Current burning issues in Dermatology

Presented by

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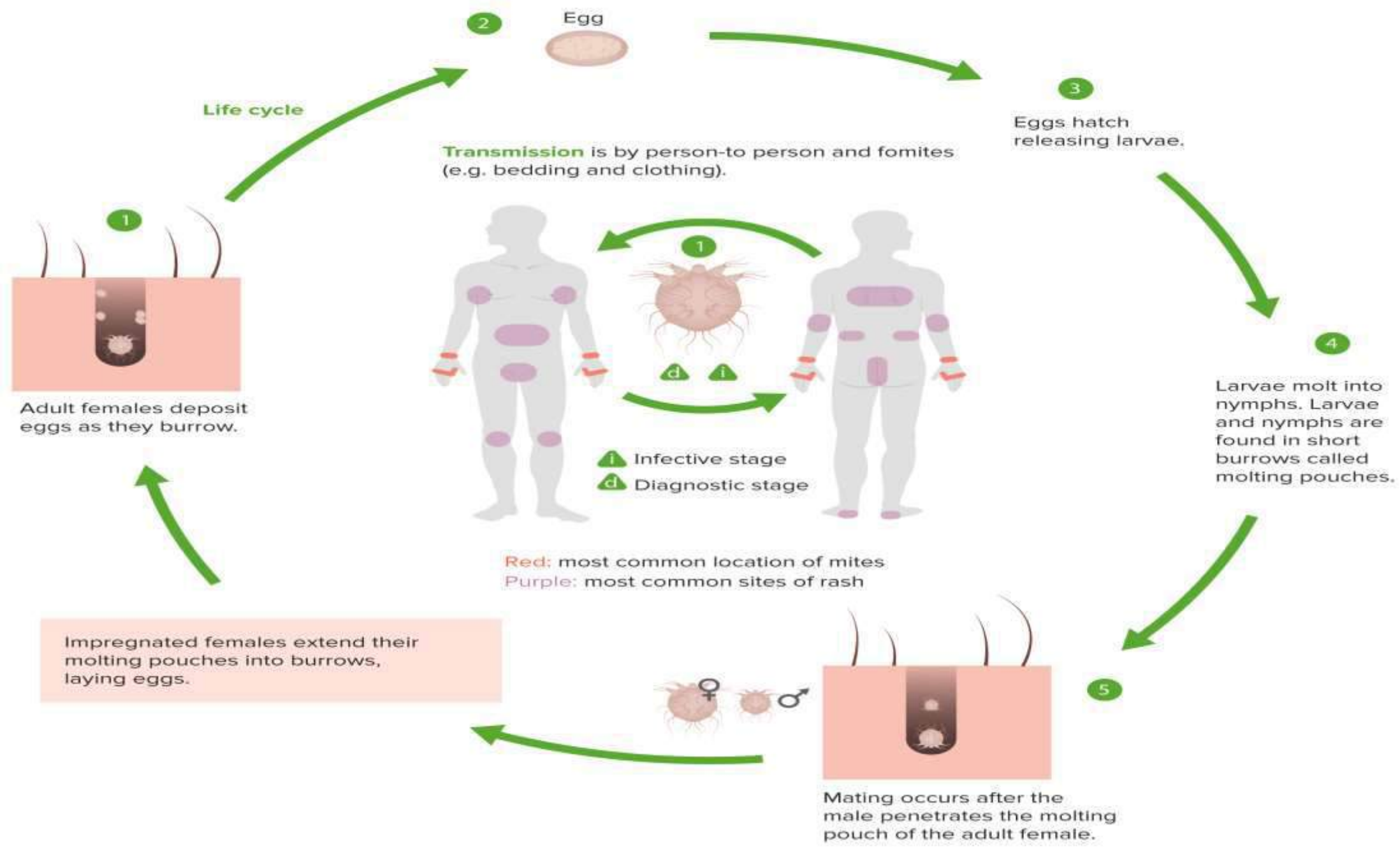
Why burning in current period??

SCABIES

Introduction

- A tropical disease of the skin; affects all age groups
- Highly contagious
- Causative agent: *Sarcoptes scabiei var. hominis*
- *Estimated worldwide prevalence:* ***300 million each day***

Scabies life cycle

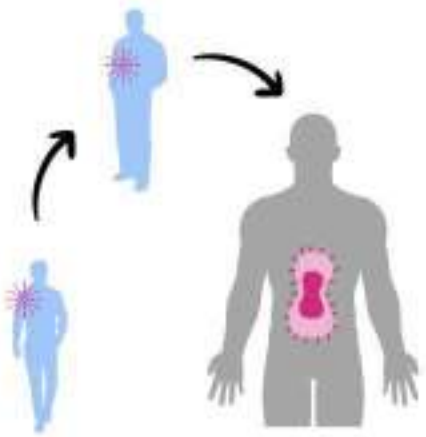


PATHOPHYSIOLOGY

HOW DO YOU GET INFECTED WITH SCABIES?

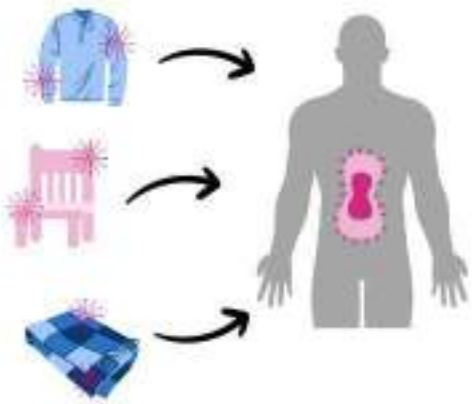
Direct Skin-to-Skin Contact:

Hugging, hand-holding, or sexual contact might spread scabies



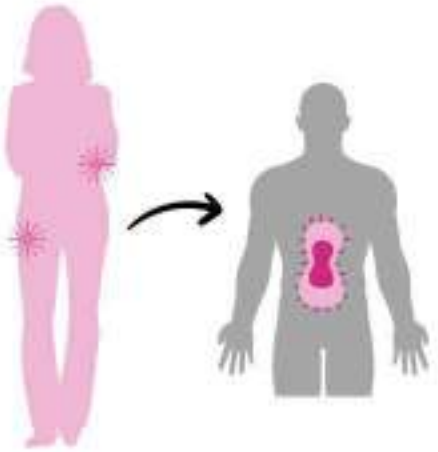
Household Contact:

Sharing bedding, clothing, towels, or personal items with an infected person can help transmit the mites.



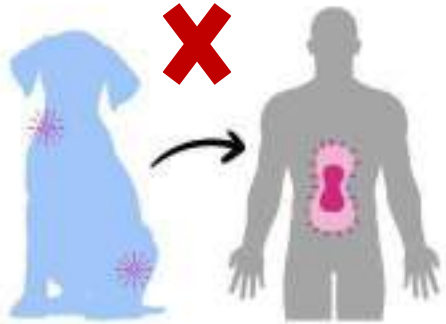
Sexual contact:

Scabies can be transmitted through sexual contact, as the mites can spread from one person to another during intimate activities.



Infected Animals:

No Transmission from animals



Risk Factors

- Crowded living conditions
- Family and household exposure
- Low socioeconomic conditions
- Immunosuppression (e.g., HIV, DM, Elderly)
- Travel or Migration to endemic areas
- Healthcare worker exposure

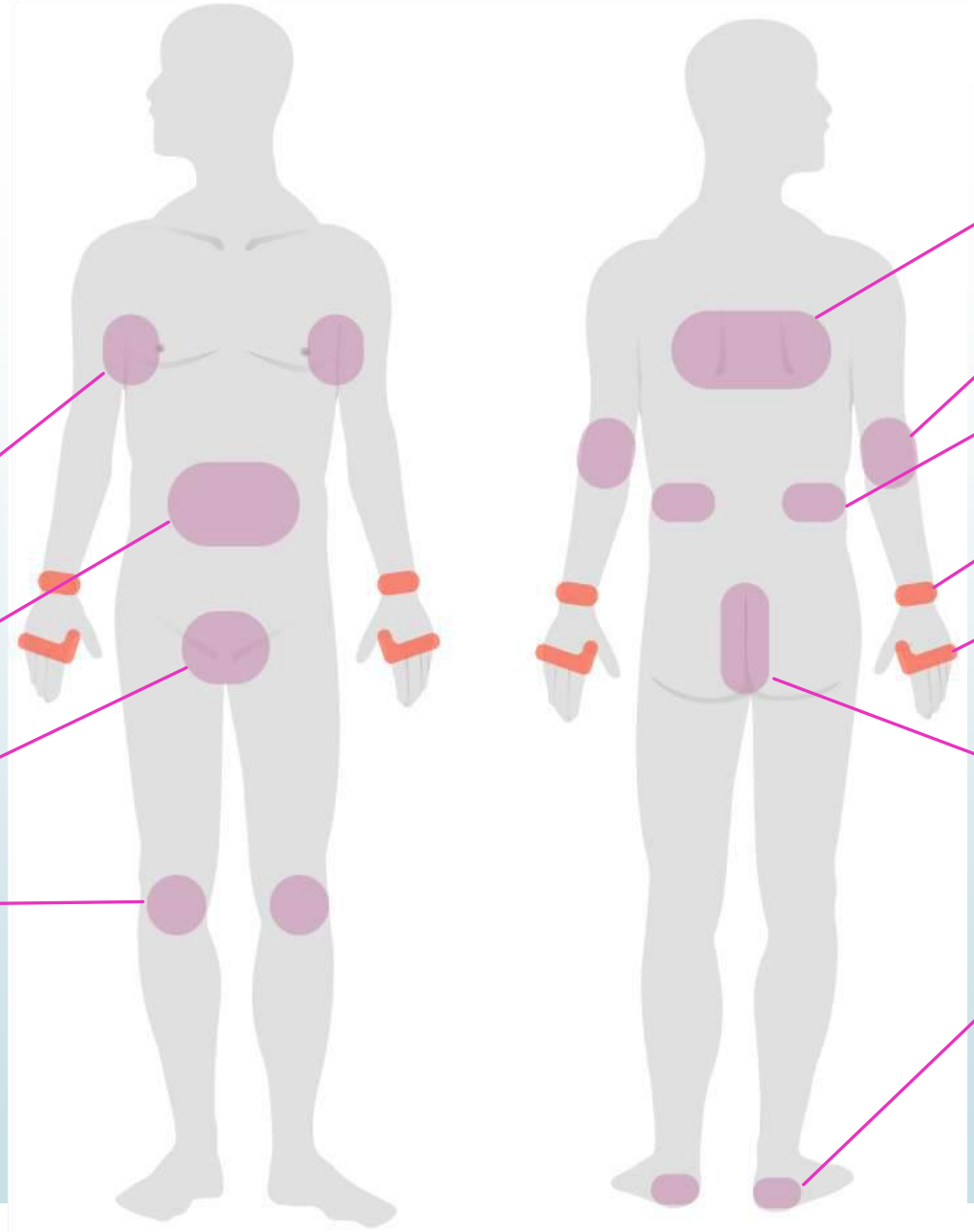
Common sites of scabies

Armpits

Umbilicus

Genitals

Knees



Human scabies mites are often found between the fingers and on the wrists (areas highlighted in red).

Back of the chest

Elbows

Lower back (Lateral)

Wrists

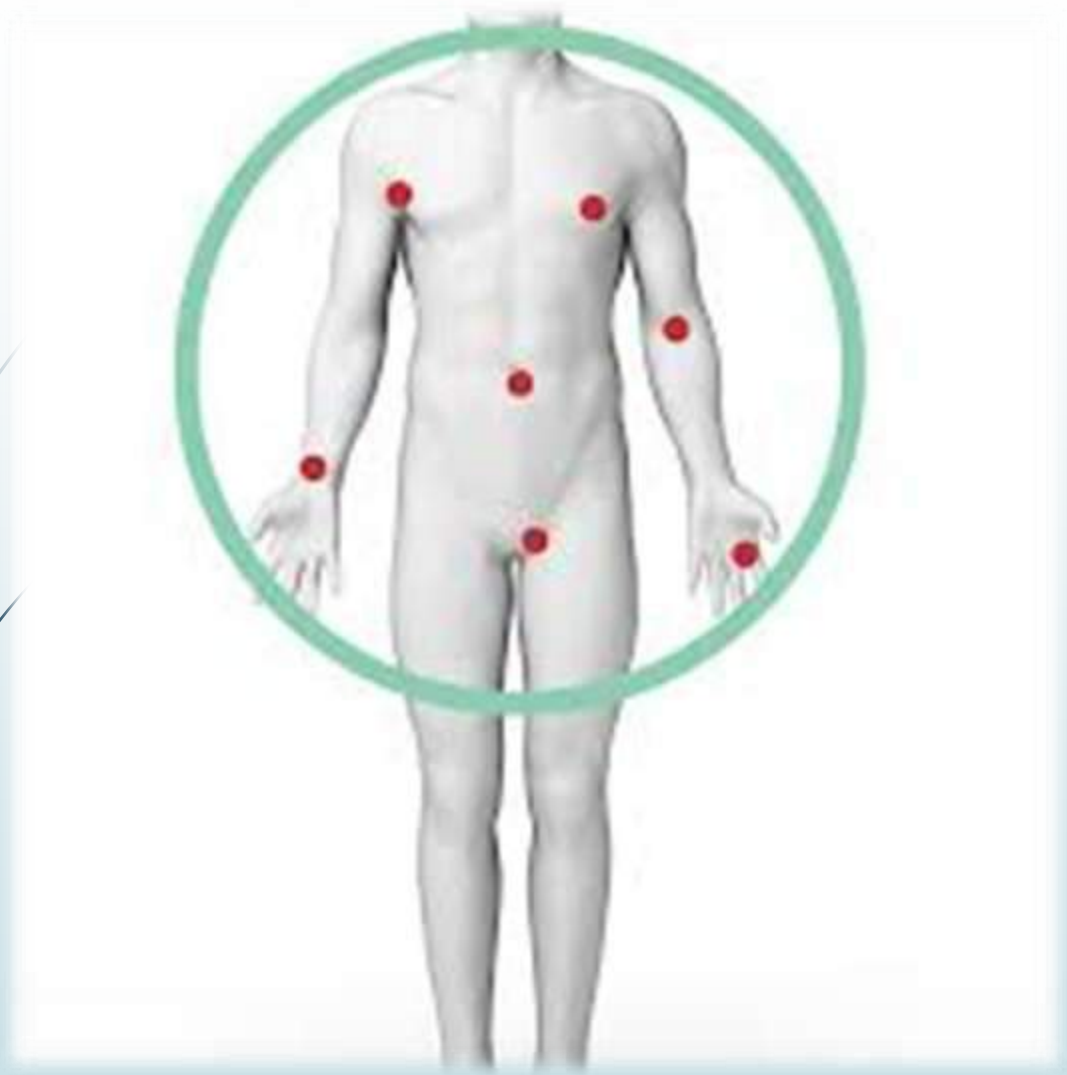
Area between the fingers (webs of fingers)

Buttocks

Soles of the feet

Red area: *sites of* Living mites & Burrows

Purple area: *sites of* skin rashes



Circle of Hebra:

- **Imaginary circle** intersecting **sites of predilection**

- **Sites:** Areola, Axilla, Elbow flexures, Interdigital web spaces, Genitalia

Types of scabies

- Classical scabies
- Nodular scabies
- Crusted scabies
- Bullous scabies

Classical scabies

Clinical features

Pathognomonic lesion: Burrows

Curvilinear or Serpiginous thread-like tracks measuring around 5 -10 mm

Clinical features

Generalized erythematous papules

Excoriations

They occur 4 to 6 weeks after initial infection

Clinical features

- **Pruritus** is the only symptom which is severe and usually *more intense at night*

Clinical features

- Family members are also infected
- In case of secondary bacterial infection, there will be pustule, abscess, cellulitis

Generalized erythematous papules

Nodular Scabies

- More common in children
- Hypersensitivity reaction to retained mite parts or antigens
- More common in Genital skin, Scrotal skin, Armpits

Nodular scabies

Nodular scabies

Bullous Scabies

- Rare atypical variant
- Formation of **tense bulla**
- Seen in elderly and immunocompromised patients
- Resembling Bullous pemphigoid

Crusted scabies

- Formerly known as ***Norwegian scabies***
- Causes **dense hyperkeratosis** of the skin
- Children and elderly immunocompromised patients

Thick scaly plaques between the fingers, under the nail & nail bed

Crusted Scabies

Crusted scabies

- Crusts are teemed with mite
- Diffusely over palms & soles
- Itching may be minimal/absent
- May lead to exfoliative dermatitis with fatal consequences

Investigations & Diagnosis

Diagnosis is mainly **clinical**

Confirmed by: Dermoscopy

Dermoscopy Findings:

- *Classical scabies*: “delta wing jet” or “mini triangle” sign
- *Crusted scabies*: Hyperkeratosis

Treatment of scabies

Non-Pharmacological Treatments

General principles:

- To avoid transmission: treat all close contacts, even if asymptomatic
- Environmental decontamination by washing all clothes, bedding, towels used in last 3 days in hot water
- Non washable items can be sealed in a plastic bag for at least 72 hours

Pharmacological Treatment

Topical therapies:

- **Topical 5% permethrin**
  - Cream or lotion

Method of application:

- Apply from the jawline downwards ► Left overnight for 8–12 hours
  - Include under the nails and between the toes
  - If hands are washed during the treatment period ► Apply again
  - Infants, the elderly, and the immunosuppressed should also treat the face and scalp.
- It should be repeated after 7 days

If the case is permethrin-resistant, or permethrin is not available, the next alternative topical insecticide is

- ✓ **Monosulfiram 25% solution**

Other Topicals:

- Crotamiton
- 25% benzyl benzoate or
- 0.5% malathion aqueous lotion

Systemic Therapy

- **Oral Ivermectin**

Dose:

0.2 mg/kg body weight weekly for 2 weeks

< 15 Kg : Not Recommended

Systemic Therapy

- **Systemic Antibiotics:** if secondary bacterial infection
- **Oral antihistamines**

In Case of Nodular Scabies

- Topical steroids
- Intralesional steroid
- Cryotherapy

Treatment of crusted scabies

- Combination of oral and topical therapy should be used

Topical scabicide

5% Permethrin cream

Applied daily for 7 days, and then twice weekly until cured.

Systemic scabicide

Ivermectin

Dose: 0.2 mg/kg
Taken on days 1, 2, 8, 9, 15

Others

Keratolytic creams (5-10% salicylic acid)

First, soften crusts in warm water. Then apply over the scaly plaques which will help to remove the crust.

Treatment in Pregnancy and Lactation

- All topical anti-scabicides are safe in pregnancy and lactation
- Systemic ivermectin is contraindicated

Complications of scabies

- Acute Glomerulonephritis
- Secondary bacterial infections
- Widespread eczema
- Excoriations
- Honey coloured crusting
- Prurigo nodules

How AGN occurs?

Scabies infestation

Bacterial infection: S. pyogens produce antigens & exotoxins

Immune system activation Ab are produced against Ag

Ag-Ab immune complex is formed and deposits to glomeruli

C3 activation : cytokine and immune cells attack glomeruli

Glomeruli injury and **AGN** features

Take Home Message

- Scabies is curable if treated properly
- Treatment of close contact is necessary to prevent reinfection and transmission
- Let’s educate, not isolate

Fungal Infections

Introduction

- Fungal skin infections, such as dermatophytosis, affect about 20–25% of the global population, with 10–15% experiencing them during their lifetime.
- In 2021, the global age-standardized incidence rate for fungal skin diseases was 21,668 per 100,000 people, with a prevalence rate of 7,790 per 100,000.

Caused by fungi such as

- Dermatophytes (Trichophyton, Epidermophyton & Microsporum)
- Yeasts, and
- Molds

Classic Presentation of Dermatophytosis

- Erythematous annular plaque with a scaly, centrifugally advancing borders.

Cont…

- Pleasant itching
- Highly contagious
- Family members are also affected

Typical site of involvement

- Scalp
- Trunk
- Limbs
- Feet
- Groin
- Axilla
- Nail
- Beard

Tinea capitis
Kerion

Tinea capitis
Gray patch

Tinea corporis

Tinea Corporis

Tinea cruris

Onychomycosis

Tinea pedis and manum

Atypical presentation of Superficial fungal infections

While typically exhibiting characteristic features, fungal infections can sometimes present in an atypical ways like-

- Present in atypical location (eyelid, face, or joint)
- Mimicking other skin diseases and
- Appearing with unexpected color, shape, or distribution.

Tinea incognito

Psoriasis like

Inverse psoriasis like

Seborrheic dermatitis like

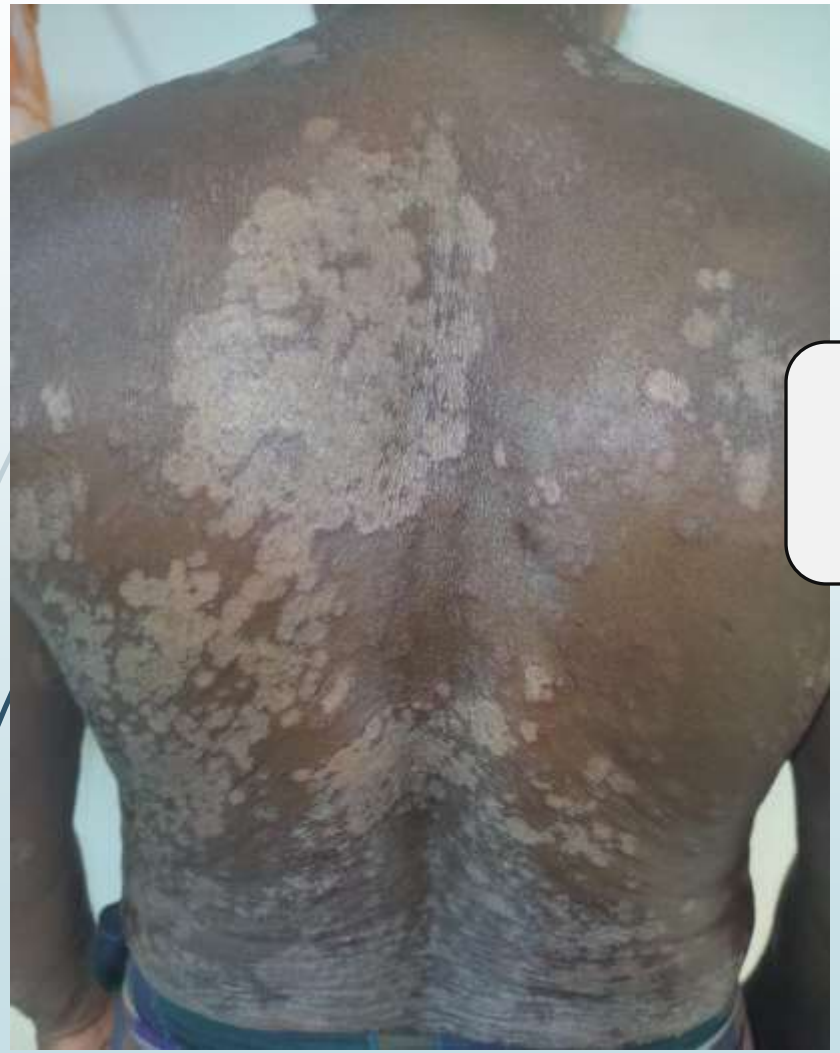
Contact dermatis like

Eczema like

Lupus erythematosus like

Atopic dermatitis like

Tuberculoid Leprosy like

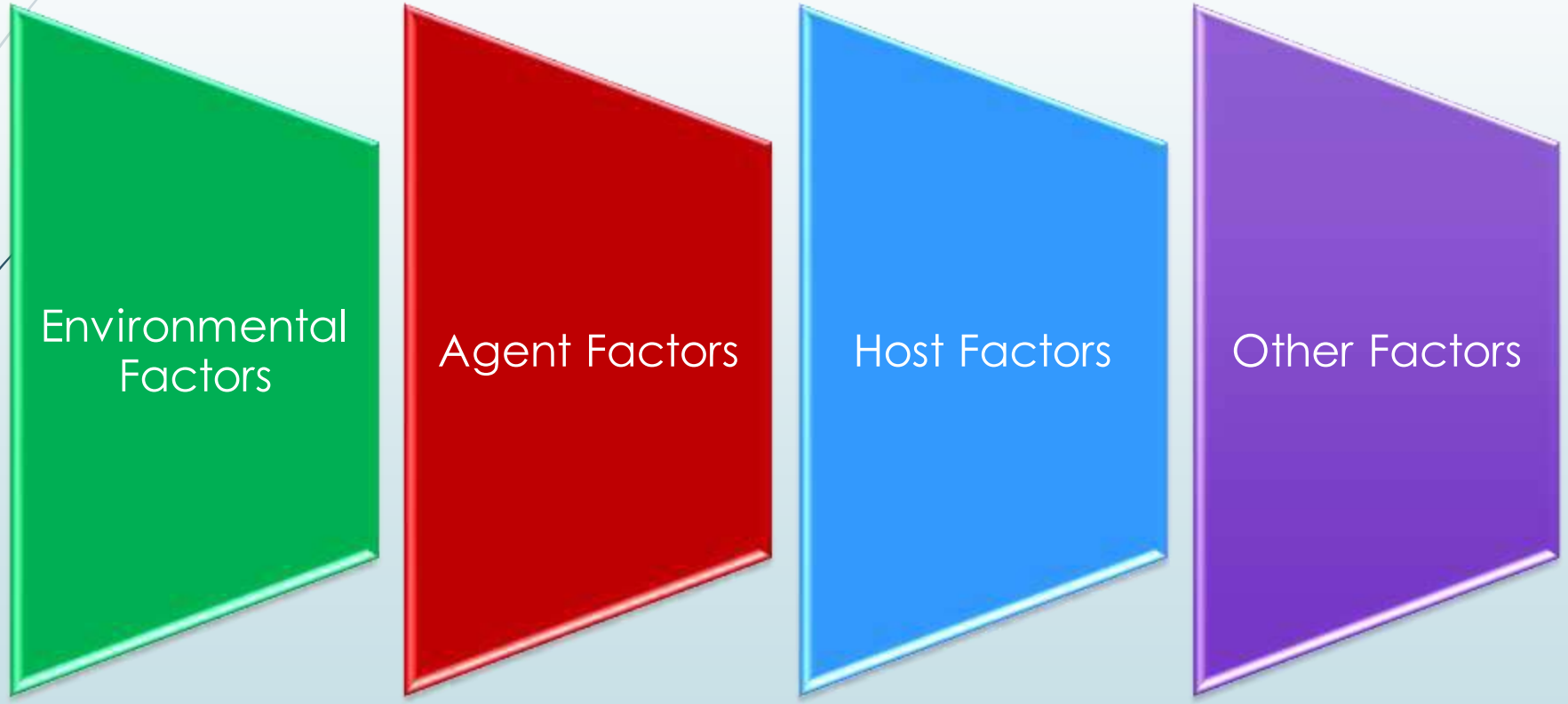


Lepromatous Leprosy like

Bullous Pemphigoid like

What are the factors behind these atypical presentation ?

Factors Contributing in Atypical Presentations



Environmental Factors

- Hot and humid climate
- Over crowding
- Sharing of clothes and footwear
- Poor hygiene and sanitary conditions
- Migration of population

Agent Factors

- Trichophyton rubrum
  - Now has become the leading pathogen of skin and nail fungal infection
- Trichophyton mentagrophytes
- Trichophyton tonsurans

Cont…..

- Trichophyton indotineae
  - Corticosteroid use combined with antifungal medication may increase the risk of Trichophyton indotineae infection.
- Microsporum canis

Host Factors

Comorbidconditions	Underlying diseases	Immunological	Iatrogenic factors	Others
• Obesity • Diabetes Mellitus • Immunosuppressive disorders • Poor circulation	• Atopic dermatitis • Ichthyosis	• Defective CMI • Immune dysregulation • Defective phagocytosis • CARD9 (Caspase recruitment domain-containing protein) gene mutation	• Misuse of medications like corticosteroids, indigenous medicines	• Socioeconomic conditions • Lifestyle changing • Poor hygiene • Poverty • Occupational status


TOPICAL OINTMENT
Gacozema
Dithranol with Boric acid and Salicylic acid
GACOZEMA
RING WORM
AND
ECZEMA
OINTMENT
Pharmaceuticals


Compound Dithranol Ointment
DEROBIN
30 grams
Compound Dithranol Ointment
DEROBIN ® डेरोबिन 30 grams


Combicid™ Cream
Combicid™ Cream
For external use only
SQUARE


Compound Dithranol Ointment
DEROBIN® डेरोबिन 30 grams
USV
कमबिसिड™ क्रीम

Other Factors

- Incorrect diagnosis
- Suboptimal dose and duration
- Reinfection from contacts of fomites

Diagnosis

- Woods light
- Skin scrapping for fungus
- Fungal culture and sensitivity

Treatment

- Non pharmacological
- Pharmacological

Non pharmacological

- Advice to bath regularly to keep the affected area clean and dry
- Wear loose, breathable, cotton clothes
- Change underwear and socks daily
- Avoid sharing personal items (towels, shoes, clothes)
- Keep feet dry and avoid walking barefoot in public areas
- Treat close contacts or pets if infected

Pharmacological

- Topical antifungals
- Systemic antifungals
- Systemic antihistamine

Topical Antifungals

- Azoles
  - Clotrimazole
  - Miconazole
  - Luliconazole
  - Sulconazole
  - Oxiconazole
  - Ciclopirox
  - Econazole
  - Ketoconazole
  - Efinaconazole

- Allylamines
  - Naftifine
  - Terbinafine
  - Butenafine

Systemic antifungals

- Azoles
  - Fluconazole (3-6 mg/kg)
  - Itraconazole (3-5mg/kg)
  - Ketoconazole (3-6 mg/ kg)
- Allylamines
  - Terbinafine (3-6 mg/kg)

Controversial systemic antifungals

- FDA not approved for superficial fungal infections, but under trial
  - Voriconazole
  - Posaconazole
  - Ravuconazole

Duration

- 2 weeks after clinical recovery

Combination therapy

- Should be treated with both topical and systemic antifungals
- Combination systemic antifungals can be used with caution

Evaluation during follow up

Clinical evaluation

Signs of clinical improvement

- Reduction of erythema
- Decreased scaling and crusting
- Lesions become flat, less inflamed, and blend with normal skin.
- Itching or burning subsides
- No expansion of existing lesions or emergence of new lesions during or after treatment
- Return of normal skin texture and colour
- Post-inflammatory hypopigmentation or hyperpigmentation may persist, but this is not a sign of active infection.

Signs of treatment failure

- Persistent or worsening symptoms after 2–4 weeks
- Spread to adjacent areas
- Appearance of new lesions
- Secondary bacterial infection (oozing, pain, crusts)

Laboratory evaluation

Baseline laboratory Investigations

Before starting systemic antifungal drugs

- CBC
- Renal Function Tests - important for fluconazole
- Liver Function Tests - especially for Terbinafine, Itraconazole
- ECG if using itraconazole, especially in cardiac risk patients due to QT prolongation risk.

Monitoring during treatment

- Liver Function Tests – every 4-6 weeks interval until clinical resolution to monitor hepatotoxicity

Some Important Terminologies

Chronic dermatophytosis

- Is defined as “patients who have suffered from the disease for more than 6 months to 1 year duration, with or without recurrence, in spite of being treated.”

Recurrent dermatophytosis

- Refers to the reoccurrence of the dermatophyte infection within few weeks, after completion of treatment.

Antifungal drug resistance

- Microbiologic resistance
- Clinical resistance

Microbiologic resistance

1. Nonsusceptibility of a fungus to an antifungal agent by in vitro susceptibility testing.
2. MIC of the drug exceeds the susceptibility breakpoint for that organism.

Primary

(resistance that develops before exposure to any antifungal drugs)

Secondary (resistance that develops after exposure to the antifungal drugs due to altered gene expression)

Clinical resistance

- Persistence or progression of an infection despite appropriate antimicrobial therapy due to -
  - Incorrect diagnosis
  - Immunosuppression
  - Suboptimal dose or duration of therapy

Treatment of dermatophytosis in special situation

Topical anti-fungal

In all special situations

All Topical antifungals are safe

Systemic anti-fungal

In Pregnancy	Terbinafine is safe in 2nd and 3rd trimester
In Lactation	Fluconazole is safe

Cont….

In Chronic kidney disease

Itraconazole, Terbinafine and Fluconazole is safe.

If Creatinine clearance is < 50ml/min, 50% dose reduction needed in case of fluconazole

In Chronic liver disease	Fluconazole is safe
In Heart failure	Fluconazole and Terbinafine is safe
In Adrenal insufficiency	Terbinafine is safe

Important Drug interaction

- Anti-ulcerant reduces efficacy of systemic antifungal drugs
- Systemic antifungals reduces the efficacy of JAK inhibitors by 10 times
- Concomitant use of high dose statins with azoles causes rhabdomyolysis

Take home message

- Patient should be treated with both topical and systemic antifungals with appropriate dose and duration
- Steroid should not used in any form during treatment of superficial fungal infection
- Immunosuppressant drug should be stopped up to clinical resolution of superficial fungal infection if feasible.
- Family members should be treated simultaneously
- Co-morbid conditions like Diabetes mellitus, Hypothyroidism should be controlled
- Drug history should be taken before prescribing systemic antifungal drugs to avoid drug interaction.

Outcome of Proper Treatment

Before treatment

After treatment

Before Treatment

After treatment

Before Treatment

After treatment

THANK YOU