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Scabies

→ Scabies is a transmissible ectoparasite skin infection characterized by superficial burrows, intense pruritis & secondary infection caused by Sarcoptes Scabiei

→ primarily it's affect b/w fingers wrists, axillary areas, female breasts, pre-umbilical area, penis, and buttocks.

- In infants the areas of the body affected include face, scalp, palms & soles.

→ It is caused by the mite sarcoptes scabiei

Signs & Symptoms.

- Pimple like irritants or rash.
- Intense itching specially at night
- Sores caused by scratching.

Pathophysiology.

After 4-6 weeks of infestation the symptoms occur till then the disease will be contagious.

→ The larvae hatch in 3-10 days & move about on the skin into a nymphal stage & then mature into adult mites

The female burrow the skin & lay eggs, males roam on top of the skin occasionaly they burrow.

↓

the action of mites moving within the skin & on the skin produces an intense itch which may resemble an allergic r/n ~~to~~ appearance.

↓

The symptoms are caused by an allergic r/n that the body develops over time to mites & their by product

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A delayed hypersensitive r/n results in papular eruption often occurs 30-40 days after infestation

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The burrows appear as a fine wavy & slightly scaly line a few milimeters to few centimeters.

Diagnosis

observation of tunnel & burrows; scraping of the skin with Microscopic examination of mite or its eggs or faeces. Addition of potassium hydroxide also allows easier visulization

Treatment

① A mite killer permethrin (5%) is a first line agent

M.O.A

It acts by disrupting the Sodium Channel current resulting in delayed repolarization, paralysis & death of the parasite

Effective during all stages of life cycle of parasite

CI - not recommended to very young infants, younger than 2 months, of pregnancy. But used in younger women & crusted scabies.

These creams are applied & left once & then washed off & are repeated in 7 days.

② Alternative treatment is application of Scabicide such as lindane lotion, cream or shampoo is a creative.

Since lindane cause seizures when it is absorbed through the skin, it should be used if skin is significantly irritated or wet. It should not be used in pregnant or nursing women or less than 2 year

③ 10% Sulfur ointment cream is used in infants

④ Oral Scabicide like Ivermectin can be given & it has a broad spectrum activity against parasites. It binds to glutamate-gated chanels & causes paralysis
Dose - 200mg/kg a single dose followed by repeat dose 2w

⑤ Antihistamine - diphenhydramine - produce relief

⑥ Others scabicides are benzyl benzoate, crotamiton - inhalation

Scabies treatment

Treatment	Dosages	Advantages	Disadvantages / CI
Sulphur	2-10% precipitate in petroleum base	Safe for infants, pregnant & lactating women, inexpensive	⊙ Noxious & malodorous and may cause skin irritation. ⊙ Multiple treatment req ⊙ Lack of safety & efficacy data.
Crotamiton	10% ointment	Safe for infants, reported antibacterial and antipruritic activity, low toxicity, well tolerated	Clinical efficacy questionable Multiple treatment required Resistance reported.
Benzyl benzoate	25% ointment	Effective, inexpensive.	Can cause severe skin irritation CI in pregnant women & infants ~~Resistance reported~~ ~~contraindicated in many countries owing to neurotoxicity.~~

Lindane	1% lotion or cream	effective inexpensive	Can cause numbness, cramps dizziness, seizures in children CI in pregnant women & infants withdrawn in several countries owing to neurotoxicity concerns
permethrin	5% cream	effective, well tolerate safe	May rarely cause skin irritation, expensive, resistance reported.
Ivermectin	oral 200µg/kg	Broad-Spectrum antiparasitic. few side effects	CI in pregnant women & infants expensive resistance reported

Prevention

→ Try not to touch infected person skin

→ Do not share cloth with an infected person

→ Wash bedding in hot water & dry in high temperature (130°F) for atleast 20 minutes

→ If not able to wash something, sealing it in plastic bag will kill bugs

Flow Chart of Scabies pathophysiology.

Adult female parasite deposit eggs as they burrow in cutaneous layer mainly Stratum Corneum (2-3 eggs/day.

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Egg hatches releasing larva, larva develop into nymphal stage

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Nymph are found in short burrows called Molting pouches

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Mating occur after male penetrates the molting pouch

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following Molting Male dies and female begins another burrows life cycle is continued & new female mites create burrows in Stratum Corneum

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Ig E antibodies are released by activated T-cells & delayed Type IV hypersensitivity reaction occurs because of skin pieces, eggs of mite itself results in uncontrollable

Crusted Scabies / Norwegian Scabies

On those ē weaker Immune System, the host becomes a more fertile breeding ground for the mites which Spread over the hosts body except face.

Signs & Symptoms.

Scaly rashes.
Slight Itching & thick crusts of skin that Contain a large number of Scabies mites.

Prevention

- Try not to touch Infected person skin.
- Do not Share clothes with an Infected person.
- Wash bedding in hot water & dry at high temp (130°F) for atleast 20 min.
- If not able to wash something, sealing it in a plastic bag will kill the bugs

ECZEMA.

Eczema is an itchy erythematous eruption consisting of ill defined erythematous patches or papule.

The skin surface is usually scaly & as time progress, constant scratching leads to thickened 'lichenified' skin.

Pathophysiology.

There are 2 phases.

(1) Acute phase - It is characterized by inflammatory process leading to oedema in epidermis
→ oedema is seen histologically in epidermis as spongiosis.
→ The oedema manifests as fluid that collects into tiny blisters & may then coalesce. This is seen in intraepidermal vesicles & clinically as pompholyx blisters on thicker palmar & plantar skin.

Tightly packed keratinocyte cells in epidermis usually prevent transepidermal fluid loss & the entry of pathogens. This barrier function is lost in eczema. So where the skin is thinner they tend to rupture. or to skin surface causing exudation & crusting

(2) Chronic phase.

The prolonged rubbing & scratching results in a thickened epidermis and an increase in the upper horny cell layer of keratin, termed Hyperkeratosis

Clinically, the skin appears, thick, leathery, scaly & lichenified & exaggerated skin markings.

Types.

① Atopic eczema.

It is most common type of eczema, which affects both infants & adults. This type of eczema is considered to be caused by abnormal response of body's immune system (autoimmune)

- It tends to run in families who have genetic history of allergies like asthma, hay fever & food allergy
- ~~Eating~~ In paediatric population the common trigger may be bacterial or viral infection.
  eg. Staphylococcus aureus & streptococcus spp. Herpes simplex - - etc.

Exacerbating factors.

- Extreme temperature
- Irritants, soap, detergents, shower gels, bubble baths and water
- Stress
- Infection, either bacterial or viral
- Contact allergens
- Inhaled allergen
- Airborne allergens.

② Contact dermatitis

2 types

① Allergic contact dermatitis (ACD)

② Irritant contact dermatitis (ICD).

ACD - It is a delayed type IV hypersensitivity r/n that develops response to an antigen to which the host immune system is previously sensitised.

Metals eg. Ni & Co.

(2) Neomycin.

(3) Fragrance ingredients like balsam of Peru

(4) Rubber Compounds.

(5) Hair dyes. for eg. P-Phenylediamine.

(6) Plants.

ICD - Diagnosis

- is recognising the pattern & distribution of eczematous rash.

The std. confirmatory test is patch testing &. is used to differenciate from allergic from ICD.

ICD - The mechanism involves disruption of the epidermal barrier & a direct cytotoxic effect depending on the irritant.

It is an occupational dermatitis.

Risk factor are builders, hairdressers, gardeners, healthcare, workers & chefs.

(3) Seborrhoeic dermatitis

It is confined to areas of high sebum production. aetiology is over growth of the commensal yeast.

The clinical features are pink-yellow greasy patches of 'bran-like' scale occur on sebaceous rich scalp, nasal folds, medial eyebrow, pre-sternal region & flexural sites.

(4) Discoid eczema.

It is also known as nummular dermatitis & is a type of chronic eczema presenting as discrete coin shaped eczematous lesions at extremities

⑤ Stasis eczema.

It is also called Stasis dermatitis. It is commonly found in middle aged & Elderly pt's.
- ↳ The risk of developing varicose eczema increases with increasing age.
- ↳ Caused due to poor blood circulation & affects the lower legs.
- ↳ It primarily affects the skin around the ankles.

⑥ Asteatotic eczema.

It is also called as eczema craquele, usually affects the lower ~~limbs~~ legs & appears as degraded skin likened to 'cracked paving'. It is associated with low humidity, frequent bathing.

Treatment

Symptoms

- ↳ Eczema most commonly causes dry, reddened skin that itches or burns.
- ↳ Itching is the first sign but in some it may lead to blisters & oozing lesions

Pt. is suffering from eczema

Diagnosis

Based on the appearance of inflamed itchy skin & eczema sensitive areas such as face skin & other areas.

Treatment

the first line treatment for eczema include an emollient & soap substitute for washing.

Topical steroids are used for anti-inflammatory effect.

→ Systemic treatment for adult atopic eczema include oral prednisolone, ciclosporine & azathioprine

→ If there is secondary bacterial infection. then it should be treated ē antibiotics.

① Emollients

Eczema can be exacerbated by dryness of skin. Moisturizing is the mainstay of eczema treatment

It keeps the affected area moistened & can promote skin healing and relief of symptoms.

→ The greasier products have more emollient effects.

② Topical corticosteroids

Topical steroids acts as anti-inflammatory agents

It is treated with ointments, creams or lotions. for mild & moderate eczema ~~glucocorti~~ a weak. steroid may be used Eg. Cortiosteroide, while. severe cases require a higher potency steroid.

Eg. Clobetasol propionate

Medium-potency Eg. Betamethasone valerate & Clobetasone butyrate

Corticosteroids do not cure but are ... in controlling or supressing symptoms.

(5) Calcineurin Inhibitors

The non-steroid immunomodulators inhibit Calcineurin phosphatase & is imp. in T-lymphocyte activation.

The main side effect is burning or stinging on initial application

Eg. Tacrolimus, pimecrolimus.

(6) Antihistamines

These reduces the itch or pruritis in eczema & reduced scratching which reduces damage and irritation to the skin

- Non-selective antihistamines are applied to the skin & acts as contact irritant. ~~Eg~~ Cap.

Even menthol produces some kind of relief.

(5) Topical Imidazoles:

Ketoconazole as a shampoo or cream is effective in reduction of pityosporum ovale on the skin & is therefore useful in the treatment of seborrhoeic dermatitis.

(6) Coal tar preparations:

Tar creams & ointments can be used in the management of hyperkeratotic, lichenified eczema.

(7) Systemic treatments.

Oral prednisolone can be used as short-term treatment in the management of severe acute eczema that needs rapid control.

Long-term treatment & oral steroids is now rarely used due to the risk of side effects including HTN & osteop...

Ciclosporin

- Ciclosporin is a systemic immunosuppressant it blocks activation of T-lymphocytes.
- It is effective as a short-term bridging therapy in severe chronic adult eczema and has a rapid onset of action.
- Other side effects include HTN & increased risk of malignancy
- During the treatment close monitoring of renal fnct^n & BP.

(9) Azathioprine:

Azathioprine is a purine analogue that inhibit DNA synthesis & can be effective as monotherapy in adult eczma.

- Bone marrow suppression & toxicity are the major concern.
- A higher risk of bone marrow suppression occurs in individual with low levels of thiopurine methyl transferase.

(10) Methotrexate.

It is occasionally used in unresponsive adult atopic eczema.

(11) Mycophenolate mofetil

Mycophenolate mofetil is an oral systemic agent that prevents T- & B-cell proliferation thereby reducing inflammatory cytokine release.
- This is used as an alternative