Intended learning outcomes

- What is skin?
- Dermatitis
- Fungal infections
- Nappy rash
- Acne
Skin

- Largest organ in the whole body
- Protects underlying tissues from UV and external injury
- Blocks entry to microorganisms and chemicals
- Sensory organ for touch, pressure, temperature, pain and vibration
- Maintains homeostatic balance of body temperature
- 20% of people report that they have sought advice from a pharmacist about a skin condition
Skin

Dermal Circulation

- Dermal papillae
- Hair
- Capillary loop of papillary plexus
- Papillary plexus
- Papillary layer
- Reticular layer
- Cutaneous plexus

Dermatitis

- Dermatitis literally means *inflammation of the skin*
- Non-specific inflammatory response of the skin to endogenous (individual susceptibility) and exogenous (external) factors
- The terms eczema and dermatitis are often used interchangeably
- Common forms of dermatitis:
  - Contact dermatitis (exogenous)
  - Atopic dermatitis (mostly endogenous)
Symptoms

- Dermatitis is characterised by sore, red, itching skin
- In the acute phase, lesions will appear on the exposure site where the skin becomes red, itchy and inflamed
  - Papules or vesicles may develop
- In chronic exposure, the skin becomes dry and scaly, and can crack and fissure
  - Scratching can cause broken skin which can weep
- After a prolonged period, areas of affected skin can thicken
- Dermatitis will often flare-up in response to stress
Aetiology

- Contact dermatitis can be further classified as irritant (ICD) or allergic (ACD)
- ICD accounts for the majority of occupational skin disorders eg. cleaners, hairdressers
  - Irritant must penetrate the outer layer of skin, provoking a physiological response
  - Type of irritant, concentration, quantity involved and length of exposure will affect severity of reaction
- ACD requires sensitisation to an allergen to occur
  - Re-exposure then triggers an allergic response
  - Reaction is not limited to the site of exposure
Aetiology

- Atopic dermatitis is the most common chronic skin condition in young children
- Complex combination of genetic and environmental factors
  - Virtually never a single cause
  - External factors can cause flare-ups
- Usually, onset occurs in the first year of life with the development of dry, red patches, especially on the face, neck and back of scalp, wrists and ankles
- Characterised by severe itch → causes sleep disruption and significantly impacts of quality of life for the child and their family
Differential diagnoses

Fungal infections:
- Itchy red rash
- Very clear demarcations and a central clearing
- Usually in different locations to dermatitis (scalp, arms, groin, feet)

Psoriasis:
- Red and scaly, but generally not itchy
- White ‘crust’ and thickened skin

Urticaria:
- Itchy and red; tends to be an oedematous, raised rash that blanches when pressed
- Due to allergies to food, food additives, medications
- Often responds well to antihistamines
When to refer

- A widespread rash
- Evidence of infection
- Badly fissured skin or bleeding
- Children < 2 years
- Lesions on the face unresponsive to emollients
- Treatment failure after 7 days
Non-drug management

Key aims of treatment
- Manage itch
- Avoid irritants/triggers
- Maintain skin integrity

Avoid irritants eg. soaps, shampoos, wools, nylon, carpets, grass, sand, sweat, jewellery

Can be difficult as the cause may be unknown or avoidance very difficult
- Use soap substitutes and lukewarm baths, loose cotton clothing

Dry skin is a major factor that will cause itch and compromise skin integrity
Emollients

- Add moisture and act as a barrier
  - Prevents skin from drying and reduces itching
  - Reduces need for steroids and decreases flare-ups
- Thicker emollients usually produce a better response
  - 50% liquid paraffin / 50% white soft paraffin
  - Emulsifying ointment (often 50% in water)
- But thicker ointments are less acceptable to patients
  - May need a cream for acceptable use during the day
- Apply emollients liberally whenever needed
- May also contain oatmeal, urea, lactic acid, dimethicone
Corticosteroids

- eg. hydrocortisone (0.5% S2 or 1% S3)
- Usually reserved for flare-ups
- Can be used on all areas of the body
  - Hydrocortisone is considered a mild CS suitable for face and flexures
- Once dermatitis is controlled, use emollients only
- After using a CS, apply an emollient 30 mins later
- Not for children < 2 years
- Should be used for no longer than 7 days
Other treatments

Antihistamines
- Evidence for effectiveness is lacking
- May be useful if allergen involvement is suspected

Antipruritics
- Aim to stop the itching, but evidence is lacking
- eg. crotamiton cream (Eurax)
Tammy asks for your advice on her hands. There are dry, reddened patches on her fingers that are itchy. What specific questions would you ask her?

1. How long have you had the symptoms for?
2. Is there something that triggers this reaction?
3. What do you do at work?
4. Have you tried anything yet?

- Tammy states that she is a hairdresser and she tries to wear protective gloves all the time, but sometimes she does spill hair dye on her hands
- Provided Tammy has no other medical conditions, medications and there are no cracks in her skin, what would you recommend?
Fungal infections

- Fungal infections thrive in warm, moist conditions
- Two main types: candida yeasts and dermatophytes
- One study reported that 20% of adults have had tinea in the previous 6 months
- Contagious
  - Spread by physical contact/changing rooms/towels
- Fungi invade the stratum corneum of the skin, hair and nails
- Types of tinea:
  - Athlete’s foot (tinea pedis)
  - Jock itch (tinea cruris)
  - Skin (tinea corporis)
  - Scalp (tinea capitis)
Fungal infections

- **Athlete’s foot**
  - Itching, flaking and fissuring of skin; can be white/soggy
  - Usually affects space between toes, especially 4th and 5th toe
  - Can spread to the sole of foot and to the nails
  - Potential for secondary bacterial infection

- **Tinea corporis** – itchy pink or red scaly patches
  - Lesions occur singly or overlap; often ‘clear’ in the centre

- **Tinea cruris** – intensely itchy, reddish-brown patches
  - Isolated to groin and inner thighs
When to refer

- A widespread rash
- Evidence of infection
- Facial involvement
- Scalp involvement
- Treatment failure after 14 days
Non-drug management for fungal infections

- Dry skin thoroughly after showering
- Do not share towels
- Wear cotton socks and change at least once a day
- Avoid wearing occlusive, non-breathable shoes
- Dust shoes and socks with powder
- Avoid scratching skin
- Use thongs/sandals when using communal changing rooms
- Wear loose fitting cotton underwear
- Wash and dry skin after physical activity or if sweaty
Treatment

Imidazoles

- Inhibits the biosynthesis of ergosterol (affects the fungal cell membrane)
- Generally first line – effective and safe
- No clinical difference between different imidazoles
- Bifonazole, ketoconazole used daily for 7-14 days
- Econazole, clotrimazole, miconazole used BD or TDS for 2 to 4 weeks
- Not usually effective for nails and scalp
- Can be used by all patient groups
- Continue to apply for several days after lesions have cleared
- Side-effects: mild skin irritation
Treatment

Terbinafine

- Also inhibits biosynthesis of ergosterol
- Slightly higher cure rates than imidazoles
- Use for 7 days
- Better for preventing reoccurrence
- Not used in children < 12 years; safe in all other patient groups
- Side-effects: mild skin irritation (redness and itching)
Treatment

**Benzoic acid**
- Decreases intracellular pH of dermatophytes
- Combined with salicylic acid – Whitfield’s ointment
- Effective but newer agents are better and more cosmetically acceptable

**Tolnaftate**
- Least evidence for efficacy
- Apply BD to TDS and continue for 2 weeks after infection has cleared
- Not used in children < 2 years
- Often used to prevent athlete’s foot
Nappy rash

- Erythematous (red and raised) rash confined to the groin
- Most common in babies between 6 and 12 months
  - Affects up to a quarter of all babies < 12 months
- Caused by:
  - Friction and maceration
  - Heat and moisture
  - Faecal and urine enzymes in prolonged contact with skin
- A type of contact dermatitis
Nappy rash

- Inflamed skin can lead to secondary infections
- Candida albicans
  - Small red satellite pustules on the edge of rash
- Secondary bacterial infection
  - Broken skin
  - Weeping and yellow crusting
When to refer

- Longer than 2 weeks
- Non-prescription treatment failure
- If a bacterial infection suspected
  - Antibiotics may be required
- Involvement of other areas of the baby’s body
Treatment options

- Management centres on adequate skin care of the nappy area

- Aims of treatment:
  - *Reduce irritation* by changing nappies frequently
  - *Remove occlusion* – no plastic pants and tight nappies
  - *Apply protective agent* to create a barrier between skin and nappy
    - Barrier creams to rehydrate/soothe skin
    - eg. silicon, antiseptics and protectorants
    - Apply to skin surface including skin folds at every nappy change
Treatment options

- For more inflamed cases of nappy rash with fungal involvement, use an antifungal cream
  - eg. clotrimazole, miconazole
- Apply antifungal cream first, then the barrier cream
- Use for 4-5 days after symptoms have resolved
- If very inflamed:
  - Use hydrocortisone and clotrimazole cream (S3) for 7 days
  - Then switch to clotrimazole cream alone until after rash resolves
Self-care for nappy rash

- Leave the nappy off for as long as possible each day
- Avoid using soaps in bath and directly on the skin
- If using cloth nappies, ensure they are rinsed thoroughly to remove detergent
- If using disposables, make sure they are not too tight
- Change nappy frequently
A young dad comes in with his baby (Ned – 3 months). He asks you about nappy rash. You ask to have a look at the rash on Ned’s bottom.

You see an inflamed red rash with small red raised pustules on the edges. Ned’s skin is not broken. What would you recommend?

a. Paracetamol  
b. A change of nappy brand  
c. Miconazole cream  
d. Barrier cream  
e. Refer to GP
Acne

- An inflammatory disease of the pilosebaceous follicles causing comedones, papules and pustules
- Virtually all adolescents will experience some degree of acne, with onset common at puberty
- Persists from a few months to years
- Affects face, neck, chest, back and shoulders (large numbers of sebaceous glands)
- Can have a significant psychological impact
  - Lack of confidence, low self-esteem and depression
Acne

- Sebaceous glands become oversensitive to testosterone – produces excess sebum and the skin becomes greasy
- Leads to blockages of follicles and comedone formation (as well as pustules and papules)
- Bacteria proliferates in oil and the skin becomes inflamed
- Comedone eventually ruptures, discharging contents
When to refer

- If acne is severe and highly inflamed
- If acne is obviously pustular in appearance
- Patients over 25 presenting for the first time
- If treatment has failed after 6 to 8 weeks
Non-drug treatment

- Aims of treatment: *clear the lesions* and *prevent scarring*
  - Remove follicular plugs so that sebum is able to flow freely
  - Reduce the bacterial load on the skin
  - Reduce comedone formation
- Regularly wash skin to remove bacteria and oil
- Do not squeeze pimples as it damages follicles and spreads sebum → increases risk of infection and inflammation
- No evidence that diet or stress affects acne
  - But some people claim certain triggers
- Natural UV light can be helpful to unblock follicles and dry the skin
- Use water-based make-ups if desired
Benzoyl peroxide

- Decreases the concentration of bacteria on the skin
- Keratolytic action: increases turnover of skin cells helping to reduce greasiness
- Apply to the whole area, not just to individual comedones
- Start at low strength (2.5%) and use on alternate days, increasing the strength and timing gradually
- Often causes reddening and soreness (esp. 10%)
- Can bleach clothing and bedding
- Takes time to work (up to 8 weeks)
Other treatments?

**Azelaic acid**: 20% lotion or 15% gel
- Similar efficacy to benzoyl peroxide and less irritating
- Improvements can sometimes be seen after 4 weeks

**Sulfur or salicylic acid**: keratolytic action
- Poor evidence for effect

**Chlorhexidine**: antibacterial, degreases skin
- May have some effectiveness to reduce grease and bacterial load
A young girl (15 years) asks you to recommend an acne treatment. She has some pimples on her face but they do not appear to be very extensive nor inflamed. She says she has had the pimples for about a month but they appear to be getting worse.

What would you recommend?

a. Benzoyl peroxide gel 10%
b. Benzoyl peroxide gel 2.5%
c. Hydrocortisone cream 0.5%
d. Silicon & zinc cream
e. Salicylic acid cream
What we covered today

- What is skin?
- Dermatitis
- Fungal infections
- Nappy rash
- Acne
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