets. In case of fungal infection of pets consult a veterinarian.^{2,6}

Practicing good personal hygiene



Complications

The main complication is secondary bacterial infection. Hair loss is a complication of tinea capitis. Pain and difficulty with shoes can result from onychomycosis.^{3,2}

Treatment

- The treatment for tinea infection depends on its location on the body and severity of the infection.²
- Topical therapy of antifungal agent is usually recommended unless the infection covers extensive area or is resistant to initial topical application, where systemic therapy may be required.
- **Terbinafine** is the 1st line treatment in Dermatophytic fungal infections.³
- It has a broad coverage of fungal species and its strong lipophilic nature accounts for its better absorption into hair, skin, and nails.



First line treatment in dermatophytic infection is:



Terbinafine

Benefits of Terbinafine:

- Fungicidal in nature
- High selectivity for fungal squalene epoxidase
- **Terbinafine** is available in various forms (as per the area of application):

Tab 500/250 mg



Cream (1%)



Dusting powder (1%)



Lotion (1%)⁷



Second line treatment in dermatophytic infection are:

- Itraconazole
- Miconazole
- Fluconazole
- Sertaconazole

Dosage of Terbinafine



Indication based drug dosage of Terbinafine

Indications	Oral	Topical (Apply locally once daily or twice daily or as required)
Tinea pedis	250 mg, 2-6 weeks	2-4 weeks
Tinea corporis/Tinea cruris	250 mg, 2-4 weeks	1-2 weeks
Cutaneous candidiasis	250 mg, 2-4 weeks	1-2 weeks
Pityriasis versicolor	-	2 weeks
Onychomycosis (Tinea unguium)	250 mg, 6 weeks for finger nail 250 mg, 12 weeks for toe nail	-
Tinea Capitis	250 mg, 6-8 weeks	-

Children 4 years or older

Weight	Dose	Duration
Less than 25 kg	125 mg	6 weeks
25 to 35 kg	187.5 mg	6 weeks
Greater than 35 kg	250 mg	6 weeks

Source: Data on file.



References:

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2. Ringworm. Available at: <http://www.cdc.gov/fungal/diseases/ringworm/index.html>. Accessed on: 30/05/16.
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4. Pires CAA, da Cruz NFS, Lobato AM, de Sousa PO, Carneiro FRO, Mendes AMD. Clinical, epidemiological, and therapeutic profile of dermatophytosis. *Anais Brasileiros de Dermatologia.* 2014;89(2):259-265
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6. Gupta AK, Chaudhry M, Elewski B. Tinea corporis, tinea cruris, tinea nigra, and piedra. *Dermatol Clin.* 2003 Jul;21(3):395-400
7. Data on file

From the makers of...

Lamifin®-Forte

Terbinafine Hydrochloride 500 mg

Tablets

Lamifin® Tablets

Terbinafine Hydrochloride 250 mg

Lamifin® Cream

Terbinafine Hydrochloride 1% w/w

Lamifin® Dusting Powder

Terbinafine Hydrochloride 1% w/w

Lamifin® Lotion

Terbinafine Hydrochloride 1% w/v

Lamifin®-M Cream

Terbinafine Hydrochloride 1% & Mometasone Furoate 0.1%