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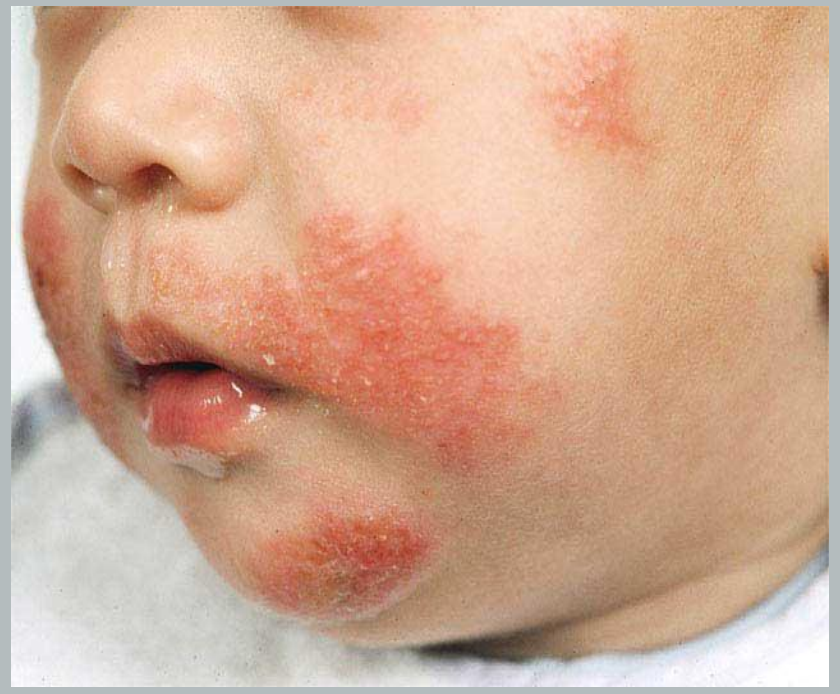
Friday, August 09, 2019

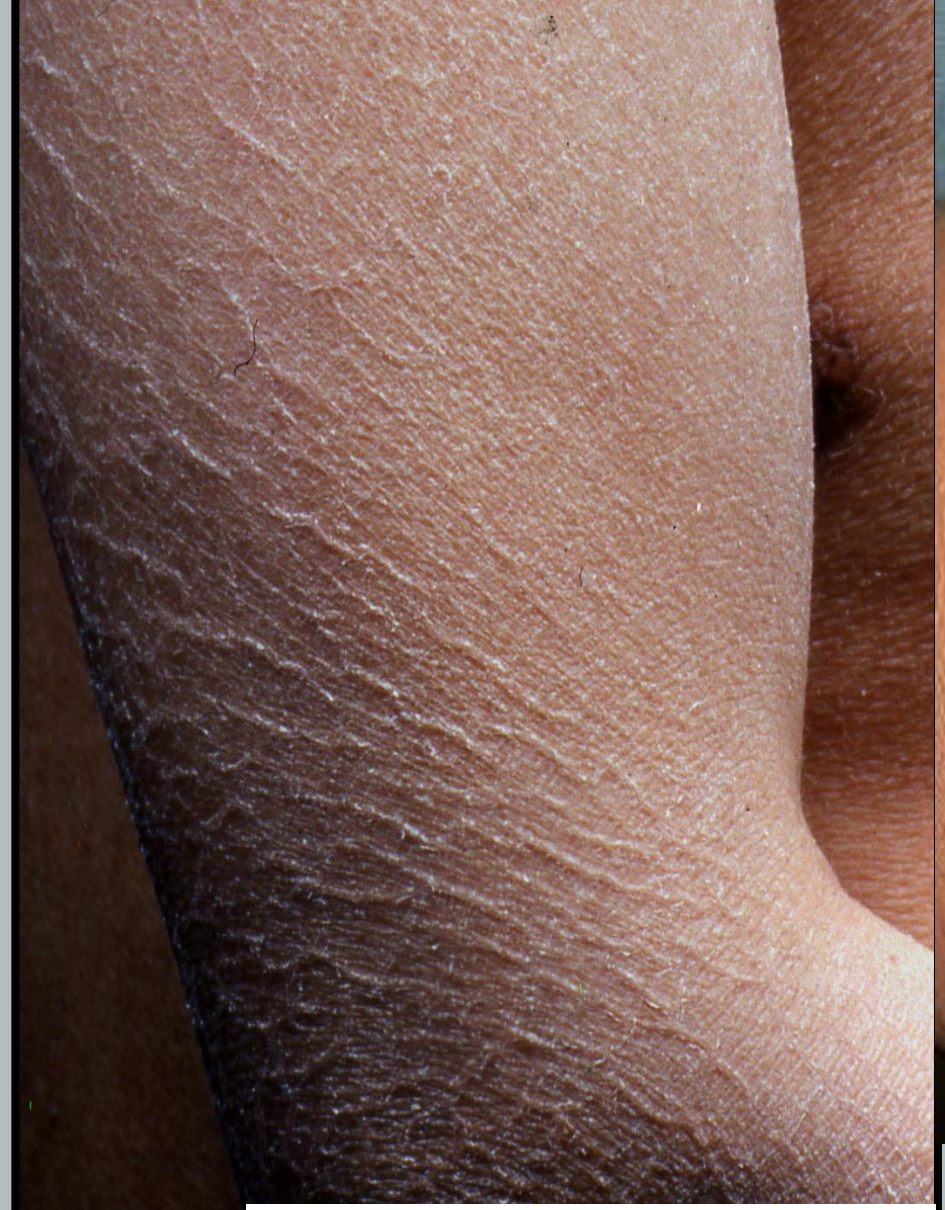
(Room 5)

16:30 - 18:30 WS #54: Paediatric Forum (120mins, not repeated)

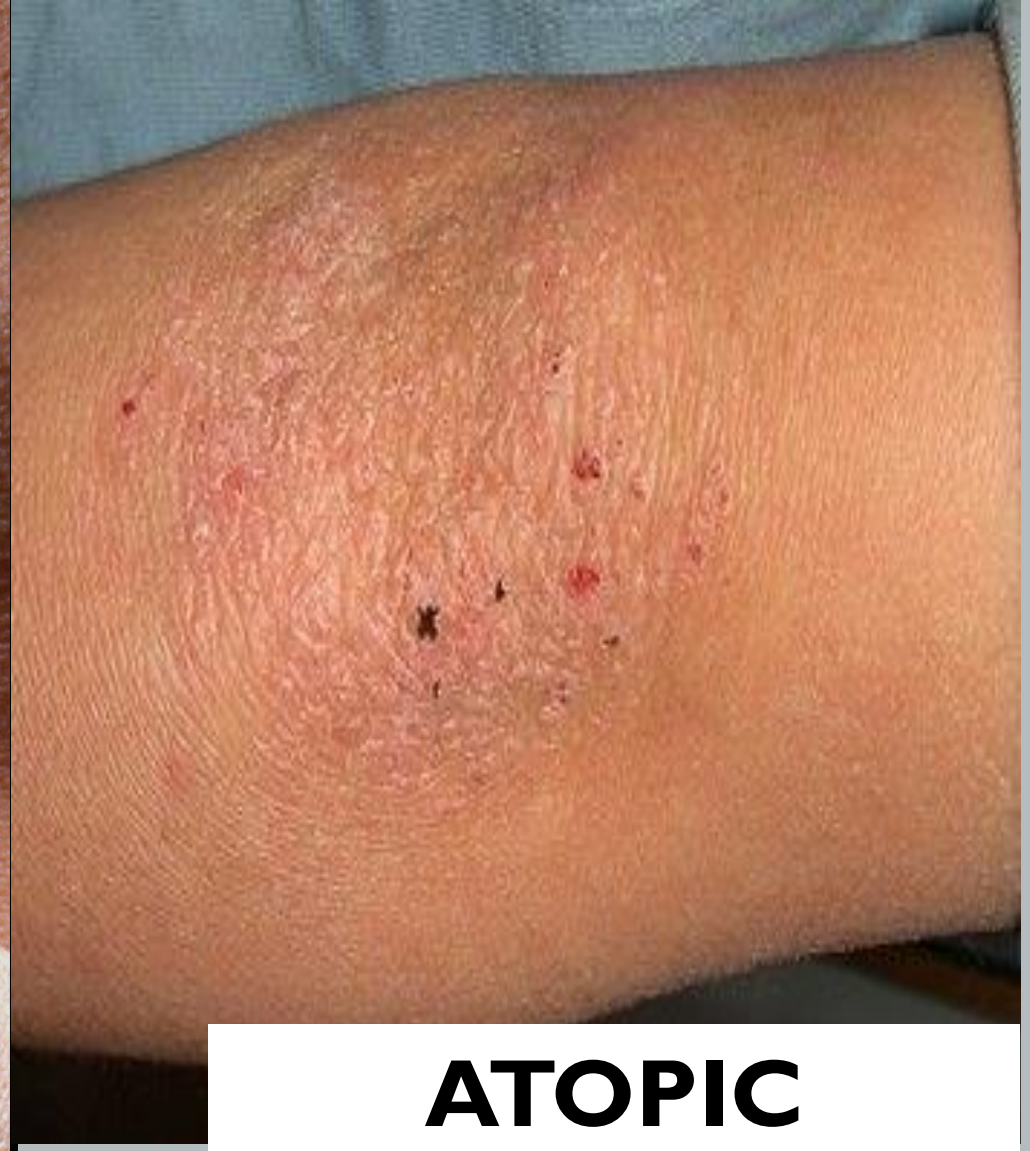
ATOPIC DERMATITIS IN INFANTS AND CHILDREN: BASIC PRINCIPLES



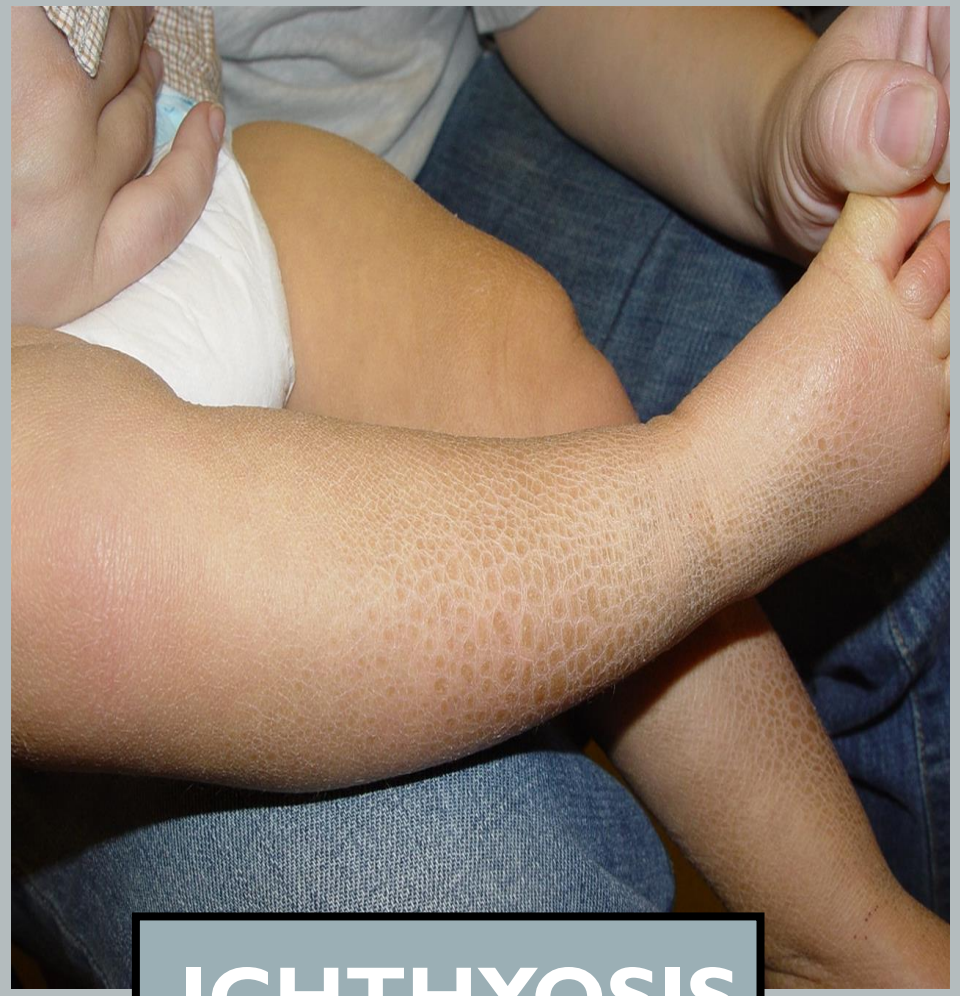

The skin barrier is like bricks and mortar
Mortar = Lipid lamellae
Bricks=corneocytes



ICHTHYOSIS VULGARIS



ATOPIC DERMATITIS



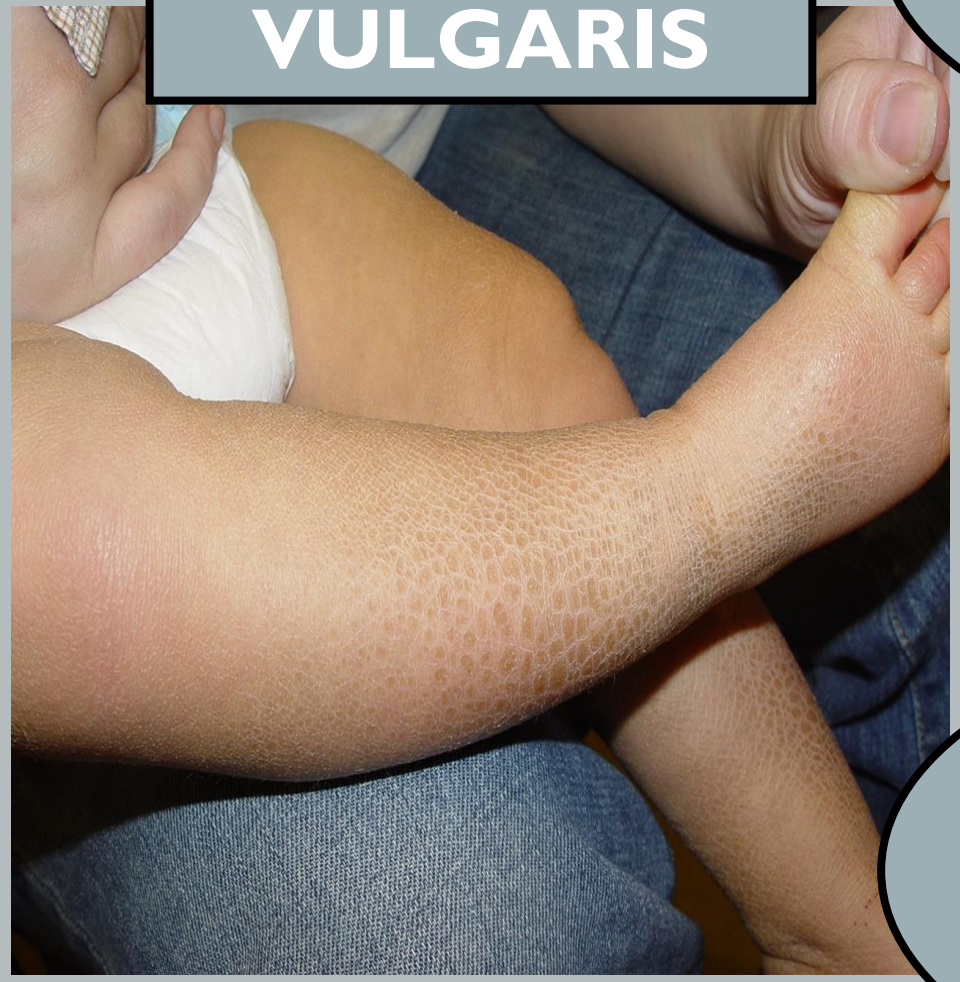
ICHTHYOSIS VULGARIS

Co-occurrence with atopic dermatitis

Ichthyosis vulgaris is a semi-dominant condition caused by mutations in ....

FILAGGRIN

ICHTHYOSIS VULGARIS



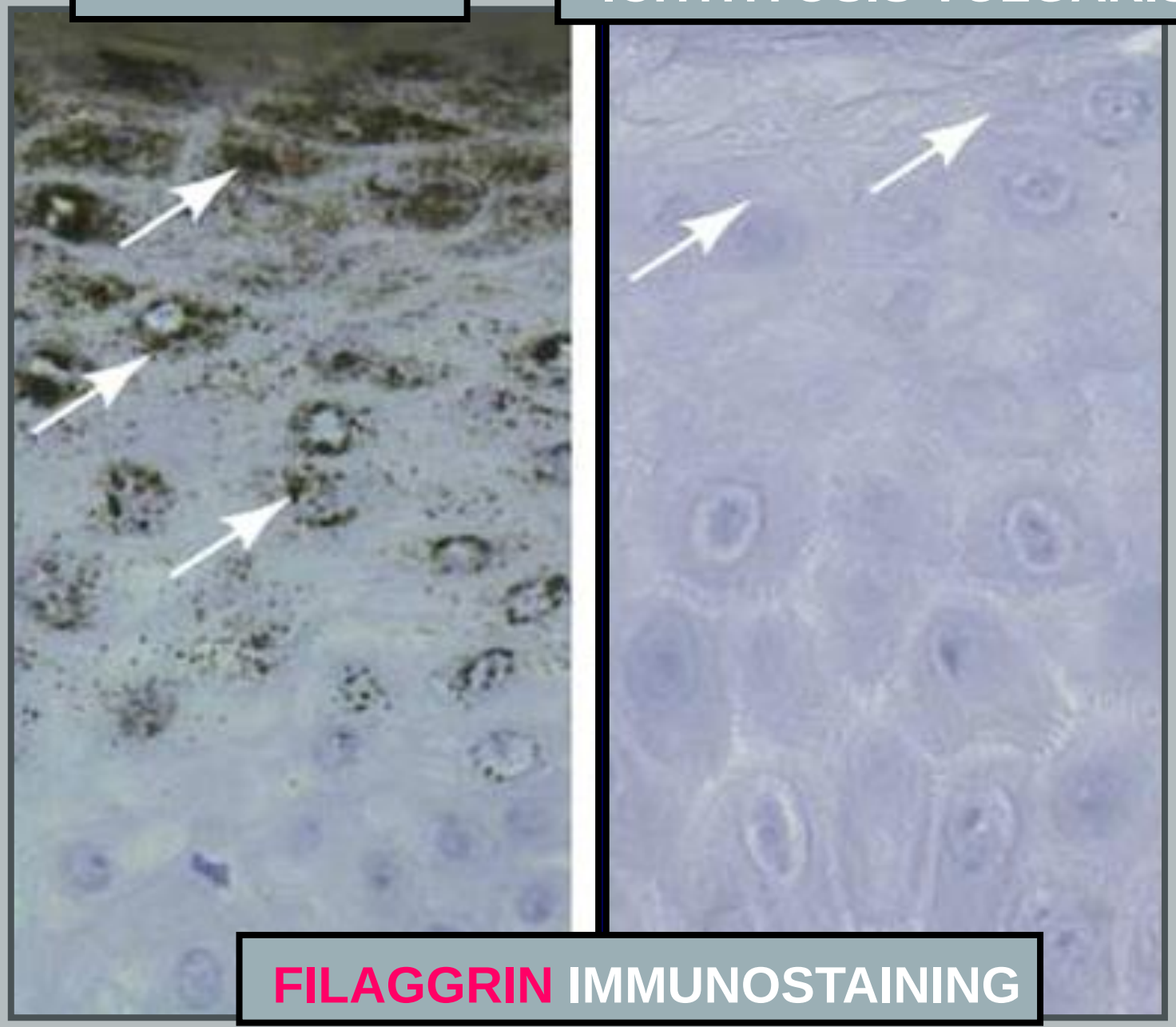
Loss-of-function Mutations in Filaggrin

Common mutations (nonsense/frame shift) in ~10% of European population

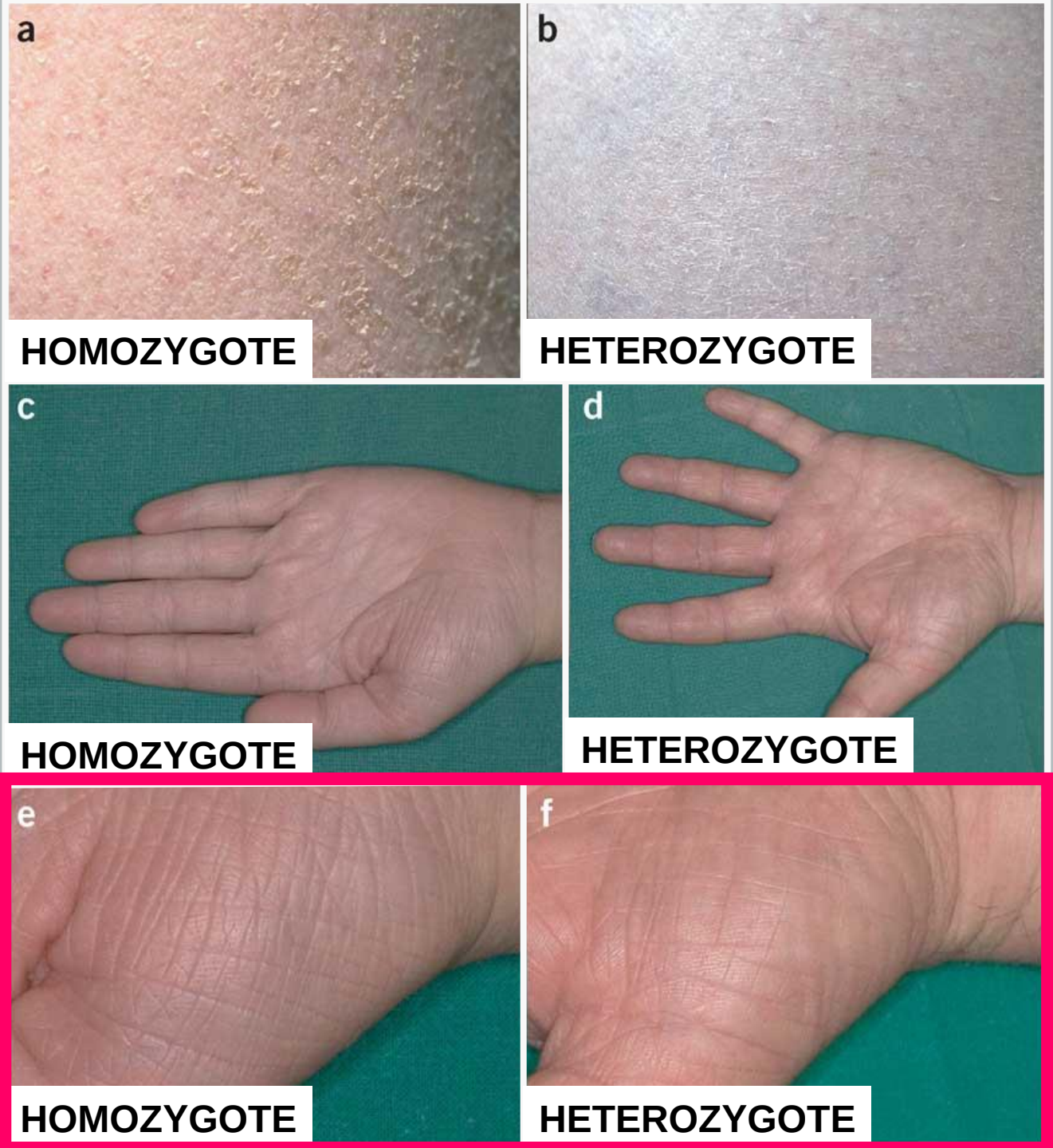
How does this affect Filaggrin expression?

NORMAL SKIN

ICHTHYOSIS VULGARIS



FILAGGRIN IMMUNOSTAINING


a
HOMOZYGOTE
b
HETEROZYGOTE
c
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d
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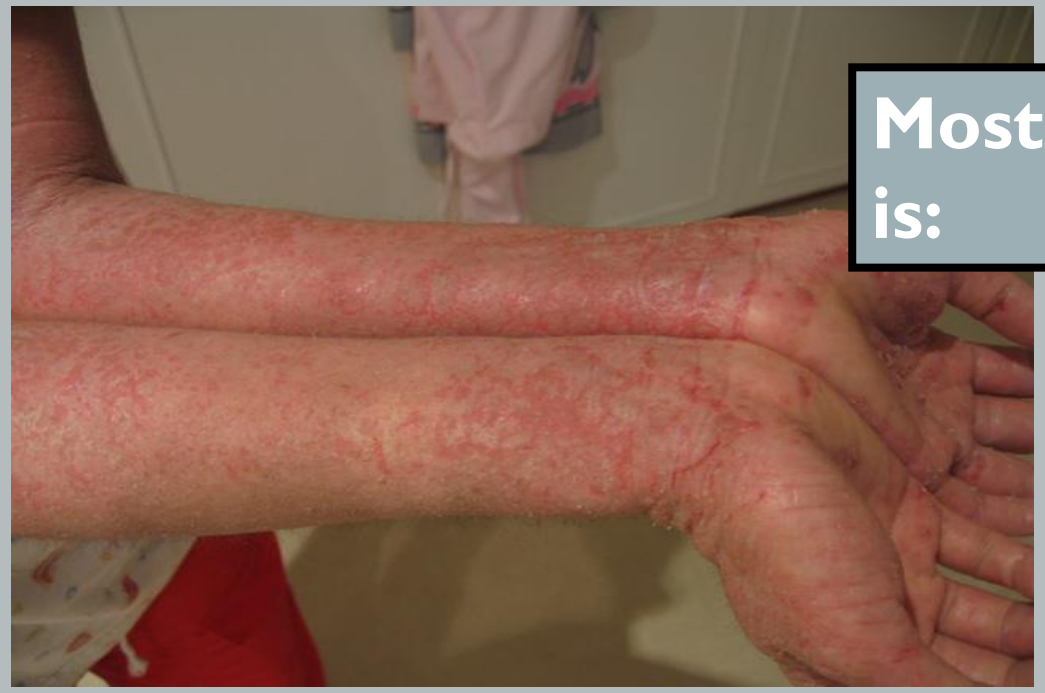
e
HOMOZYGOTE
f
HETEROZYGOTE



Most common mutation is:

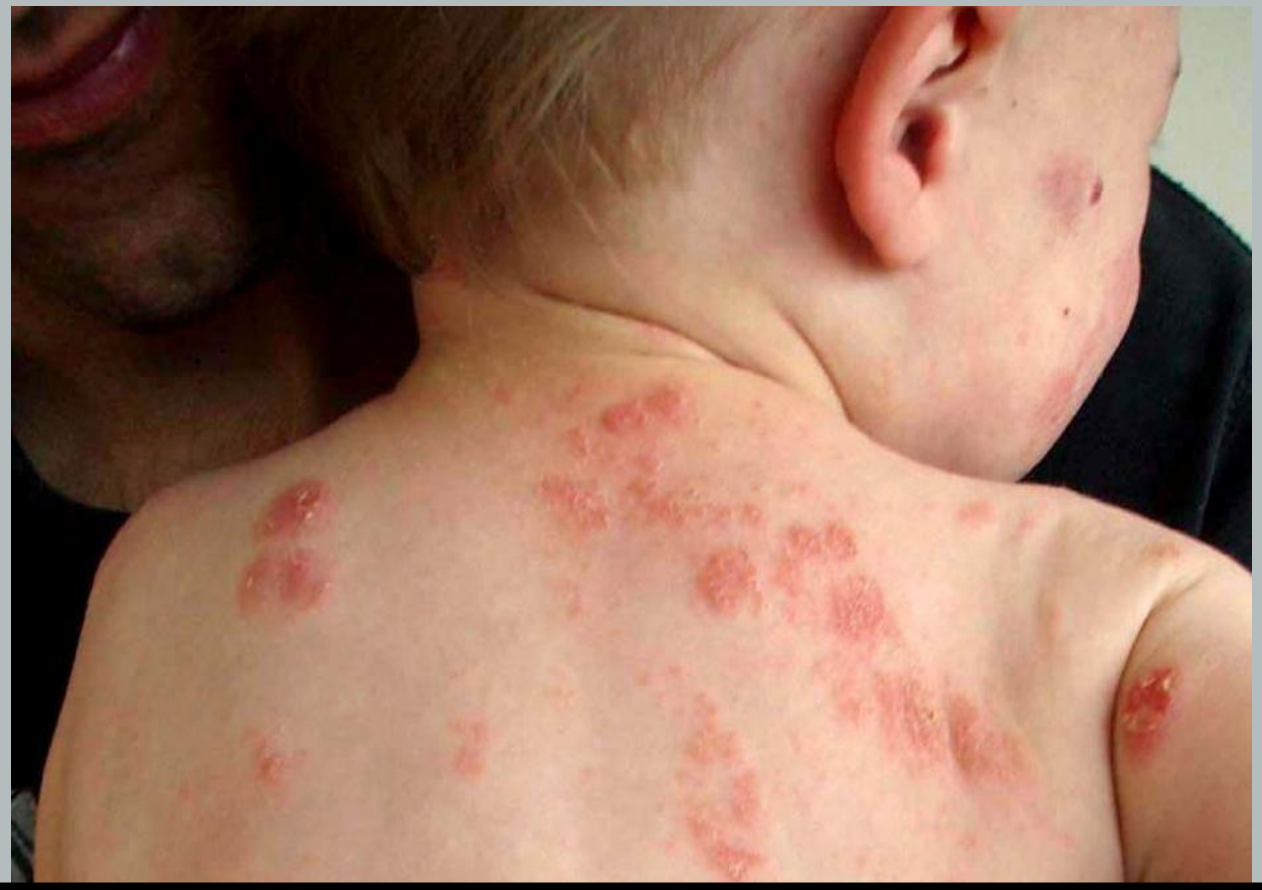
R501X

2282del4

Combined allele frequencies:

Non-atopic population: 0.042

Atopic dermatitis: 0.330



Impaired skin barrier function plays an important role in the development of atopic disease

FILAGGRIN GENE MUTATIONS:

- Are an important risk factor for atopic dermatitis that persists into adulthood
- Are a major risk factor for asthma associated with AD
- Are a major risk factor for the development of systemic allergies

Is all Atopic Dermatitis attributable to *FLG* gene mutations?

No, but about 50% of all Atopic Dermatitis is associated with at least one *FLG* null allele

How does the link between of *filaggrin* mutations and AD/Ichthyosis vulgaris change our conception of Atopic Dermatitis?

WHAT IS ECZEMA?

- There are two predominant hypotheses of eczema:

- 1) A primary **immunological disturbance** causes Ig E-mediated sensitisation to multiple environmental allergens, epithelial barrier dysfunction is secondary to the immune response

- 2) **The primary problem is epidermal barrier dysfunction** allowing environmental irritants and allergens to irritate the skin, and immunological disturbance is secondary - this is now the favoured paradigm

WHAT IS ECZEMA?

- Eczema is a **skin barrier defect** associated with immune dysregulation which results in **chronic disruption of the epidermis, inflammation and susceptibility to infection**

- Many parents we see struggle with their child's eczema because of a **lack of basic understanding**

- Eczema is **associated with, but NOT caused by** food allergy

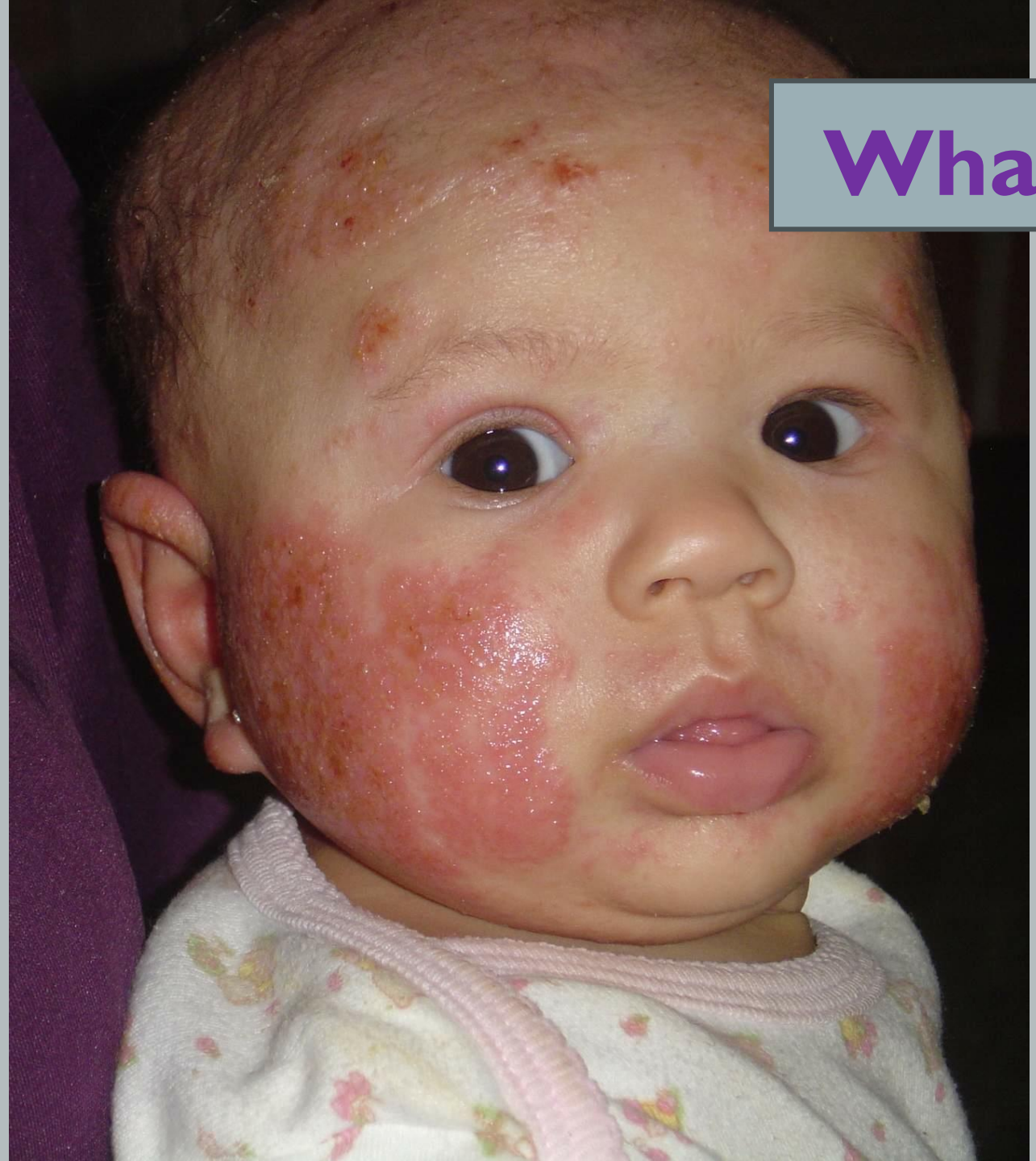
- **The Bricks and Mortar analogy is very useful**

INFANTILE ECZEMA

- Typical onset 1-3 months of age – cheeks, neck folds extensor aspects of elbows and knees

- Facial eczema/neck is often exacerbated by milk/spills saliva, **chemical baby wipes**

- The most important therapeutic interventions are steps to improve skin barrier function and decrease exposure to irritants



What to do?

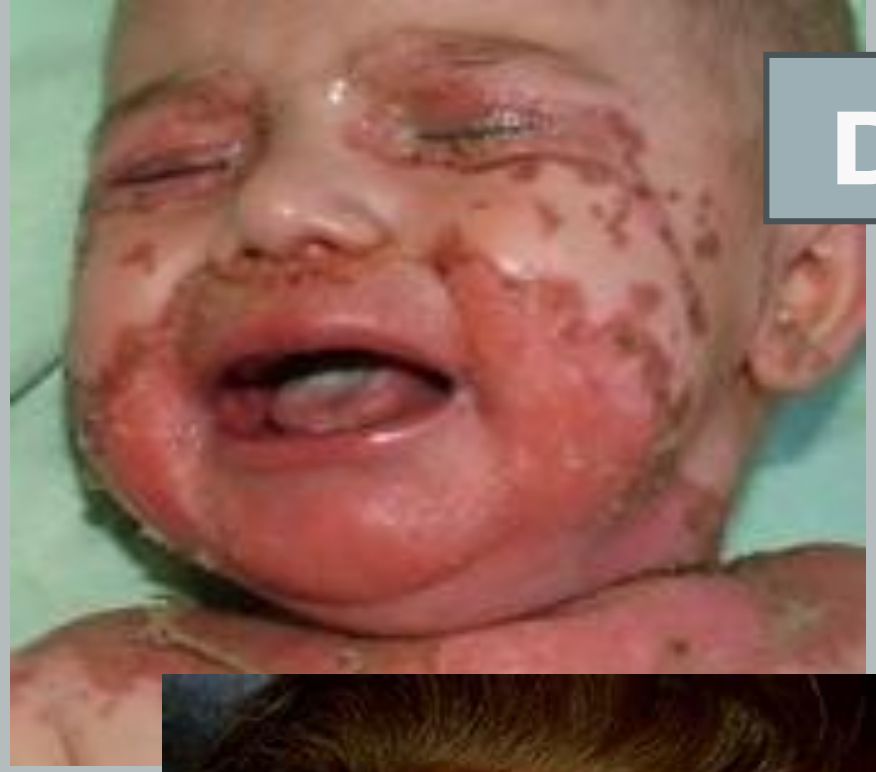
MANAGEMENT PLAN

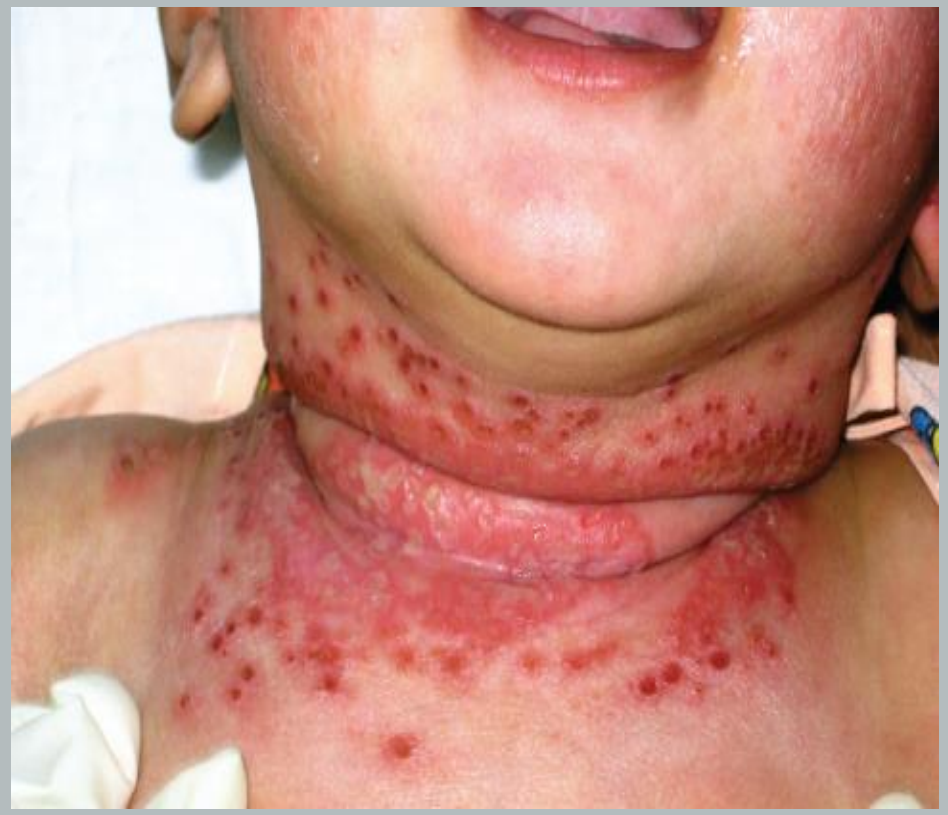
- Avoid all soaps - Ask about 'wet wipe' use
- Infants with active eczema should bathed daily especially if the eczema is infected
- Bath oil only +/- antiseptic
- Face - hydrocortisone 1% ointment applied 2X daily, triamcinolone acetonide 0.02% (Aristocort) 5-7 days for severe then 1% HC
- 50:50 liquid paraffin:white soft paraffin - Now fully subsidised

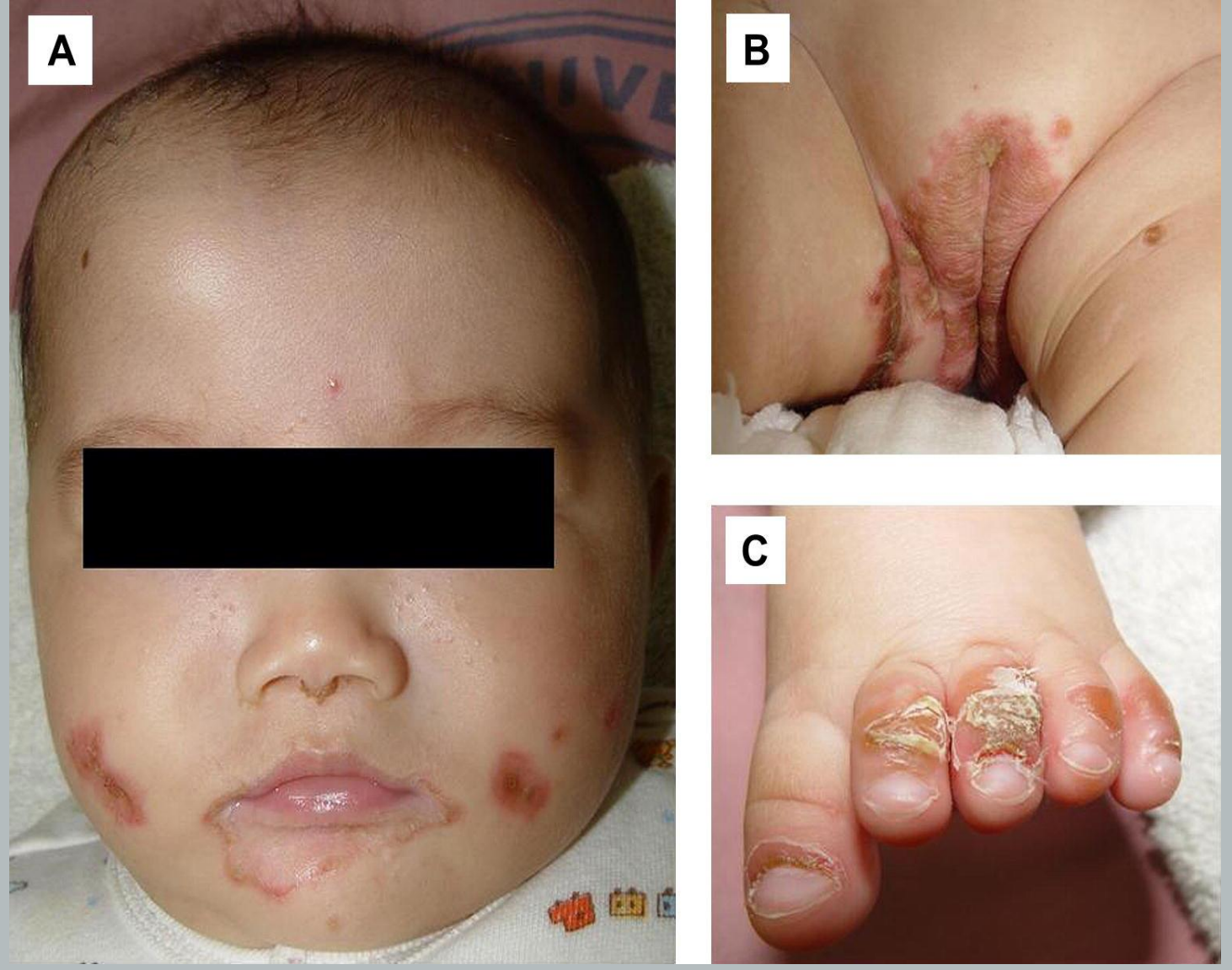
MANAGE EXPECTATIONS

- **Facial eczema in infants can be very challenging to treat :**
  - Exposure to saliva/milk spills/pureed food always being wiped off = irritant, not atopic dermatitis
  - **Need to discuss treatment endpoint:** A comfortable non-itchy baby – the facial skin may be persistently red and mildly inflamed until after 6 mo

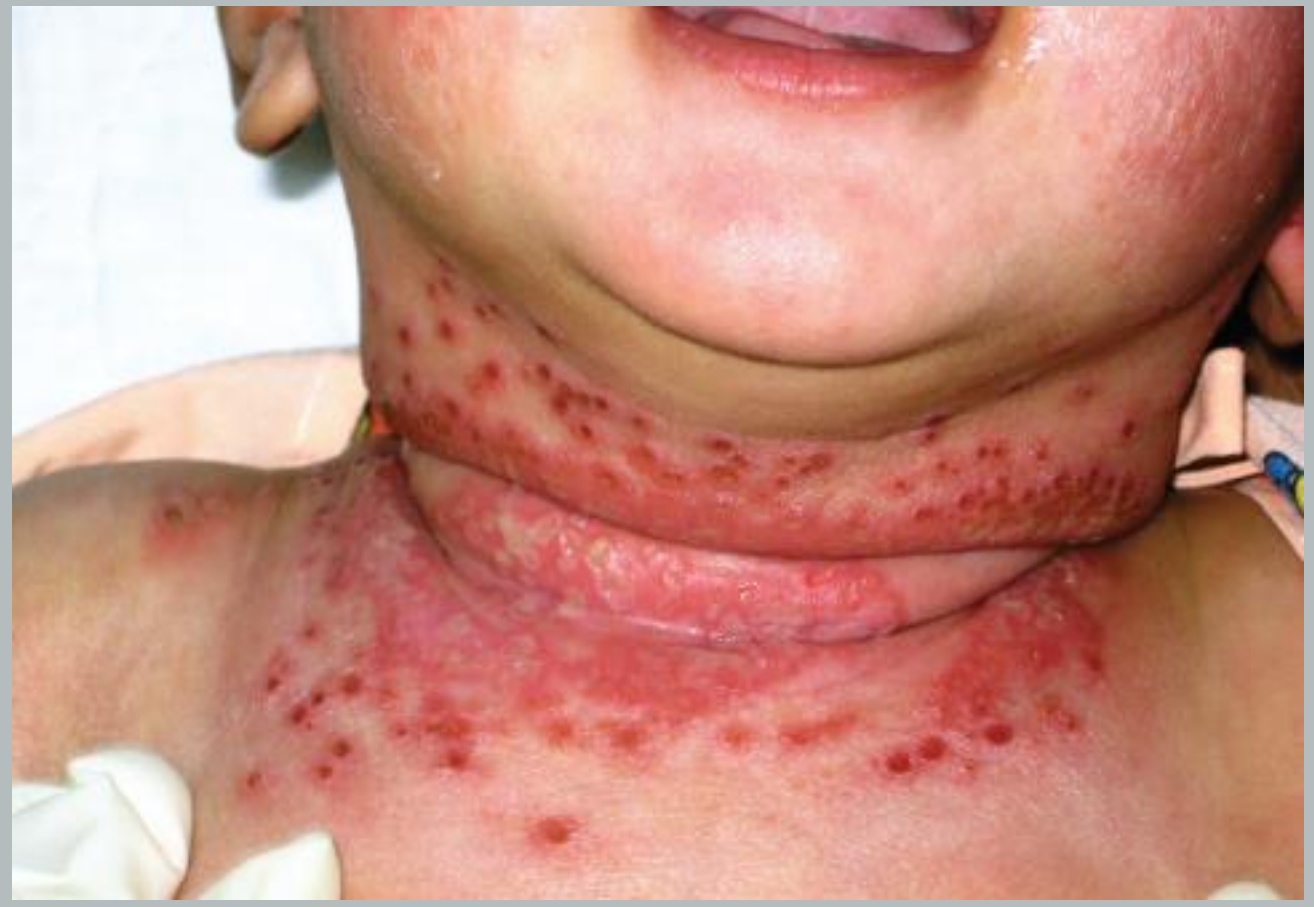
Don’t forget to think



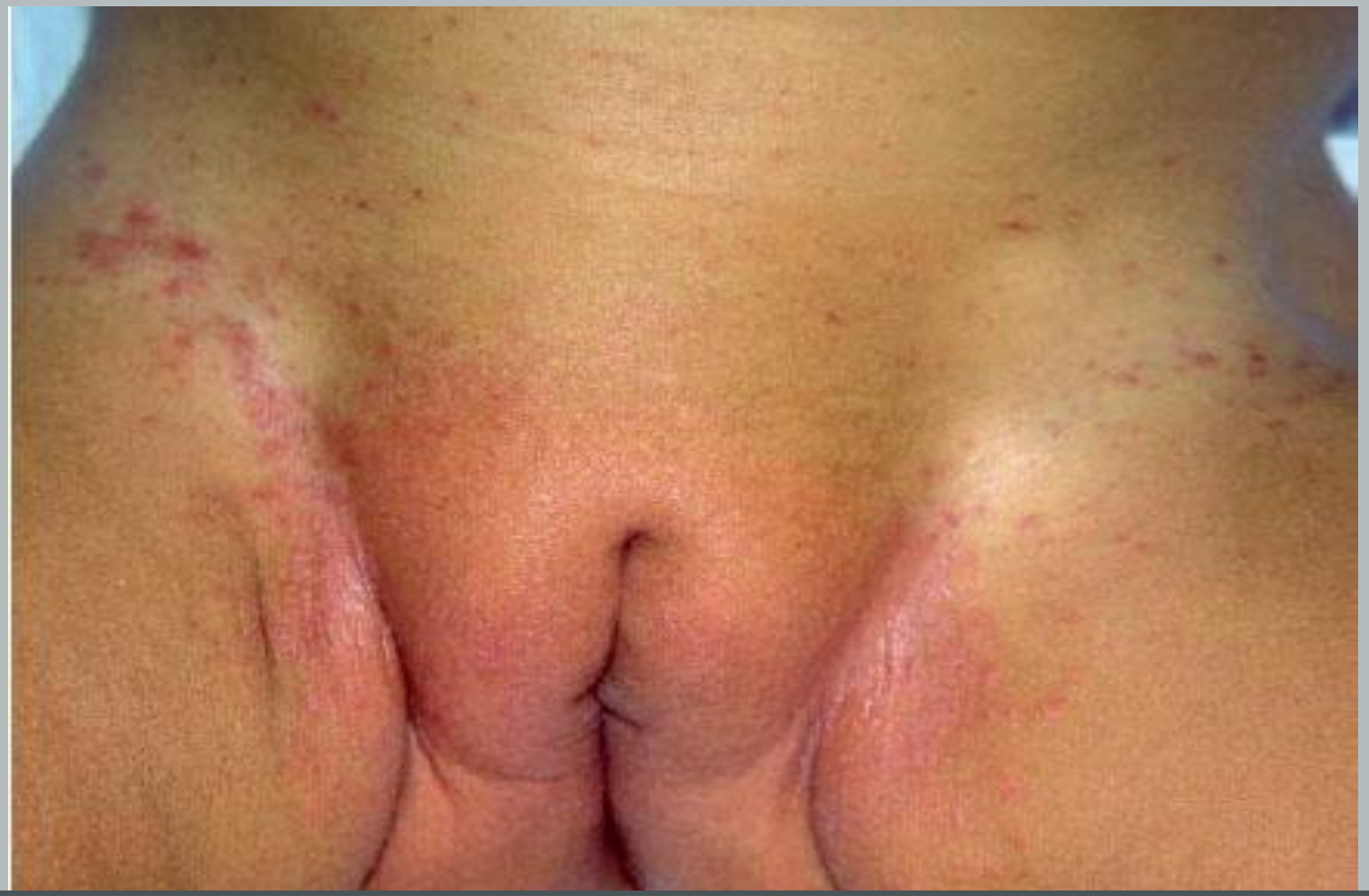




Acrodermatitis enteropathica

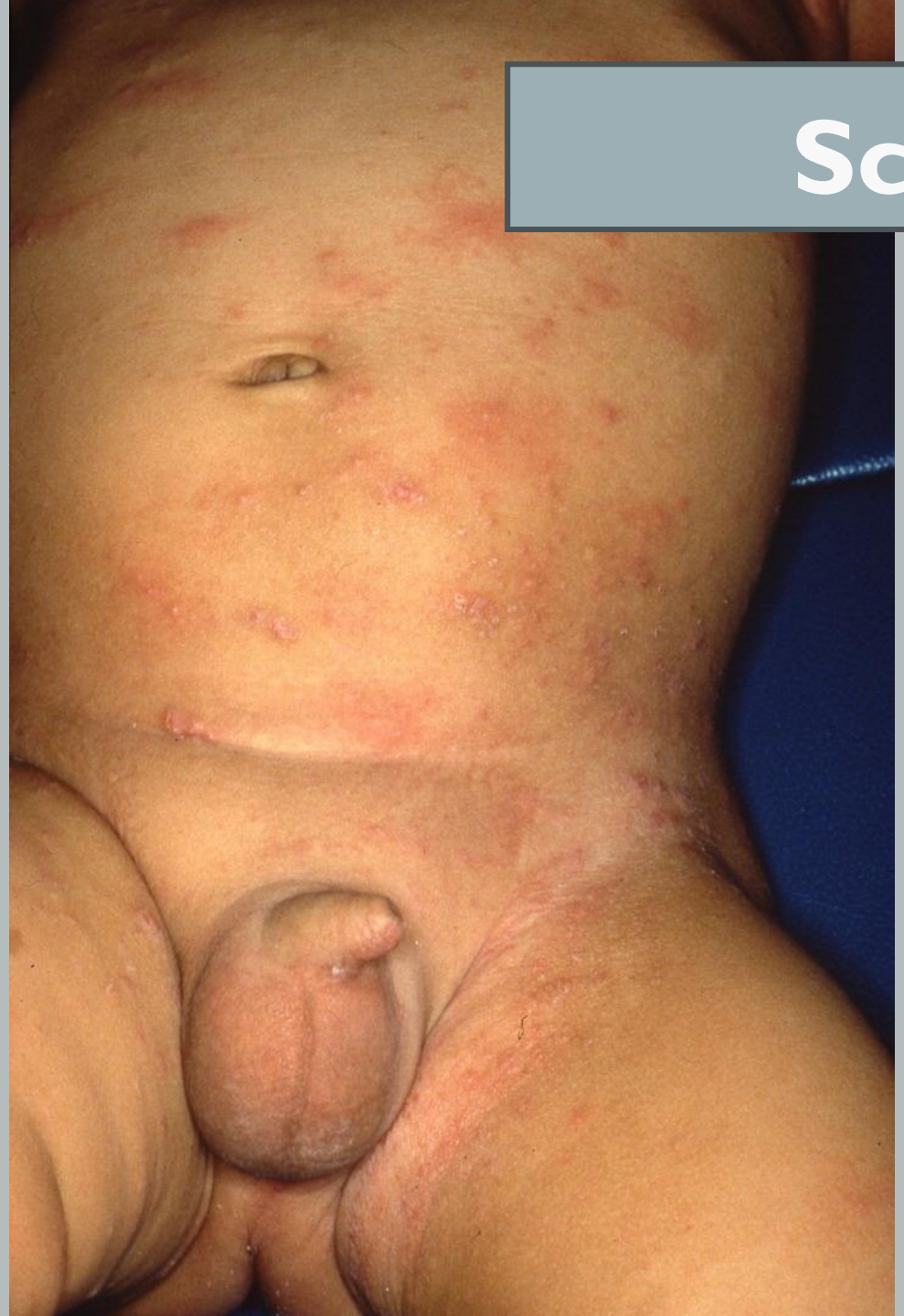


Eczema herpeticum



Langerhan cell histiocytosis

Scabies



INFANTILE ECZEMA

- Almost never seen in the nappy area – if there is a nappy involvement, this is almost always due to something else

Will not improve with emollients alone

On the body, 1% hydrocortisone is not enough for moderate to severe eczema

- I generally recommend **ointments** over **creams**

INFANTILE ECZEMA

- **Avoidance of soap** and use of soap substitute should be long term – (Bath oil +/- soap-free antiseptic wash)
- **Emollient** should be applied daily even if the skin appears normal – generally more greasy in the winter and lighter in the summer months
- **Neither Aqueous cream BP nor Emulsifying ointment BP** should be used as a leave-on emollient as **both contain sodium lauryl sulphate and or cetostearyl alcohol**
- **Oral corticosteroids and super-potent steroid (ie Dermol) are inappropriate**

INFANTILE ECZEMA - WHAT TO CONSIDER WHEN YOUR TREATMENT IS NOT WORKING

- **If there is no improvement in the eczema after 7 to 14 days of treatment, consider:**
  - -Poor adherence to treatment, including missed applications or use of an inadequate quantities ('Steroid phobia' is very common)
  - -The corticosteroid may not be potent enough
  - -On going exposure to irritants, e.g. soap, sodium lauryl sulphate, or a contact allergen
  - -Secondary bacterial or viral skin infection
  - **-Incorrect initial diagnosis**

ANTIHISTAMINES

Oral antihistamines have shown conflicting evidence of efficacy in studies, and in my experience are not effective for atopic dermatitis itch

- May be useful if there is concomitant urticaria or allergic rhinitis
- Some find a sedating antihistamine useful at night time
- Overall – treating the eczema is the treatment for the pruritus

William HC Clinical Practice. Atopic Dermatitis. *N Engl J Med* 2005;352:2314-24

CHILDHOOD ECZEMA

- Mostly flexural – may become generalised
- **In general, beyond the age of 2 years the use of more potent topical corticosteroids to treat flares is appropriate**
- **Short bursts of potent topical corticosteroids are more effective with fewer adverse effects than longer term use of low potency corticosteroids**
- Parents often underutilise topical corticosteroids due to fear of adverse effects
- **Skin thinning as an adverse effect of topical corticosteroid treatment is overstated**

Hong E, Smith S, Fischer G. Evaluation of the atrophogenic potential of topical corticosteroids in paediatric dermatology patients. *Pediatr Dermatol* 2011;28:393–6.

Name: Date:

Tell us about *your* child's eczema (POEM score)

Please help us to treat your child's eczema by letting us know how it has been over the last week.
We use these scores to get your impre
eczema is. It is then easy for us to me
comparing scores *after* treatment to th

Monitor progress with POEM Score

1. Over the last week, on how many day
of the eczema?

No days 1-2 days 3-4

2. Over the last week, on how many nights has your / your child's sleep been disturbed because of the eczema?

No days 1-2 days 3-4 days 5-6 days Every day

3. Over the last week, on how many days has your / your child's skin been bleeding because of the eczema?

No days 1-2 days 3-4 days 5-6 days Every day

4. Over the last week, on how many days has your / your child's skin been weeping or oozing clear fluid because of the eczema?

No days 1-2 days 3-4 days 5-6 days Every day

5. Over the last week, on how many days has your / your child's skin been cracked because of the eczema?

No days 1-2 days 3-4 days 5-6 days Every day

6. Over the last week, on how many days has your / your child's skin been flaking off because of the eczema?

No days 1-2 days 3-4 days 5-6 days Every day

7. Over the last week, on how many days has your / your child's skin felt dry or rough because of the eczema?

No days 1-2 days 3-4 days 5-6 days Every day

FOLLOW UP

- **Problems to anticipate**:
  - **<u>Rebound</u> – need to treat until skin is normal – be aggressive – treat with potent steroid and taper frequency not potency**
  - **<u>Persistent eczema</u>**
    - Is the quantity and potency of corticosteroid prescribed appropriate?
    - Irritants and triggers in the environment- consider contact allergens
    - Poor compliance – is the regime too complicated? What is the family situation? Other children with eczema?
  - ***Recurrent infection*** – consider using bleach baths
    - ¼- ½ cup of bleach—(4-6% sodium hypochlorite), soak 10-15 minutes for 2-3 times per week

SUMMARY

- **Education** of parents and family is the key to empowering appropriate management and alleviating anxieties about 'allergy' and steroid phobia
- **Treatment plans** should be simple and manageable for parents
- Treat until the skin appears normal
- Even if there is no inflammation/eczema, children with eczema should always use a soap substitute and an emollient – these children have fewer flares