Eczema

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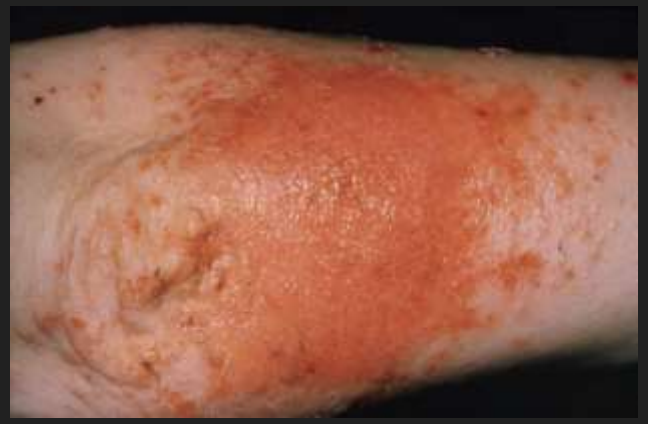
Learning outcomes

- At the end of lecture, students should be able to
  - Define eczema
  - Classify eczema on basis of duration and etiology
  - Differentiate different types of endogenous eczema on basis of clinical findings
  - Differentiate different types of exogenous eczema on clinical findings
  - Order appropriate investigations
  - Give treatment appropriate to the subtype of eczema

Eczema

- Eczema means to boil, is a clinical and histological pattern of inflammation of the skin seen in a variety of dermatoses with widely diverse aetiologies
- all eczema is dermatitis, but not all dermatitis is eczema.
- There remain cases of eczema that do not fit any of the described patterns. These are not uncommon and have been termed ‘unclassified eczema’. These patients may have a poor prognosis, with a tendency for the disease to become chronic.



Core Concepts

Eczema

Exogenous eczemas	Endogenous eczemas
• Allergic contact eczema • Dermatophytid • Eczematous polymorphic light eruption • Infective dermatitis • Irritant eczema • Photoallergic contact eczema • Post-traumatic eczema	• Asteatotic eczema • Atopic eczema • Chronic superficial scaly dermatitis • Eyelid eczema • Hand eczema • Juvenile plantar dermatosis • Nummular dermatitis • Pityriasis alba • Metabolic eczema or eczema associated with systemic disease • Seborrhoeic eczema • Venous eczema

Horizontal Integration

Eczema

Age and Sex

- Most cases of eczema in infants and young children are atopic.
- Pompholyx and atopic eczema are less common in elderly people.
- Nummular dermatitis occurs particularly in elderly males in winter.

Vertical Integration

Eczema

Pathophysiology

- The interaction of trigger factors, keratinocytes and T lymphocytes seems particularly important in most eczema types.
- Three predominant processes occurring in irritant dermatitis are disturbed barrier function, epidermal cell change and release of inflammatory mediators and cytokines.
- Certain irritants may provoke a chronic reaction in which an effect on epidermal cell turnover predominates, leading to lichenification; whereas in acute irritant reactions inflammatory mediators cytokine release is similar to that seen in acute allergic contact dermatitis
- Both intracellular and intercellular oedema are visible throughout the epidermis at 3–6 h, and within 24 h there may be epidermal necrosis, with cellular vacuolation and nuclear pyknosis. In severe forms, the primary epidermal damage may progress to subepidermal blister formation.
- mutations of the fillaggrin gene.

Eczema

Presentation

- Acute eczema presents as an eruption that is typically oedematous, vesicular and may be exudative.
- Chronic eczema, these features give way to a more stable picture of erythema, scaling, excoriation and lichenification.

Core Concepts

Eczema

Investigations

1. measure the total IgE level
2. Secondary infection can be confirmed by taking swabs for culture and sensitivity
3. When dermatophyte infection is suspected, a potassium hydroxide preparation
4. Microscopy, or dermoscopic examination of the skin
5. Biopsy
6. immunofluorescence can help identify less common conditions such as dermatitis herpetiformis
7. Patch testing in eczema - important in atypical or asymmetrical eruptions, and especially in dermatitis affecting the face, hands and feet.

Horizontal Integration

Eczema

Treatment

First line

- Avoidance of irritants and allergens, emollients and soap substitutes

Second line

- Topical corticosteroids and topical calcineurin inhibitors

Third line

- Phototherapy, oral immunosuppressants and steroids

Atopic Dermatitis(Eczema)

- **Atopic dermatitis** (**eczema**) is a condition that makes your skin cracked, swollen, red and itchy. It's common in children but can occur at any age.
- **Atopic dermatitis** is long lasting (chronic)and tends to flare periodically.
- It may be accompanied by asthma or hay fever

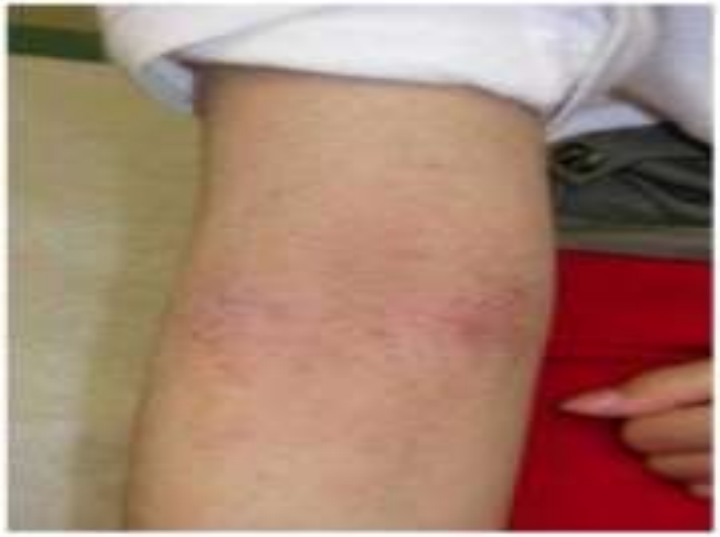
UK Diagnostic criteria

Itchy skin and at least three of the followings:

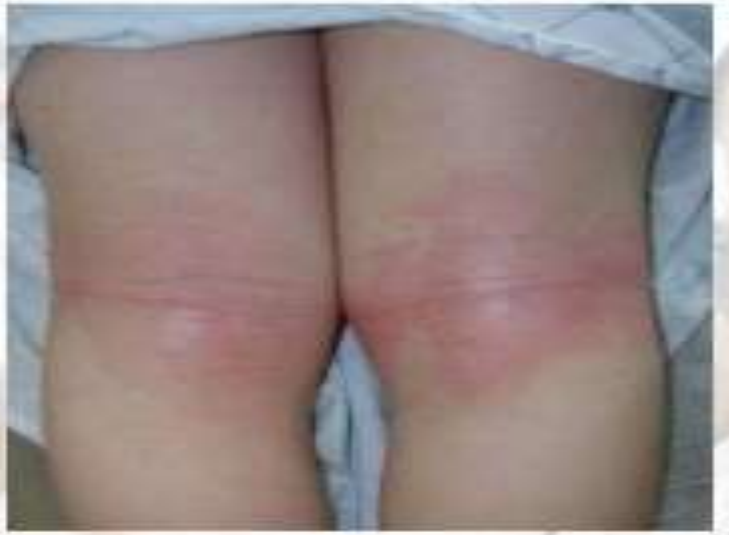
- History of itch in skin creases or cheeks(if < 4yrs)
- History of asthma/hay fever(in 1st-degree relatives if < 4yrs)
- Dry skin (Xeroderma)
- Visible flexural eczema(cheeks,forehead,outer limbs if < 4yrs
- Onset in first 2 years of life

Affects flexural areas of neck, elbows, knees, wrists, and ankles

- Antecubital fossa



- Lichenified, erythematous plaques behind the knees



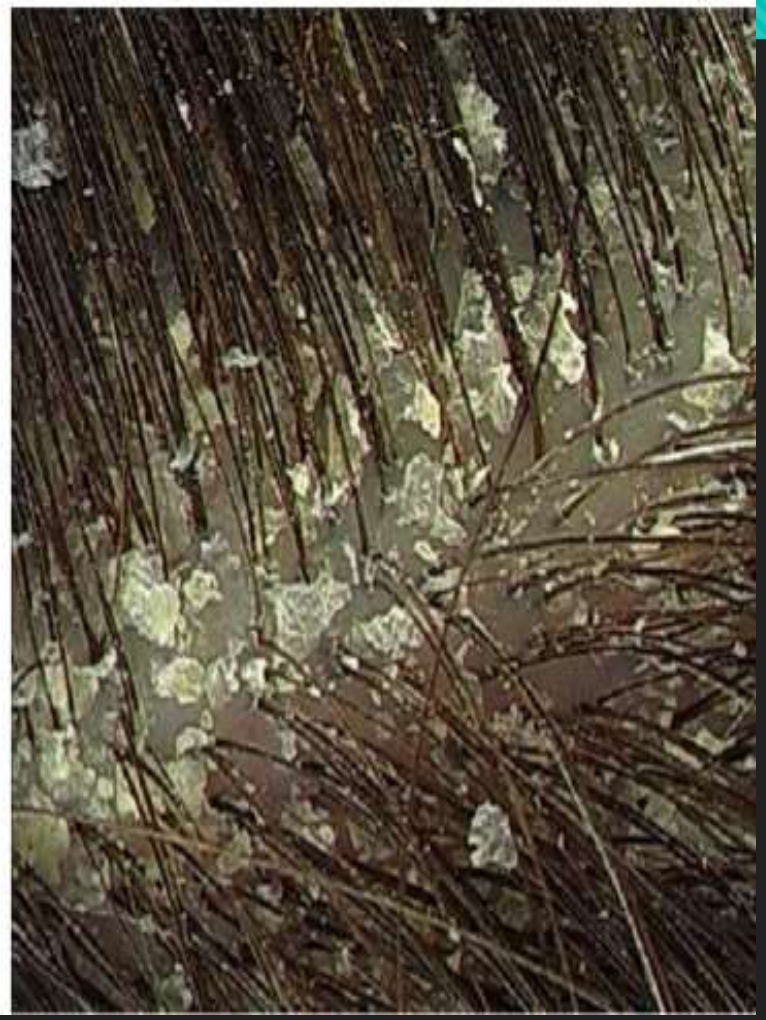
Seborrheic dermatitis

Definition

- **Seborrhoeic dermatitis (SD)** is chronic-recurrent common skin inflammation affect sebaceous-gland-rich areas of skin causes scaling.
- **Dandruff(pityriasis sicca)**: mildest form of seborrhoeic dermatitis "scaling without inflammation".
- **Cradle cap "　　" :** is transient form of seborrhoeic dermatitis affecting infants.
- SD may be presoriatic stage and may associated with psoraisis and called "**seborrhiasis**"

Classification: Head

- Areas:
  - Scalp,
  - eyebrows
  - eyelashes (blepharitis)
  - beard (follicular orifices)



Cradle cap

- DDx:
  langerhans cell histocytosis

Management (nice+aad)

I. Remove crust: salicylic acid, olive oil, coal tar shampoo.
II. Ketoconazole 2% shampoo
    I. If failed > Selenium sulphide shampoo 2.5% or ciclopirox 1%.
    II. If no compliance > zinc pyrithione shampoo
    III. If symptoms subside > continue: once week for 2 weeks.
III. Severe itching: potent steroid
    I. betamethasone valerate 0.1%,
    II. hydrocortisone butyrate 0.1%
    III. mometasone furoate 0.1%.
    Nb. Steroid not applied on bear.
IV. F/U not required unless complicated or resistant

Core Concepts

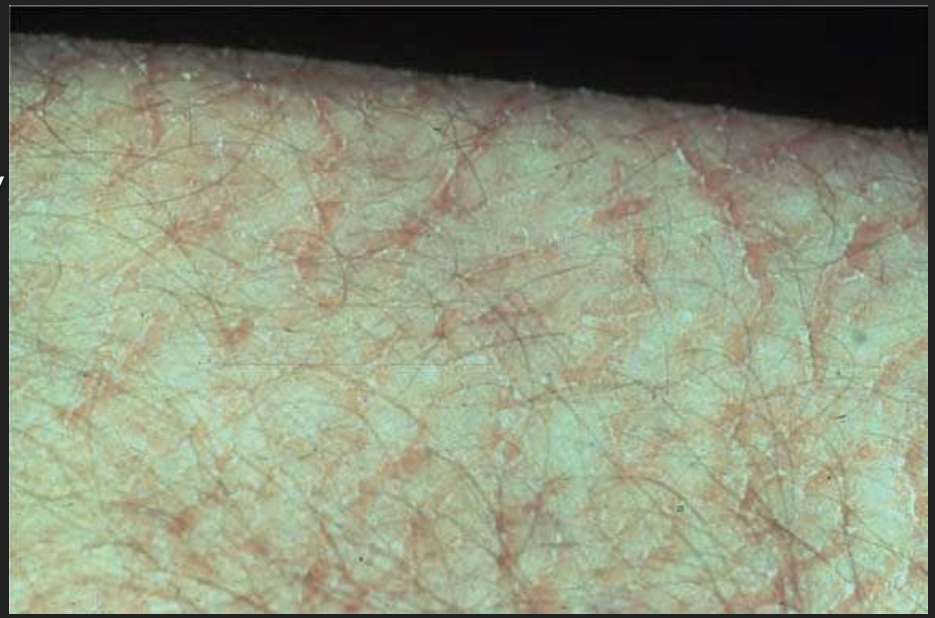
Asteatotic eczema

Definition

This is eczema developing in very dry skin, usually in the elderly

Synonyms

- Eczéma craquelé
- Winter eczema



Core Concepts

Asteatotic eczema

Presentation

The condition occurs particularly on the legs, arms and hands. The asteatotic skin is dry and slightly scaly. The surface of the backs of the hands is marked in a criss-cross fashion. The fi nger pulps are dry and cracked, producing distorted prints and retaining a prolonged depression after pressure ('parchment pulps'). On the legs the pattern of superficial markings is more marked and deeper ('crazy-paving' pattern or eczéma craquelé).

Core Concepts

Asteatotic eczema

Environmental factors

1. central heating
2. cold, dry winter
3. Drugs – Diuretics, Cimetidine, topical corticosteroids.

Associated diseases

1. Myxoedema
2. zinc deficiency

Core Concepts

Dermatitis and eczema of the hands

Hand eczema: aetiological possibilities to be considered

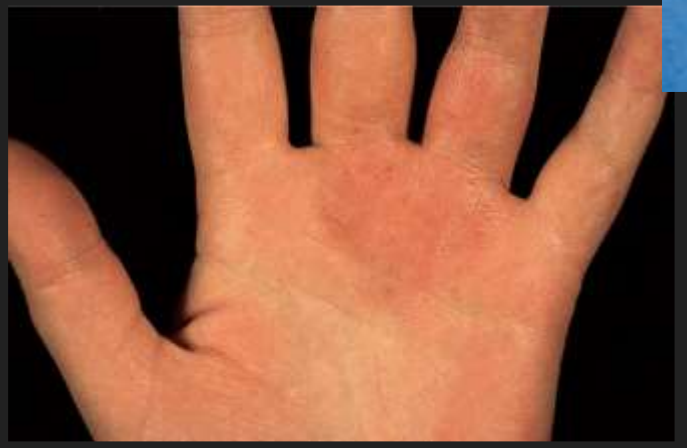
Exogenous	**Endogenous**
• Contact irritants: • Chemical (e.g. soap, detergents, solvents) • Physical (e.g. friction, minor trauma, cold dry air) • Contact allergens: • Delayed hypersensitivity (type IV) (e.g. chromium, rubber) • Immediate hypersensitivity (type I) (e.g. seafood) • Ingested allergens (e.g. drugs, possibly nickel, chromium) • Infection (e.g. following bacterial infection of hand wounds) • Secondary dissemination (e.g. dermatophytide reaction to tineapedis)	• Idiopathic (e.g. discoid, hyperkeratotic palmar eczema) • Immunological or metabolic defect (e.g. atopic) • Psychosomatic: stress aggravates, but may not be causative • Dyshidrosis: increased sweating aggravates, but may not be Causative

Core Concepts

Dermatitis and eczema of the hands

Morphological patterns of hand eczema

- Apron eczema
- Chronic acral dermatitis
- Nummular dermatitis (discoid eczema)
- Fingertip eczema
- ‘Gut’ eczema
- Hyperkeratotic palmar eczema
- Pompholyx
- Recurrent focal palmar peeling
- Ring eczema
- ‘Wear and tear’ dermatitis (dry palmar eczema)
- Other patterns (e.g. patchy vesiculosquamous)



Core Concepts

Dermatitis and eczema of the hands

Clinical variants

Hyperkeratotic palmar eczema.

Pompholyx. - Pompholyx is a form of eczema of the palms and soles in which oedema fluid accumulates to form visible vesicles or bullae.

Apron eczema - This condition is a type of hand eczema that involves the proximal palmar aspect of two or more adjacent fingers and the contiguous palmar skin over the metacarpophalangeal joints, thus resembling an apron.

Chronic acral dermatitis- This is a distinctive syndrome affecting patients in middle age. A chronic, intensely pruritic, hyperkeratotic, papulovesicular eczema of the hands and feet, is associated with grossly elevated IgE levels in subjects with no personal or family history of atopy. The condition responds to oral corticosteroids,but the response to topical therapy is poor.

Core Concepts

Dermatitis and eczema of the hands

Prognosis

- Atopic hand eczema probably has the worst prognosis of all types of hand eczema
- eczema on the dorsa of the hands clears more readily, and is less likely to recur than palmar eczema.
- ***Pompholyx,*** - about one-third of patients experience no further episodes, one-third suffer from recurrent episodes and in the remainder the condition develops into a chronic, possibly hyperkeratotic phase.

Investigations

- scrapings should be examined for fungus
- patch testing

Horizontal Integration

Dermatitis and eczema of the hands

Treatment ladder

First line

- Hand care advice
- Irritant and allergen avoidance
- Emollients
- Soap substitute

Second line

- Potent or very potent topical corticosteroids

Third line

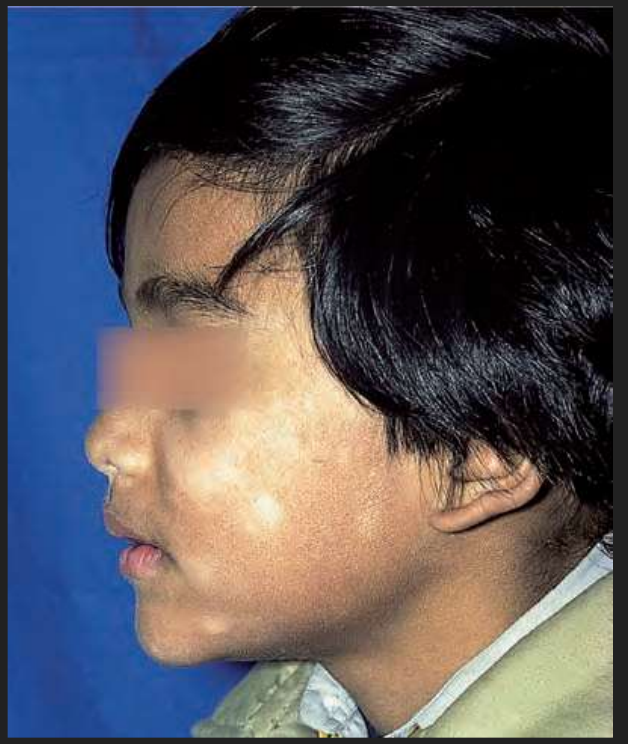
- Alitretinoin/PUVA/azathioprine/ciclosporin/methotrexate

Core Concepts

Pityriasis alba

Definition

This is a pattern of dermatitis in which hypopigmentation is the most conspicuous feature. Some erythema and scaling usually precede the development of hypopigmentation but these are often relatively mild.



Age

Children 3-16 years

Sex

Equal

Associated Diseases

Atopic Eczema

Core Concepts

Pityriasis alba

Clinical Features

- *The individual lesion is a rounded, oval or irregular hypopigmented patch that is usually not well marginated. Lesions are often slightly erythematous and have fine scaling.*
- *There are usually several patches ranging from 0.5 to 2 cm in diameter, but they may be larger, especially on the trunk. In children the lesions are often confined to the face, and are most common on the cheeks and around the mouth and chin. In 20% of affected children the neck, arms and shoulders are involved as well as the face.*

Differential Diagnosis

- Vitiligo
- Naevus depigmentosus
- Nummular dermatitis
- Psoriasis
- Mycosis fungoides

Vertical Integration

Pityriasis alba

Prognosis

The course is extremely variable. Most cases persist for some months, and some may still show hypopigmentation for a year or more after all scaling subsides. Recurrent crops of new lesions may develop at intervals. The average duration of the common facial form in childhood is a year or more.

Treatment ladder

First line

- Emollient

Second line

- Mild topical corticosteroids

Third line

- Topical tacrolimus or pimecrolimus

Core Concepts

EXOGENOUS ECZEMAS

Contact Dermatitis

- The generic term applied to acute and chronic inflammatory reactions to substances that come in contact with the skin

Types of Contact Dermatitis

Irritant Contact Dermatitis

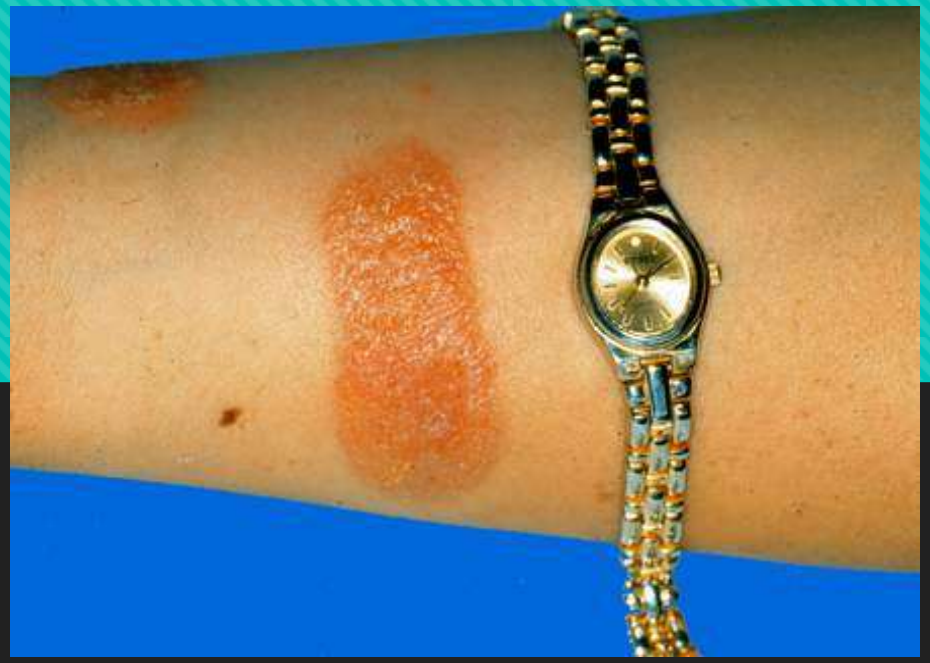
- An inflammatory reaction in the skin resulting from exposure to a substance that causes an eruption in most people who come in contact with it
  - although inflammatory and immunological mediators may be activated, no antigen-specific reaction is involved
  - no previous exposure to the irritant is necessary

Allergic Contact Dermatitis

- An acquired delayed sensitivity to various substances that produce inflammatory reactions in only those who have been previously sensitized to the allergen

Core Concepts

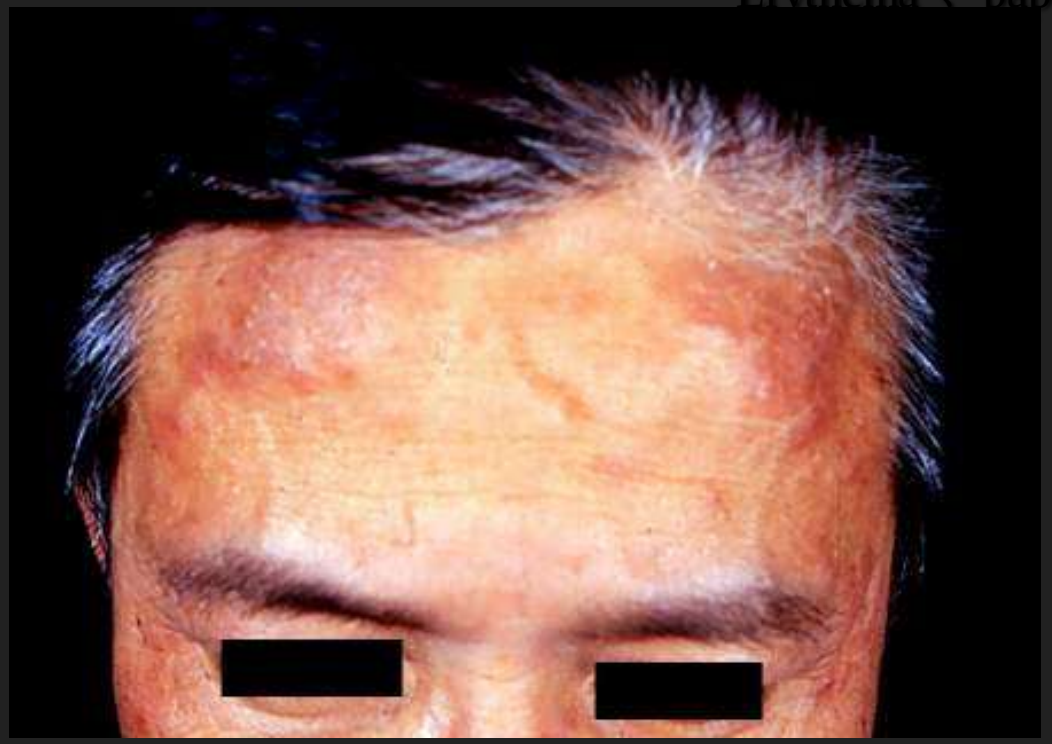
CONTACT DERMATITIS

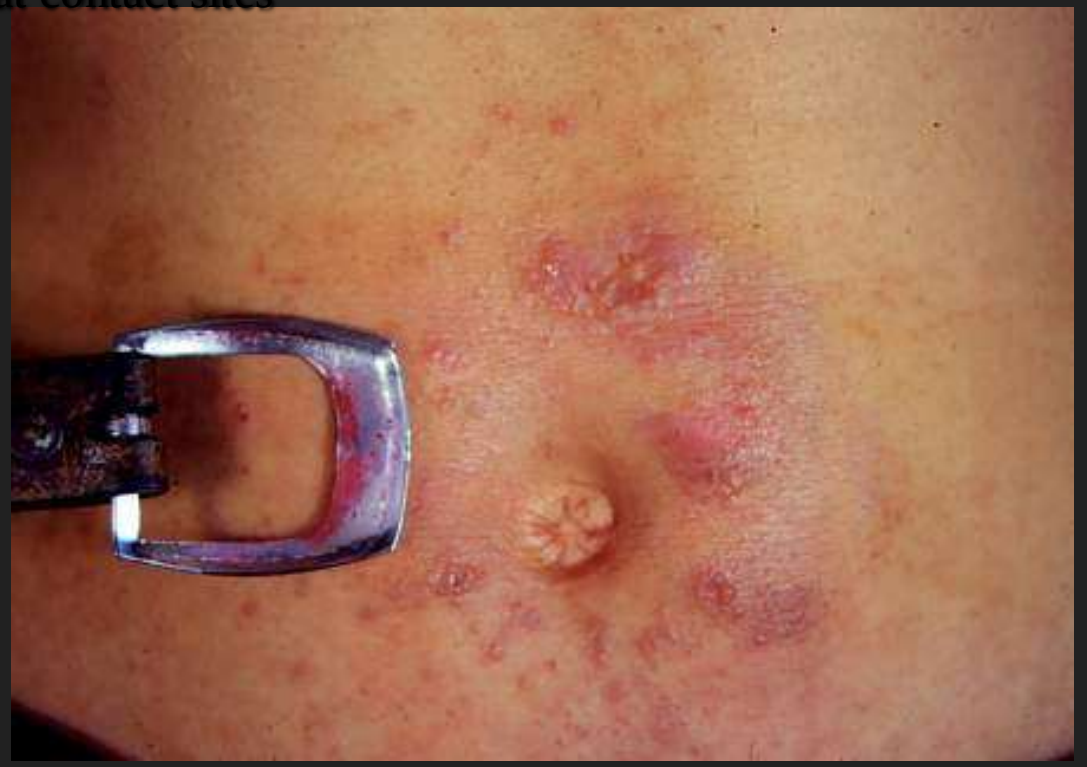


- **Irritant contact dermatitis**
  - Non immunological
  - caused by a chemical irritant
- **Allergic contact dermatitis**
  - Immunological
  - caused by an antigen (allergen) that elicits a type IV(cell-mediated or delayed) hypersensitivity reaction.
- **Photoallergic contact dermatitis**
  - Exposure to sunlight required to elicit contact dermatitis
  - substances are transformed into irritants or sensitizers (photosensitizers) after irradiation with UV
- **Phytophotodermatitis**
  - Allergic contact dermatitis associated with plants

Allergic contact dermatitis

Erythema、papules at contact sites





Allergic contact dermatitis

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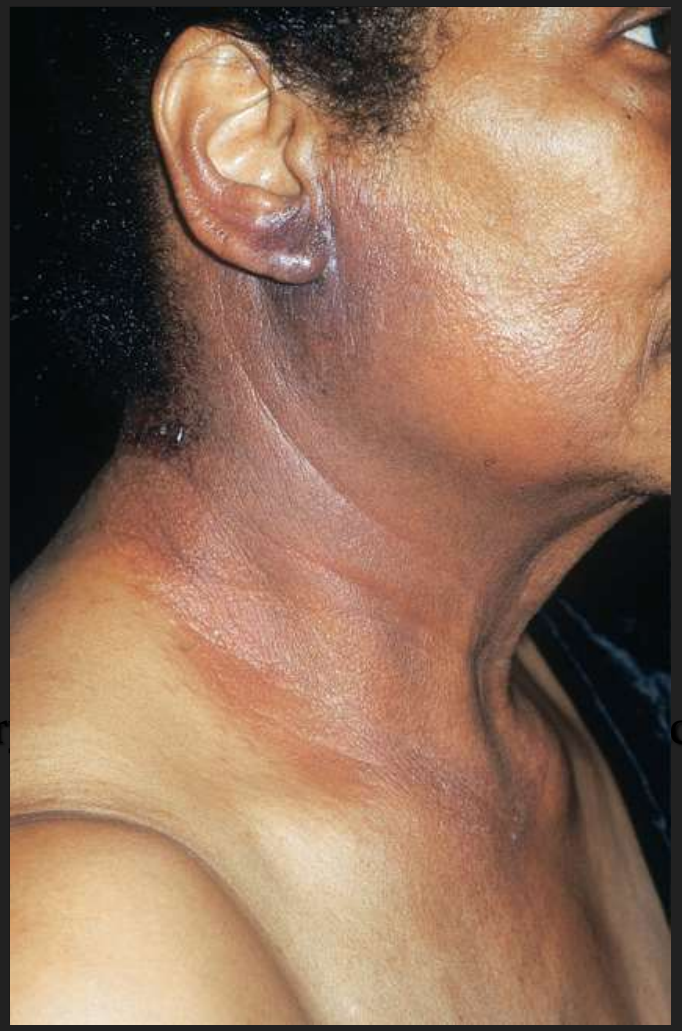
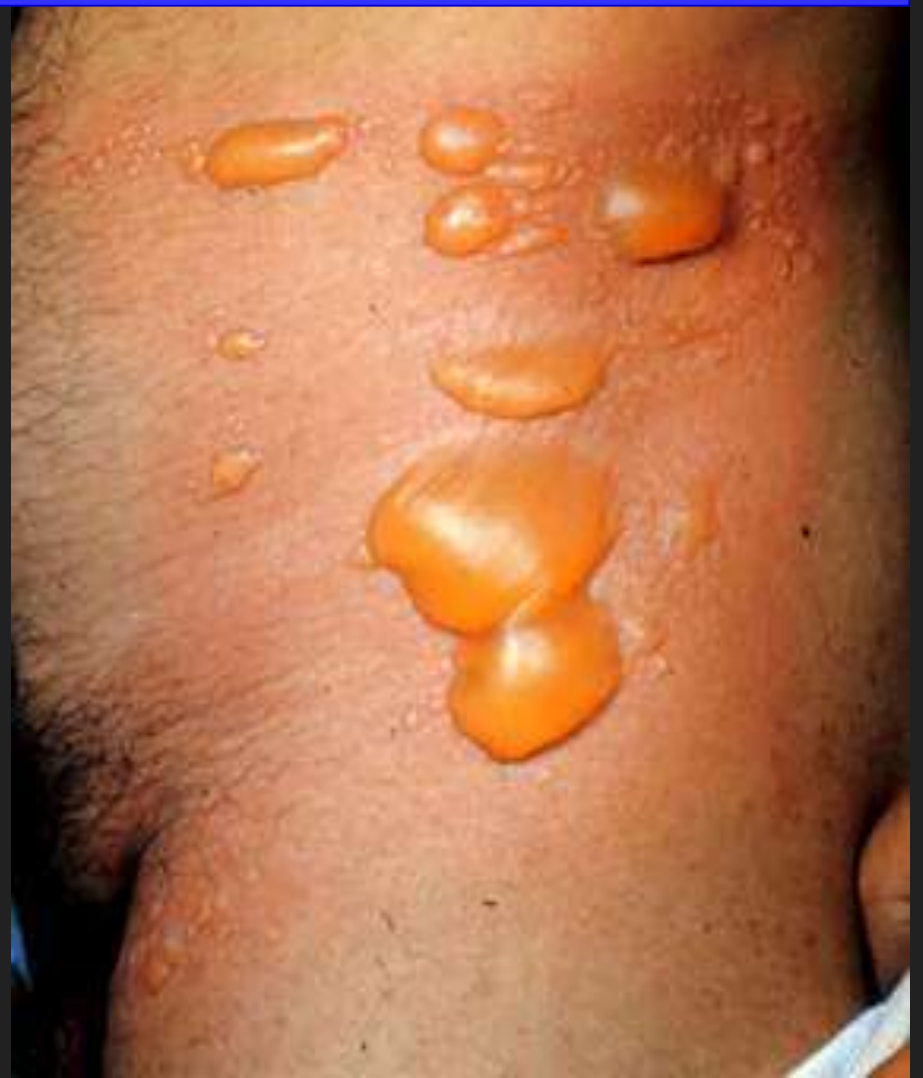
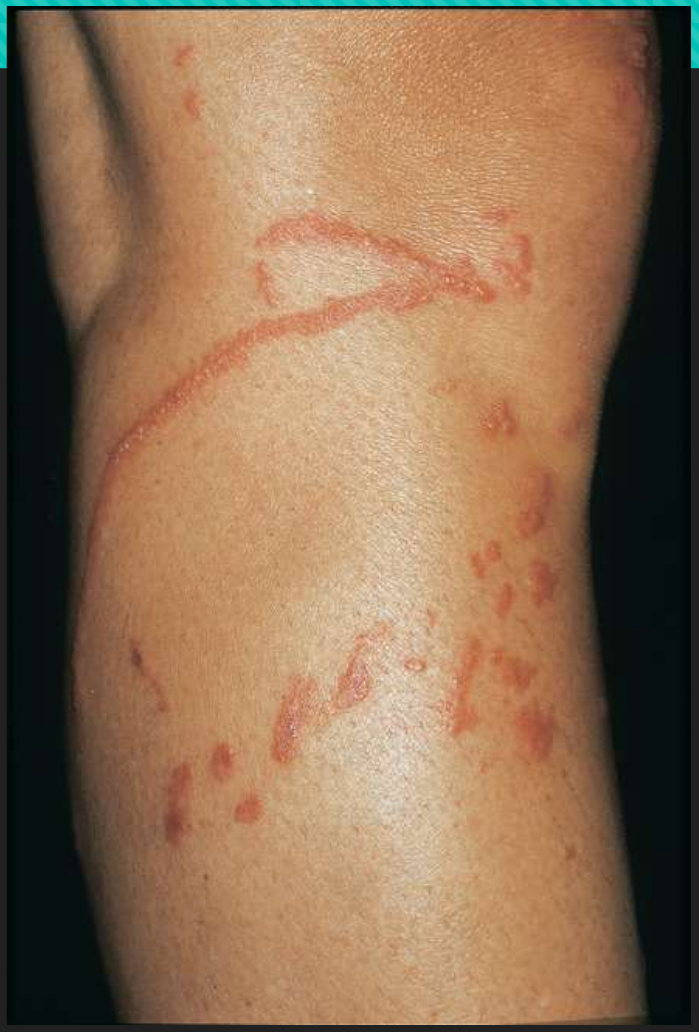


ct sites



Allergic phytodermatitis of leg: poison ivy



Linear vesicular lesions with erythema and edema on the calf at sites of direct contact of the skin 5 days after exposure with the poison ivy leaf.

Core Concepts

Infective dermatitis

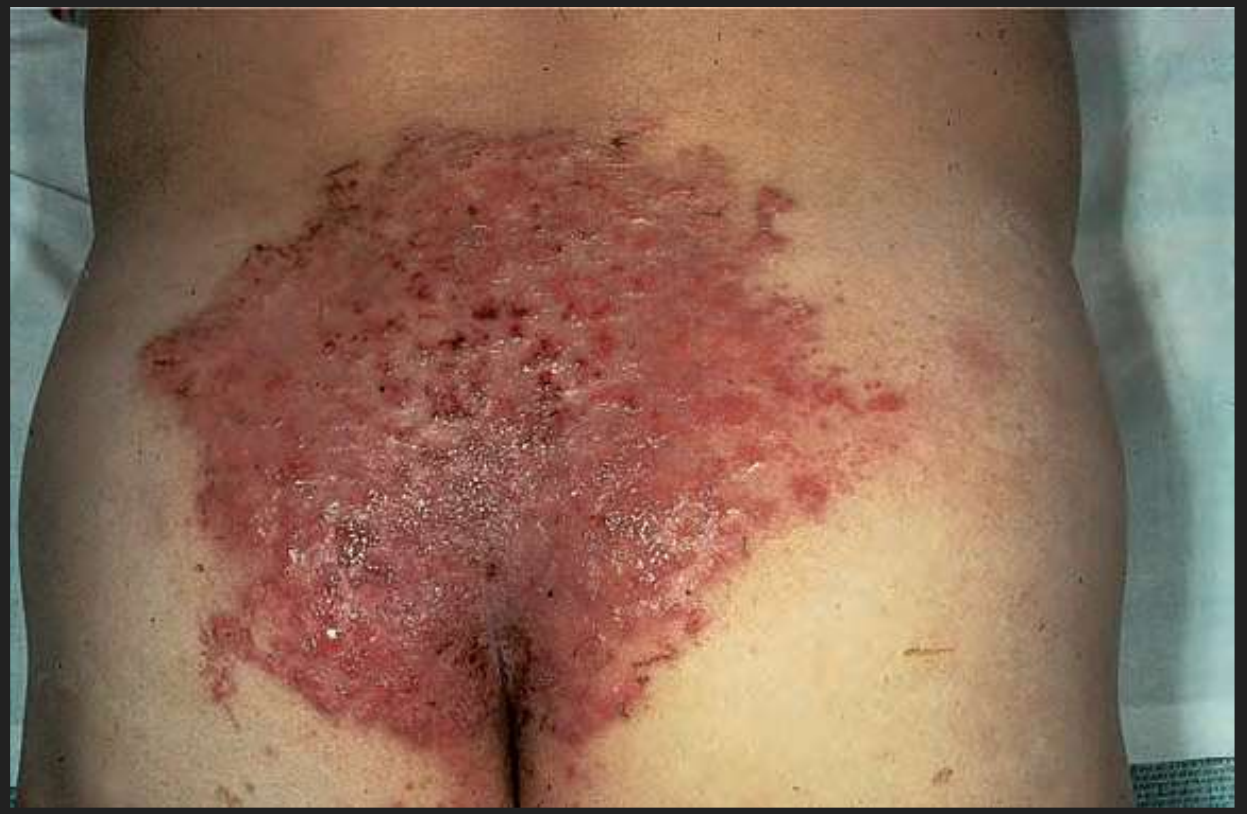
- **Infected eczema.** Infected eczema shows erythema, exudation and crusting. The exudation may be profuse, generating crusting, or slight, with the accumulation of layers of somewhat greasy, moist scale, beneath which the surface is raw and red. The margin is characteristically sharply defined, and the horny layer is often split to form an encircling collarette. There may be small pustules in the advancing edge and, where a flexure is involved, it is often the site of a deep and persistent fissure.

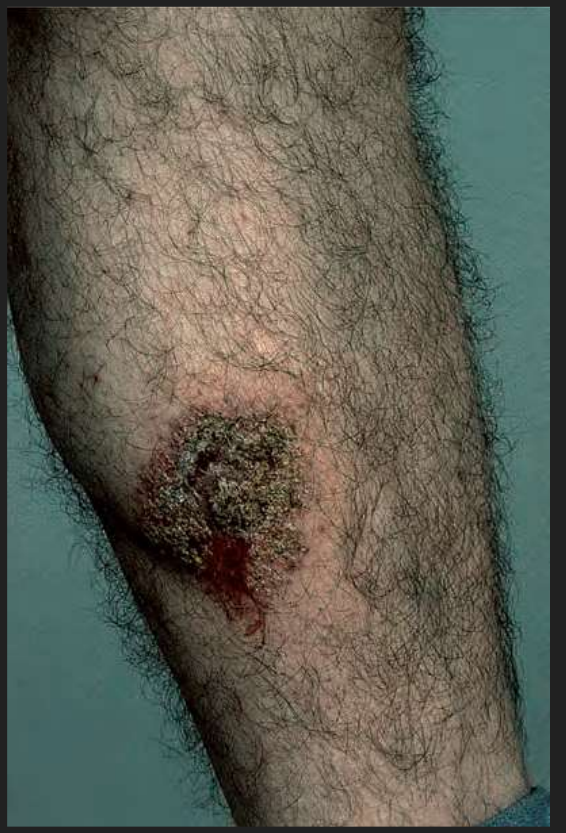
Infective dermatitis

- **Infective eczema.** Infective eczema usually presents as an area of advancing erythema, sometimes with microvesicles. It is seen predominantly around discharging wounds or ulcers, or moist skin lesions of other types. Infective dermatitis is relatively common in patients with venous leg ulcers, but care must be taken to distinguish it from contact dermatitis due to the application of topical medicaments.
  - chronic threadworm infestation
  - Pediculosis
  - Scabies
  - secondary impetigo
  - *Molluscum- contagiosum*

Core Concepts

Infective dermatitis





Horizontal Integration

Infective dermatitis

Treatment ladder

First line

- Treat primary cause (e.g. ulcer) or modify footwear if relevant

Second line

- Topical antibiotics (for mild presentations)

Third line

- Systemic antibiotics (also potassium permanganate soaks for forefeet variant)

Recent advances in treatment of Atopic Eczema

Treatment of atopic dermatitis: Recently approved drugs and advanced clinical development programs

Svenja Müller [1 2], Laura Maintz [1 2], Thomas Bieber [2 3]

Affiliations + expand

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Full text links Cite

Abstract

Atopic dermatitis (AD) represents the most common skin disease characterized by heterogeneous endophenotypes and a high disease burden. In Europe, six new systemic therapies for AD have been approved: the biologics dupilumab (anti-interleukin-4 receptor (IL-4R) α in 2017), tralokinumab (anti-IL-13 in 2021), lebrikizumab (anti-IL-13 in 2023), and the oral janus kinase (JAK) inhibitors (JAKi) targeting JAK1/2 (baricitinib in 2020 in the EU) or JAK1 (upadacitinib in 2021 and abrocitinib in 2022). Herein, we give an update on new approvals, long-term safety, and efficacy. Upadacitinib and abrocitinib have the highest short-term efficacy among the approved systemic therapies. In responders, dupilumab and tralokinumab catch up regarding long-term efficacy and incremental clinical benefit within continuous use. Recently, the European Medicines Agency has released recommendations for the use of JAKi in patients at risk (cardiovascular and thromboembolic diseases, malignancies, (former) smoking, and age ≥65 years). Furthermore, we give an overview on emerging therapies currently in Phase III trials. Among the topical therapies, tapinarof (aryl hydrocarbon receptor), ruxolitinib (JAK1/2i), delgocitinib (pan-JAKi), asivatrep (anti-transient receptor potential vanilloid), and phosphodiesterase-4-inhibitors (roflumilast, difamilast) are discussed. Among systemic therapies, current data on cord-blood-derived mesenchymal stem cells, CM310 (anti IL-4Rα), nemolizumab (anti-IL-31RA), anti-OX40/OX40L-antibodies, neurokinin-receptor-1-antagonists, and difelikefalin (κ-opioid-R) are reported.