

ECZEMA

If it's not Itch It's not Eczema

Eczema is a group of medical conditions which causes inflammation and irritation to skin.

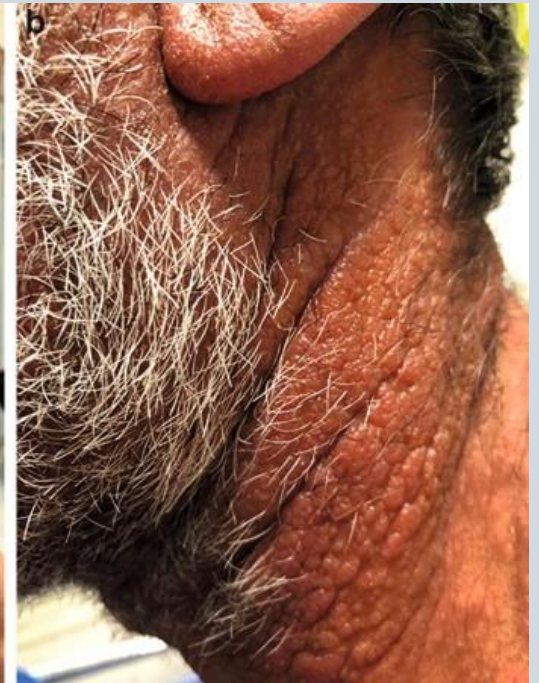
It is also called as Dermatitis

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Eczema is an **itchy** consisting of ill defined erythematous patches. The skin surface is usually scaly and As time progress, constant scratching leads to thickened lichenified skin.



Lichenified Skin



Classification of Eczema

Several classifications of eczemas are available based on Etiology, Pattern and chronicity

<i>Etiology</i>	<i>Pattern/morphology</i>	<i>Chronicity</i>
Endogenous	Discoid	Acute
Exogenous	Hyperkeratotic	Chronic
Combined	Lichenified	
	Seborrheic	

Aetiology

According to aetiology Eczema are classified as:

- **Endogenous eczema:** Where constitutional factors predispose the patient to developing an eczema.
 - Family history (maternal h/o eczema) is often present
 - Strong genetic predisposition (Filaggrin gene mutations are often present).
 - Filaggrin is responsible for maintaining moisture in skin (hence all AD patients have dry skin.
 - Immunological factor-Th-2 disease, Type I hypersensitivity (hence serum IgE high)
e.g., Seborrheic dermatitis, Stasis dermatitis, Nummular dermatitis, Dyshidrotic Eczema

- **Exogenous eczema:** Where external stimuli trigger development of eczema,
e.g., Irritant dermatitis, Allergic Dermatitis, Neurodermatitis,
- **Combined eczema:** When a combination of constitutional factors and extrinsic triggers are responsible for the development of eczema
e.g., Atopic dermatitis

Extrinsic triggers

1. Extremes of Temperature
2. Irritants : Soaps, Detergents, Shower gels, Bubble baths and water
3. Stress
4. Infection either bacterial or viral,
Bacterial infections caused by Staphylococcus aureus and Streptococcus species.
Viral infections such as Herpes Simplex, Molluscum Contagiosum

1. Contact allergens
2. Inhaled allergens
3. Airborne allergens

Allergens include

- Metals eg. Nickle, Cobalt
- Neomycin, Topical ointment
- Fragrance ingredients such as Balsam of Peru
- Rubber compounds
- Hair dyes for example p-Phenyldiamine
- Plants eg. Poison ivy

Types of Eczema

Atopic Dermatitis

AD is a chronic, pruritic inflammatory skin disease characterized by itchy inflamed skin



Allergic Dermatitis

A red itchy weepy reaction where the skin has come in contact with a substance That immune system recognizes as foreign substances.

Ex: Poison envy, Preservatives from creams and lotions



Contact Irritant Dermatitis

A Localized reaction that include redness, itching and burning where the skin has come In contact with an allergen or with irritant such as acid, cleaning agent or chemical



Dyshidrotic Eczema

Irritation of skin on the palms and soles by
clear deep blisters that itch and burn



Nummular Eczema / Discoid Eczema

Coin shaped patches of irritant skin common on
ARMS, BACK, BUTTLOCKS, LOWER LEGS
that may be crusted scaling and extremely itch



Seborrheic Eczema

Yellowish, oily and scaly patches
on the scalp and face



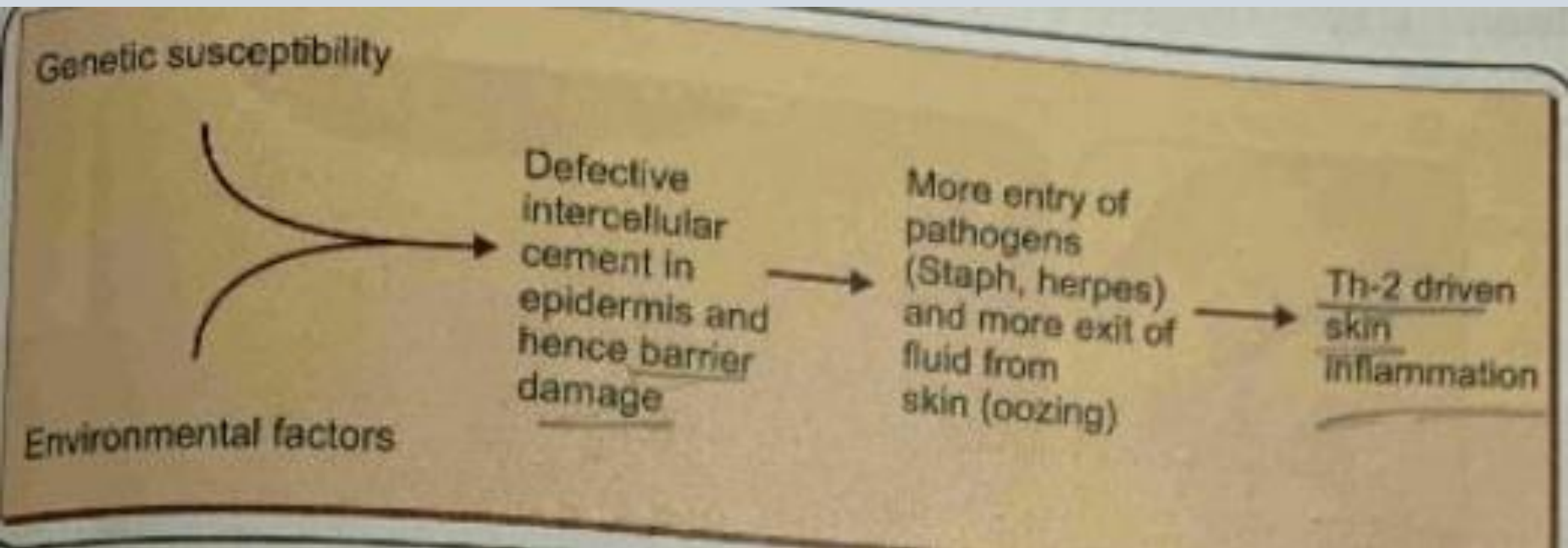
Stasis Dermatitis

A skin irritation to lower legs, generally related to circulatory problems



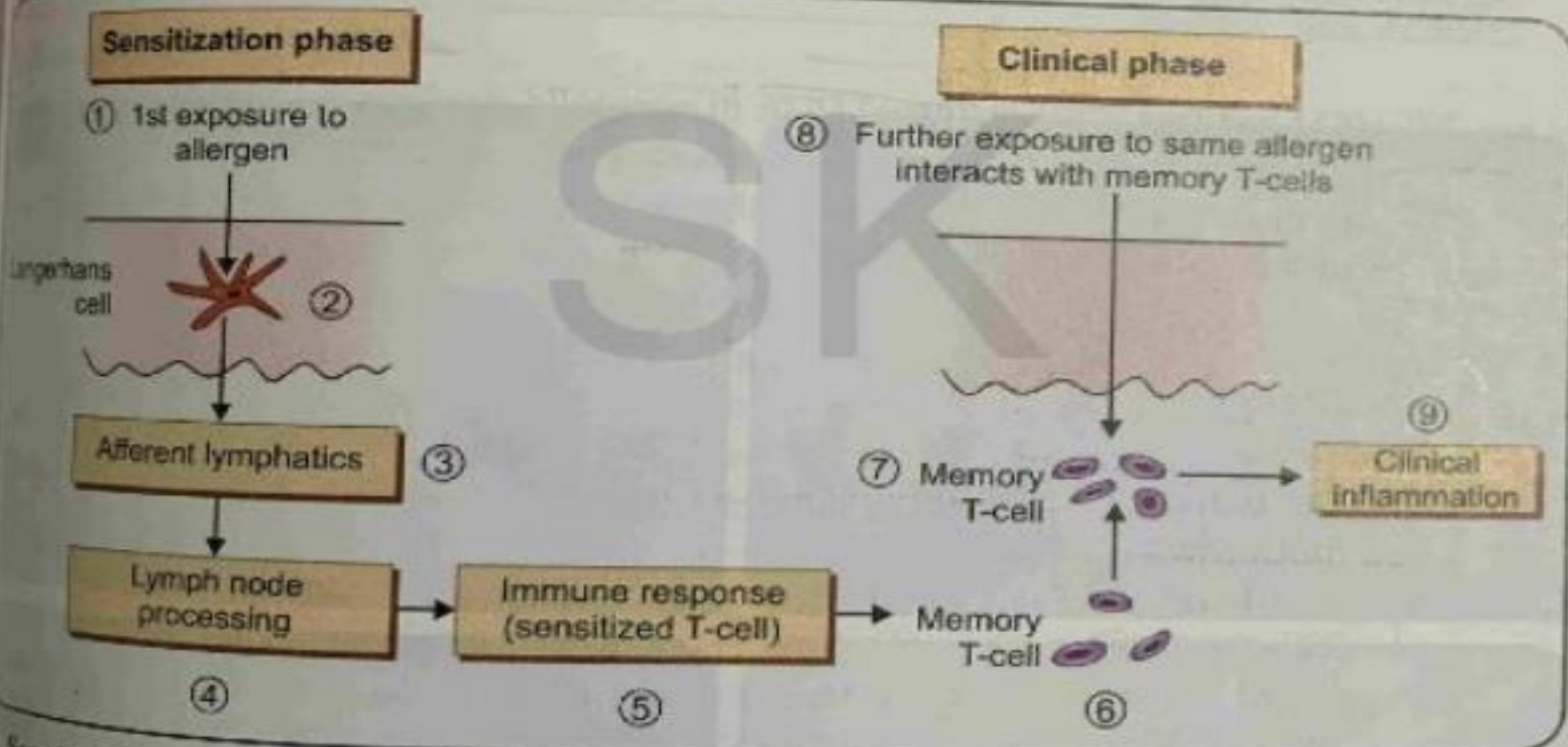
Pathogenesis

- Endogenous eczema:



An inflammatory reaction to a substance (allergen) that causes an eruption in only a few people who come in contact with it (those who have already been sensitized by the molecule previously).

Pathogenesis of allergic contact dermatitis



Sensitization phase—The first exposure to the antigen (1) is picked up by Langerhans cells (2), processed by draining lymph nodes (3, 4). Memory T-cells are created from this exposure (5, 6)

Clinical phase—Memory T-cells travel back to the dermis (7) waiting for another exposure to the same antigen (8), upon which clinical disease occurs (9).

Clinical Features

Acute Eczema:- Acute eczema is characterized by an erythematous and edematous plaque, which is ill-defined and is surmounted by papules, vesicles, pustules and exudate that dries to form crusts. A subsiding eczematous plaque may be covered with scales.

Chronic Eczema:- Chronic eczema is characterized by lichenification, which is a triad of hyperpigmentation, thickening markings. The lesions are less exudative and more scaly. Flexural lesions may develop fissures.

- ❖ Pruritus
- ❖ Characteristic Rash
- ❖ Chronic or repeatedly occurring symptoms
- ❖ Family history



Fig. 6.1. Acute eczema: erythematous, edematous, exudative crusted plaques with papulovesiculation.



Fig. 6.2. Chronic eczema: lichenified plaque characterized by thickening, hyperpigmentation and increased skin markings.

Diagnosis

The diagnosis of eczema is based on following Features:

Acute eczema: Itchy exudative plaques, surmounted by papulovesicles.

Chronic eczema: Lichenified scaly plaques.

It is important to differentiate between endogenous and exogenous eczema.

Endogenous eczema:

- Symmetrical distribution.
- Well-set patterns like atopic dermatitis or seborrheic dermatitis.

Exogenous eczema:

- Asymmetrical distribution; sometimes linear or rectilinear configuration.
- Known contact with irritants and allergens.
- Well-set pattern like airborne contact dermatitis.

Investigations to Find Cause of Eczema

Some eczemas need to be investigated extensively while others can be treated without investigations.

The rule of the thumb is to treat acute eczemas without investigations while chronic and recurrent eczema should be investigated.

Patch Tests: Patch tests are very useful in finding the cause of allergic but not irritant dermatitis, i.e., they detect allergens responsible for type IV allergy.

Prick Tests: Type I hypersensitivity is detected by prick tests. Relevance of positive prick tests in determining the cause of eczema (atopic dermatitis) and urticaria, however, is debatable.

Serological Tests: Total serum IgE levels and IgE antibodies specific to certain antigens (measured using radioallergosorbent test or RAST) may be useful in diagnosis in atopic states.

RAST help to identify specific (dietary and environmental) allergens which may be perpetuating dermatitis in an atopic patient. Most dermatologists, however, doubt the relevance of this test.

Treatment

Goals of treatment for eczema:-

1. Control Itching
2. Identify and when possible minimize triggering factors
3. Identify and minimize predisposing factors for exacerbations
4. Minimize the adverse effects from medications
5. Prevent future exacerbations
6. Provide social and Psychological Support

Non Pharmacological Measures

1. Use of moisturizers :- To improve hydration. The active ingredient used as mineral oil, petroleum jelly, ceramide and urea
 - Mineral oil: Blocks the loss of water from skin allowing greater hydration.
 - Petroleum jelly: Modulator of antimicrobial activity on the skin preventing infections.
 - Ceramide: Enhances skin barrier by preventing water loss by reducing permeability and optimising pH for endogenous biosynthesis of proteins.
 - Urea: Dissolves intracellular matrix of cells of St. Corneum, promoting desquamation of scaly skin resulting in softening of hyperkeratotic area.

Types of moisturizers :-

1. Occlusives :- Provide oily layer on the surface to slow transepidermal water loss thus increases moisture content.
2. Humectants:- Increases the water holding capacity in stratum corneum, thus increases the moisture. It gives stinging effect
3. Emollients:- Smooth out the surface of the skin by filling the spaces with droplets of oil.

2. Banding/ wet wrap therapy :-

- Occlusion with bandage is useful to prevent scratching and potentiate the action of the ointment or cream on the lesion.
- Wet wrapping involve application of emollients and steroids under double layer to keep inner layer moist, promotes skin hydration reducing disease severity.

3. Wear cotton fabrics, non polyesters

4. Avoid overheating

5. Identify and remove irritants

6. Use sedating antihistamines at bedtime to reduce scratching

Pharmacological Therapy

1. Topical Therapy

- i. Topical Corticosteroids
- ii. Topical Calcineurin inhibitors
- iii. Coal tar
- iv. Topical Imidazoles

1. Phototherapy

1. Systemic Therapy

- i. Systemic Corticosteroids
- ii. Cyclosporin
- iii. Azathioprine
- iv. Methotrexate
- v. Antihistamines
- vi. Mycophenolate mofetil
- vii. IV Immunoglobulins

1. Topical corticosteroids

- ❖ First line treatment for eczema.
- ❖ Produces anti inflammatory effect by binding to intracellular corticosteroid receptor and gene regulation which codes for proinflammatory cytokines.
- ❖ The choice depends on the site and severity of infection.
- ❖ Low potent i.e Hydrocortisone 1% are suitable for face, genitals and flexures.
- ❖ Medium potent i.e Betamethasone 0.1% used for other parts of body.
- ❖ Twice daily application till inflammatory lesion significantly improves and can continue upto 1 week to several weeks.
- ❖ Once control is achieved stop the use and use of moisturizers until next flare up.
- ❖ AE-
 - ❖ **Local** - Skin atrophy, periorbital dermatitis, acne, focal hypertrichosis, allergic contact dermatitis.
 - ❖ **Systemic** - Hypothalamic pituitary adrenal suppression, Cataract, glaucoma, growth retardation

2. Topical Calcineurin inhibitors

- ❖ MOA: Inhibit activation of T cells and most cells by blocking the production of cytokines and its mediators.
- ❖ Tacrolimus ointment and Pimecrolimus cream reduce severity, extend and symptoms of disease in children and adult.
- ❖ Tacrolimus ointment : Derived from oral medicine FK506. 0.1% and 0.03% preparation used in treatment of moderate to severe Eczema.
- ❖ Pimecrolimus cream - 1% : Indicated for short term, intermittent use for mild to moderate eczema.
- ❖ AE - Burning, stinging, increases risk for malignancy.

3. Coal Tar

- ❖ Tar cream and ointment is used in the management of hyperkeratotic lichenified eczema, by acting as an antipruritic agent.
- ❖ Not recommended on acutely inflamed skin lesion.
- ❖ Less cosmetically acceptable due to staining and malodorous.

3. Topical Imidazoles

- ❖ Ketoconazole shampoo or cream is effective in reduction of *Pityrosporum ovale* on skin.
- ❖ Useful in the management of Seborrhoeic dermatitis.

Phototherapy

- Phototherapy can be effective second line therapy, when the disease is not controlled by TCS or Topical calcineurin inhibitors.
- Used to treat acute or maintenance therapy in adults and children.
- It consist of UV light alone or Along with UV light systemic or topical agent.
- UV A + Psoralances or NBUVB + Coal tar is the effective treatment for acute eczema
- Contraindicated in Photosensitive eczema
- AE -
 - ◆ Short term - Erythema, skin pain, skin burn, Sunburn, Pruritus, Pigmentation
 - ◆ Long term - Premature aging of skin, folliculitis, Photo Onycholysis, facial hypertrichosis, skin cancer.

Systemic therapy - Used when Topical and phototherapy do not adequately control the disease

1. **Systemic corticosteroids**

- ❖ Short term - Oral prednisolone used in management of severe acute eczema which require rapid control.
- ❖ Long term - Rarely used due to adverse effects and risk of HTN and osteoporosis.

1. **Azathioprine**

- ❖ It is a purine analogue that inhibits DNA synthesis and can be effective as monotherapy in Adult eczema

1. **Methotrexate**

- ❖ Used as second line agent for moderate to severe atopic dermatitis.

4. Cyclosporin

- ❖ It is a systemic immunosuppression that blocks activation of T-lymphocytes
- ❖ It is effective for short term therapy for severe chronic adult eczema with rapid onset of action.
- ❖ Intermittent doses of 2.5 - 5 mg/kg/day are effective with maximum benefit observed after 2 to 6 weeks of therapy and relapse may occur quickly after cessation of therapy.
- ❖ AE - Dose related nephrotoxicity - hence monitoring of Sr. Creatinine is essential, HTN, Increases risk for cancer.
- ❖ DFI - Grapefruit juice - Increases blood levels of cyclosporine increasing risk for nephrotoxicity.

4. Antihistamines

- ❖ No direct impact on pruritis, main effect is sedation.

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All India Institute of Medical Sciences

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Saurabh Jindal, MD, DNB, DDV

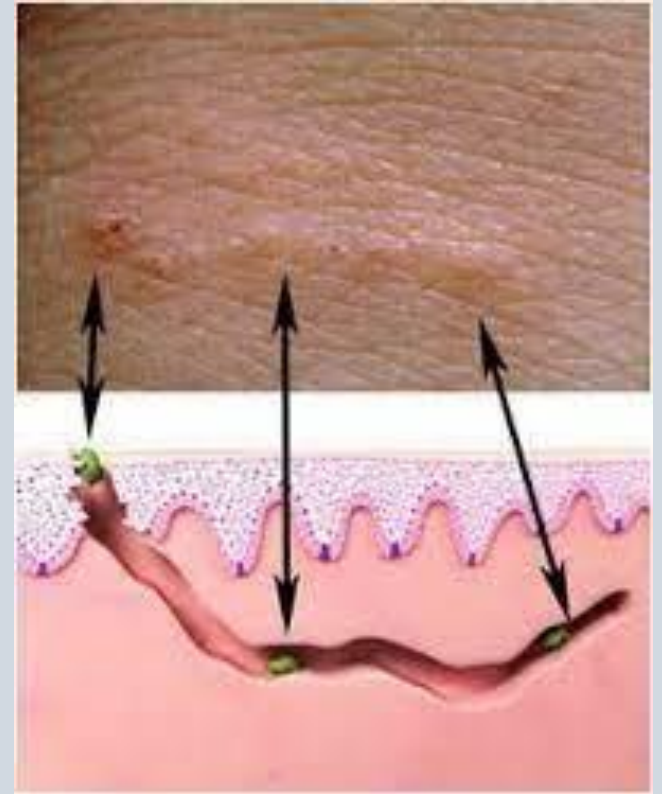
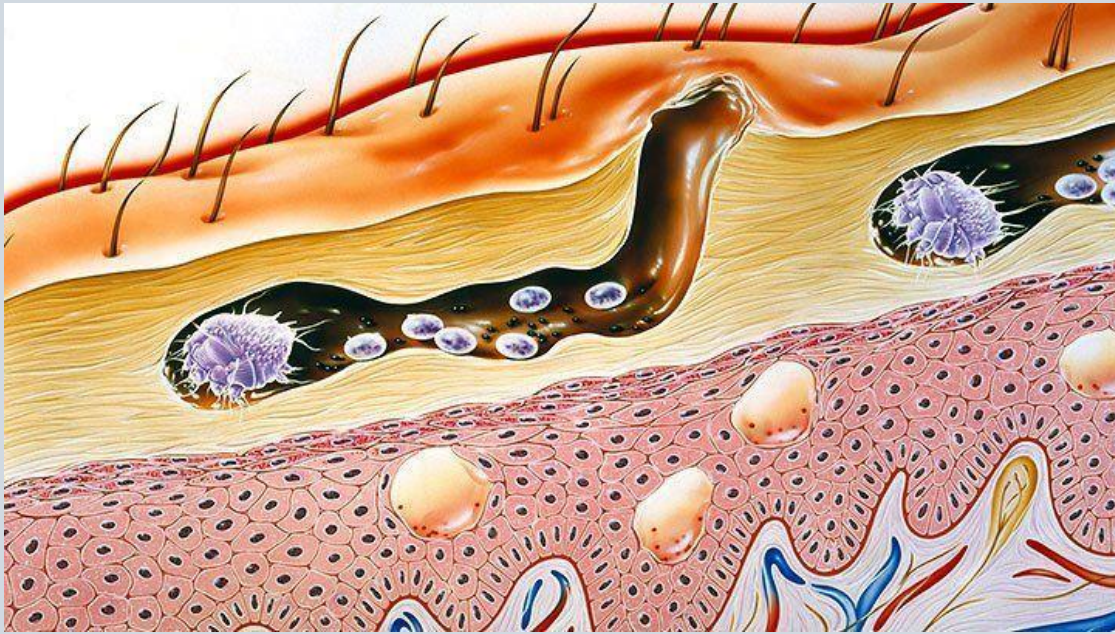
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1. Dipiro

Scabies



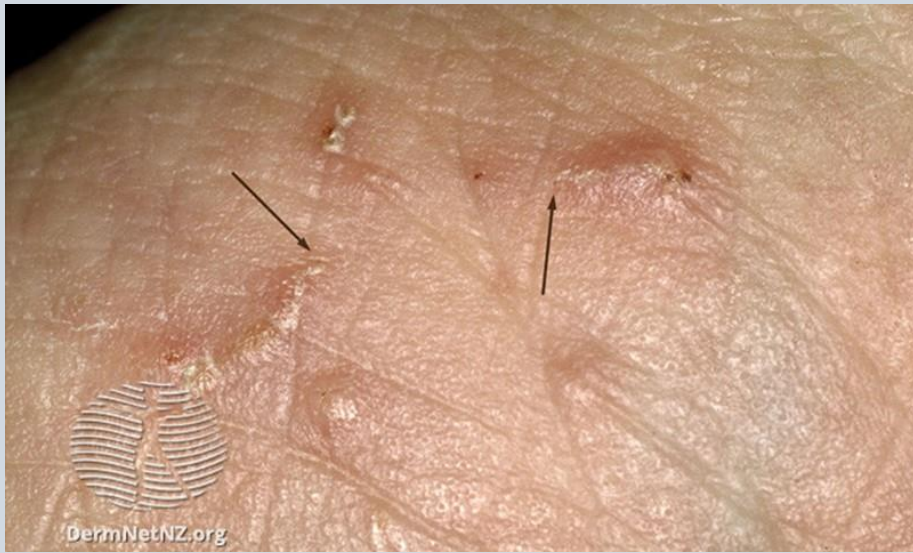


Figure 1

Classic scabies.



Figure 2

Crusted scabies.



Impetigo

Non-bullous
impetigo



Bullous
impetigo





Psoriasis



Psoriasis Vulgaris



Guttate Psoriasis



Scalp Psoriasis



Nail Psoriasis



Palmoplantar Psoriasis



Erythrodermic Psoriasis



Generalized Pustular Psoriasis

