# GP Handbook

# Dermatology

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# ABC OF DERMATOLOGY

**Morphology and distribution of skin lesions are the ABC of dermatology.**

## *Scaling of the Scalp*

**Pityriasis capitis (Dandruff)**
Morphology: small white or grey scales, no erythema, ill-defined margin
Distribution: scalp only

**Seborrhoeic dermatitis**
Morphology: greasy scales, erythema, well-defined margin
Distribution: scalp, face, upper trunk, flexures

**Psoriasis**
Morphology: silvery scales, erythema, well-defined margin, Auspitz sign (pinpoint capillary bleeding when the scales are scraped away with a spatula or fingernail)
Distribution: scalp, extensor surfaces, NAIL pitting, discolouration, subungal hyperkeratosis, onycholysis

## *Erythema & Scaling of the Palm*

**Eczema**
Morphology: weeping vesicles, papules with ill-defined margin
Distribution: feet may or may not be involved

**Tinea manuum**
Morphology: dry, well-defined margin
Distribution: feet almost always involved

**Psoriasis**
As above

## *Erythema & Scaling of the Genitocrural Area*

The genitocrural area consists of 3 sites: genitalia, thigh and fold.

**Eczema**
Morphology: vesicles, ill-defined margin
Distribution: any 1, 2 or all 3 sites

**Tinea cruris**
Morphology: dry, scaly lesions, well-defined margin
Distribution: thigh with or without fold, genitalia not involved

**Intertrigo**
Morphology: vesicles may or may not be present, margin well or ill-defined
Distribution: all 3 sites

# *Teaching Points*

When a patient presents with chronic erythema and scaling on the palms, ALWAYS EXAMINE THE FEET.

When a patient complains of scaling of the scalp, ALWAYS EXAMINE OTHER PARTS OF THE BODY INCLUDING THE NAILS.

When a patients compains of chronic erythem and scaling on the genitocrural region, SEE WHICH OF THE 3 SITES (GENITALIA, THIGH, FOLD) ARE INVOLVED.

# ACNE

Acne vulgaris is a disease of the pilo-sebaceous units the density of which is greatest on the face, upper back and chest. The disease is caused by increased sebum production and/or colonization of the pilo-sebaceous duct with bacteria, most notably *Propionibacterium acnes*. 90% of adolescents are affected and 30% will continue to have problems in adult life.

Besides pustules, comedones and seborrhoea are important clinical features of acne vulgaris. One should not diagnose acne in any middle aged patient with facial pustules without considering other important differential diagnoses such as **rosacea**.

The mainstay of any acne therapy is patient education and an understanding of the individual's needs. Treatment should embrace the psychological and the physical aspects of the disease and patients should be reassured that their problem is common and usually very responsive to treatment. The patient should be informed that any therapy may take weeks to effect significant benefits, and that good compliance is essential for sustained improvement.

## *General Advice*

- Avoid over-zealous washing as this will aggravate sebum production
- Never squeeze the lesions (delayed recovery, infection and scarring)
- Use only water-soluble cosmetics / skin care products
- Stay away from fried / spicy food

## *Topical Treatment*

For mild cases, topical treatments, used singly or in combination are usually sufficient.

**Benzoyl peroxide**

- Benzac cream 2.5% or 5% LA qd-bd
- There is little evidence that the efficacy is dependent on the dose. Higher concentrations however give better results in controlling seborrhoea.
- Local irritation can be a problem and low strengths should be used initially to minimize this problem (start application at a small and less conspicuous area and see how the skin reacts in the first 24 hours before applying to all the affected areas).
- The patient should be warned of the bleaching effect on clothing, bed linen and towels.

**Topical retinoids**

- Tretinoin (Retin-A) and its isomer isotretinoin (Isotrex) are prone to cause erythema and scaling.
- Adapalene (Differin) is a synthetic retinoid and less irritating.
- They should be avoided in pregnancy (teratogenic) and severely excoriated skin.

**Azelaic acid**

- Skinoren LA qd-bd for < 6 months
- A useful alternative to topical retinoids for easily irritated facial skin.
- Can decrease skin pigmentation which may be useful in post-inflammatory hyperpigmentation but should be used cautiously in patients with darker complexion.

**Topical antibiotics**

- Clindamycin and erythromycin

- A major concern is bacterial resistance which may be compounded by simultaneous use of a different oral antibiotic and such combination should be avoided.
- They are no more effective than topical benzoyl peroxide or retinoids and their use should be reserved for patients who cannot tolerate oral antibiotics.

# *Systemic Treatment*

For moderate cases, systemic therapy can be used in addition to topicals.

**Oral antibiotics (3-6 months' course)**

- First line: Doxycycline (Doxymycin) 100mg qd, or tetracycline 500mg bd
- Second line: Erythromycin 500mg bd, Augmentin 1gm bd or zithromycin (Zithromax) 250mg 3 times a week
- Antimicrobial therapy usually lasts a few months, but may be required for years. Bacterial resistance and treatment failure may be minimized by using a different antibiotic every 3 months.

**Oral contraceptives**

Diane-35: This consists of an antiandrogen cyproterone acetate 2mg and an oestrogen ethinyl oestradiol 35mcg. It should be used in female patients only, and may take up to 6 months to effect improvement.

Yasmin: This consists of 21 active film coated tablets each containing 3.0 mg of drospirenone and 0.030 mg of ethinyl estradiol and 7 inert film coated tablets. It is considered to be as effective as Diane-35 in controlling acne, but with less risks of oedema and weight gain.

**Isotretinoin (Roaccutane)**

This medication is used for severe acne, or moderate acne not responding to the above treatment. It dramatically reduces sebum production, decreases comedone formation, controls bacterial infection and combats inflammation.

**Isotretinoin should NOT be used by pregnant women because of the risks of birth defects, miscarriage, intra-uterine death and prematurity.**

Patients treated with isotretinoin:

- should not get pregnant from 1 month before to 1 month after isotretinoin treatment
- should not breast-feed
- should not use any topical medications, any vitamin A supplements (increased risk of vitamin A toxicity), tetracycline (increased risk of idiopathic intracranial hypertension), progestin-only contraceptive pills, phenytoin, corticosteroids and St John's Wort
- should not give blood (until at least 1 month after stopping treatment)
- should not have cosmetic procedures done to smooth the skin (until at least 6 months after stopping treatment)

Adverse reactions include exacerbation of acne in the 1st month of treatment, xeroderma, musculoskeletal pain, impaired LFT / hepatitis, deranged lipid profile, depression, impaired night vision, increased intracranial pressure, elevated fasting glucose.

Dosage: 0.25–1mg/kg/day in bd doses for 4–6/12. A second course may be used 2 months following the cessation of the initial course if severe acne recurs. Efficacy and some of the adverse effects appear to be related to the cumulative dose of isotretinoin taken, with a total cumulative dose of 120–150 mg/kg used as a guideline.

# CHRONIC URTICARIA

Most patients suffering from chronic idiopathic urticaria (CIU) cannot identify any causative agents, and most likely neither can their doctors.

In acute exacerbation, examine the chest very carefully for wheezing which may require urgent hospital admission.

## *Common Triggering Factors*

- Physical causes - cold, pressure, sunlight, heat, and water
- Drugs - especially aspirin and NSAIDs
- Foods - in particular dyes and preservatives, seafood
- Infections - especially hepatitis and chronic sinusitis
- Connective tissue disorders

## *Investigations*

- Blood tests for CBC, ESR, LFT, TFT, RA factor, ANF, RAST test, Auto-antibodies
- Stool for ova and cysts

## *Treatment*

*Please refer to the chapter "Eczema" in this section.*

For some patients long term, regular treatment is the only way to control symptoms. A long-acting, non-sedative anti-histamine is often used.

# ECZEMA

Absence of a sharp margin is an important feature separating eczema (aka atopic dermatitis) from most other papulosquamous eruptions.

- Acute eczema – weeping, crusting, blistering, redness, papules (with ill-defined border) and scaling
- Chronic eczema – less exudative, less vesicular, pigmented, thickened, lichenified, fissure, more scaly

## *Common Triggering Factors*

- Heat
- Coldness
- Exercise
- Emotion (stress and depression)
- Irritant chemicals such as shampoo, cleansing solution…etc

## *Investigations*

- CBP may show oeosinophilia.
- Blood IgE antibodies and skin testing may be indicated.

## *Treatment*

**AVOIDANCE OF ALLERGENS IS THE MOST IMPORTANT, YET PROBABLY MOST FORGOTTEN TREATMENT.**

There are 4 things to treat: pruritus, xerosis, inflammations, and infection.

**Pruritus**

- Antihistamines (H1 blockers*) may help, but regular use may lead to tachyphylaxis.
- Long-acting preparations improve compliance. Use non-sedating antihistamines during daytime, and sedative antihistamines at night (although some patients may benefit from sedating preparations during daytime).
- Get familiar with the anti-histamine dosages in various preparations; overdose of antihistamines has resulted in fatal cardiac arrhythmias.
- Use anti-histamines very cautiously in children under 2 years old.
- Dermorax (Eurax) cream offers minimal symptomatic relief at best.

** Although there is evidence of the presence of H2 receptors in the human cutaneous microcirculation, and there has been encouraging observation regarding the therapeutic efficacy of H1 plus H2 blockers (eg ranitidine) in some patients with chronic urticaria, no randomized, double-blind, placebo-controlled trials have ever been done on this subject. Therefore, the first line treatment of urticaria is still H1 blockers, and H2 blockers should be considered only if a combination of H1 blockers at maximum dosages fail to produce the desired response. Under those circumstances, other non-steroidal alternatives including tricyclic anti-depressants, calcium channel blockers and beta-adrenergic receptor agonists may also be considered.*

**Xerosis**

- After bathing apply a moisturizer/emollient immediately within 3 minutes followed

by steroid ointment/cream 30 minutes later.
- Use less oily preparation when humidity is high eg aqueous cream.

**Inflammation**
- Use appropriate topical steroids.
- Systemic steroids may occasionally justify for severe eczema.

**Infection**
- Acute exacerbations are usually caused, or complicated by bacterial infection. An oral antibiotic is usually necessary.
- *Staphylococcus aureus* is the most frequent pathogen, colonizing 80% of patients with eczema. Prescribe oral antibiotics based on clinical suspicion of bacterial infection.
- Recommended antibiotics: Augmentin 1gm bd (better compliance, GI upset, penicillin allergy), ampicillin 500mg + cloxacillin 500mg qid (poor compliance, commonly used by public doctors), Klacid 250-500mg bd (cytochrome P450 interactions, especially with terfenadine), quinolones, and cephalexin.

Patients with allergic skin conditions are usually quite anxious to have their symptoms relieved as soon as possible (eg in a couple of hours). A short course of oral steroid eg prednisolone 40mg a day can be very useful. Parenteral administration of steroids may be indicated for rapid symptomatic relief, but has to be weighed against the potential complications of such injections. Decan (dexamethasone) 0.5mg IM is a short-acting choice, while may be used for rapid symptomatic relief. For more sustained results Shincort (Triamcinolone acetonide 40mg/ml) 2ml IM may be considered. Diprospan (betamethasone dipropionate + betamethasone disodium phosphate) is a relatively expensive combination of both short- and long-acting steroids.

# *Topical Immunomodulators*

Since 2000 two new non-steroidal medications have been approved for the treatment of eczema; they are Protopic (tacrolimus) and Elidel (pimecrolimus). These medications fall under the heading of topical immunomodulators, whereas topical steroids are immunosuppressants. This means that Protopic and Elidel change some of the functions of the immune system that specifically cause the rash of eczema. They are second-line therapy for the short-term and non-continuous chronic treatment of moderate to severe eczema in non-immunocompromised adults and children who have failed to respond adequately to other topical prescription treatments for eczema, or when those treatments are not advisable. Both medications are not indicated for children younger than 2 years of age.

**Benefits**
The main benefit of is that they are not steroids and therefore:-
- can be used for short term and repeated courses
- do not cause skin atrophy, striae, and spider veins
- are safe for use anywhere on the body, including the face, neck, around the eyes, groin, and in skin folds
- can be used safely in children as young as 2 years old

**Clinical use**
Both Protopic (ointment: 0.03% and 0.1% for adults, and only 0.03% for children aged between 2 and 15) and Elidel (cream: 1%) have been shown to be safe to use everyday for at least a year, but most people do not need to use them this long. Treatment is usually intermittent and for flares (NB neither medication prevents flares). The medication is applied to the eczematous lesions twice a day, and can be discontinued after the rash subsides for 7 days. Improvement is usually seen within the first week of treatment.

**Side effects**

The most common adverse events associated with the use of *Protopic* and *Elidel* included pruritis and burning sensation at the site immediately after application. These symptoms usually last about 15 minutes and resolve after a couple of days of therapy. Patients should minimize or avoid natural or artificial sunlight exposure. Skin infections should be cleared prior to application, and there may be an increased risk of certain skin infections. These medications should be avoided in viral skin infections eg chicken pox, herpes, or molluscum contagiousum, and should not be used with occlusive dressings.

Since the approval of Protopic and Elidel, FDA has received reports of lymphoma and skin cancer in children and adults treated with these medications; whether the reported cancers are associated with these products has not been clearly established. FDA now requires labelling changes for both Elidel and Protopic, including the placement of a boxed warning about the potential cancer risk.

# *Other Relative / Similar Conditions*

**Discoid eczema**

Rather common in Asians, especially in children and young adults. Discoid eczema can be quite resistant to treatment and is commonly associated with secondary bacterial infection causing weeping.

- Clinical features – Single or multiple, coin-shaped, sharp-edged, elevated eczematous lesions
- Treatment – Potent local steroid +/- oral steroid +/- oral antibiotics

**Perioral eczema**

This is associated with lip-licking and thumb-sucking, and may result from allergy to lipstick, toothpaste or bubble gum (mint allergy)

- Treatment – 1% Hydrocortisone cream +/- moisturizers/emollients

**Contact dermatitis**

This is a very common condition.

- Identify (which may be impossible) and remove (which may be impractical) causative agents
- Potent local steroid may be required
- Oral steroid for 1 week for lesions on face or genital area, or affecting large areas of skin

**Napkin dermatitis**

This is resulted from irritation by faecal enzymes and ammonia and aggravated by overgrowth of yeast (especially *Candida albicans*).

- Presentation: moist, glazed and sore erythema affecting the napkin area; small erthematous papules around the periphery of the main eruption if superinfected by *Candida albicans*
- Treatment: change diapers regularly especially in the middle of the night; lesions should be cleaned with water at each nappy change; topical antifungal +/- 1% hydrocortisone (or other low potency steroids) are often useful

# FACIAL SKIN REJUVENATION

## *Skin Aging*

**Intrinsic factors**
A combination of genetic factors is believed to play a role in natural, chronological skin aging eg innate property of skin, the thickness of the skin, hormonal effect, etc. Pathological changes include degeneration of elastic and collagen fibres of skin, thinning and drying of the skin, decrease in hair growth, and loss of melanocyte and enlargement of sebaceous glands.

**Extrinsic factors**
These include chronic UV light exposure (aka photoaging), smoking, excessive facial expression, and low humidity environment. Characteristic features of photoaging skin consist of thickened skin, uneven pigmentation, appearance of lentigines or telangiectases, and development of skin tumours.

## *Prevention of Skin Aging*

- Minimize sun exposure
- Use broad spectrum sunscreen (against both UVA and UVB)
- Avoid smoking
- Healthy diet and regular exercise
- Reduce stress
- Prevent stretching of the skin, eg excessive frowning

## *Skin Rejuvenation Cream*

**Sunscreens**
Please refer to the Chapter "UV Radiation & the Skin" of this Section.

**Skin lightening cream**
This is of particular interest to Asians because our skin is prone to have pigmentation changes due to aging. It should be applied preferably on the pigmented area.

The most well known product is hydroquinone, a strong inhibitor against melanin production. The usual concentration is 2-4%. Prolonged use of high concentration may result in skin irritation and ochronosis (an uncommon paradoxical darkening side effect). Nowadays, hydroquinone is often mixed with other cosmetic products for better clinical effects.

There are many other substances claimed to have skin lightening effect, eg azelaic acid, kojic acid, arbutin, locorice extract and mulberry leaf extract but their clinical efficacies remain to be proven by better ardomized studies.

**Anti-aging cream**
Vitamin A products, eg tretinoin, retinol, retinyl palmitate, retinyl acetate and retinal and its derivatives, are very popular additives to skin rejuvenating products nowadays. Tretinoin is the only well proven ingredient to have beneficial effects on photodamaged skin. It can reverse and reduce the early signs of photo**aging** such as reduction of wrinkles and pigmentation, improvement of skin firmness, etc. It is currently available in different concentrations (0.01-0.10%) and should be applied at night time only due to the possible photo-sensitivity reaction. Other vitamin A derivatives may not be as effective as they are biologically inactive unless the skin has adequate levels

of conversion enzymes to change them into an active form.

AHA includes glycolic acid, lactic acid, malic acid, citric acid and tartaric acid. Glycolic acid is the most commonly used and this is supported by several well conducted studies to have modest improvements in wrinkles and skin smoothness. It is useful in combination with other skin lightening agents because it may thin the uppermost dead skin layer to allow better penetration of the lightening ingredients. It is generally well tolerated except for occasional redness, irritation and itchiness.

Vitamin C is believed to benefit skin by its collagen synthesis and anti-oxidant properties. The most common form of vitamin C in cosmetic products is L-ascorbic acid. Its efficacy may be limited by its instability and difficulties in delivering an effective dosage.

Vitamin E, also an anti-oxidant, is available widely in various cosmetic rejuvenating products as alpha-tocopherol or tocopherol acetate. However, there are no well conducted studies to prove its effectiveness.

## *Chemical Peeling*

This involves the use of chemical solutions, such as AHA (glycolic acid), Jessner's solution and trichloroacetic acid to damage the skin at different depths. A superficial chemical peel removes only the epidermis while the medium and deep chemical peels act on the skin down to the upper dermis and lower dermis respectively. Upon healing the skin looks brighter and healthier with reduction of fine wrinkles. Chemical peeling is also used in treatment of superficial acne scars.

Priming of the skin with broad spectrum sunscreen, skin lightening cream, and tretinoin or AHA containing cream for 3-4 weeks before the procedure is advised for optimal results. The effect of superficial peel is gradual and progressive and hence several treatments are needed initially. Maintenance peels may be needed later at longer time intervals.

The procedure is generally safe but possible side effects include pigmentary changes (which can be minimized by a good priming), scarring (especially in patients with a history of keloids) and prolonged redness (which can be controlled by a mild steroid cream).

## *Botulinum Toxin A*

Botulinum toxin A (eg Botox), produced by the bacterium *Clostridium botulinum*, was initially used for medical purpose to reduce muscle spasm especially in blepharospasm. The toxin acts on the neuromuscular junction by preventing the release of acetylcholine, resulting in weakness of the injected muscle. It is now widely used in reducing wrinkles.

The procedure, usually performed in an out-patient setting, is generally safe and with little pain. The group of muscles responsible for causing the wrinkles is first identified. Then the skin is cleansed with antiseptic and the toxin is injected with a very fine needle into the identified group of muscles. After the injections, mild pressure on the injected areas is applied to stop any bleeding. The patient should not lie flat for 6-8 hours and must not massage the injected sites as this may cause the toxin to spread to other muscle groups. The effects of toxin will usually start within 3-4 days and observable effects will be seen within 2 weeks. However, the effects last only 3-6 months and repeated injections may be needed for optimal long-term result.

## *Fillers*

Soft-tissue fillers can be used to fill in and lift up facial lines and creases found in photoaged skin. It

is usually applied together with other cosmetic procedures such as Botox injection and laser surgery to obtain the best cosmetic effect. It is usually performed in an outpatient setting with the use of local anaesthetic (topically applied before the procedure or mixed with the fillers during the procedure). The procedure is generally safe; adverse effects include pain, redness, swelling or even bruising. The results are seen immediately with most of the fillers. Contraindications: active skin infections, autoimmune disease, allergy to lignocaine, and pregnancy.

**Temporary soft-tissue fillers (lasting months)**
These are usually composed of collagen or hyaluronic acid. Collagen-based fillers are less used now because of the potential risk of infection. Hyaluronic acid (eg Restylane) fillers are more commonly used and they replace the lost hyaluronic acid in our aging skin.

**Semi-permanent fillers (lasting > 1 year)**
These incorporate into the skin tissue and do not break down, thus creating a longer-lasting filling effect and stimulate the skin to produce its own fibrous tissue. As there is a higher incidence of unpredictable effects due to this type of stimulation., appropriate selection of candidates by an experienced practitioner is essential.

# *Laser Devices*

Laser is a monochromatic, collimated light with a single wavelength which can target on the different chromophores on the skin, eg water, melanin, oxyhaemoglobin. Different wavelengths will cause selective destructive effect on the aging skin, eg growths, pigmentary changes, and unsighted blood vessels.

**Ablative lasers**
These are becoming less favourable options for skin rejuvenation due to the long "downtime" but they are still useful in wrinkles around the eyes/mouth, surgical/acne scars and benign growths such as viral warts, seborrhoeic keratoses or actinic keratoses. The commonly used devices include erbium-YAG and carbon dioxide lasers and the light is selectively absorbed by water molecules in the cells resulting in excessive heat generation and eventual destruction of the target tissue.

Post-laser pigmentation is very common in pigmented Asian skin and therefore a small testing area should be performed before the procedure. Laser skin resurfacing can be quite painful and anaesthesia with sedation is required for most patients. After the procedure, oral analgesics, antiviral and antibacterial drugs are prescribed to relieve pain and prevent infection. In addition, proper daily dressing is important for better recovery and prevention of skin scarring.

Erythema is common after the procedure and is most severe in the first 2 weeks of treatment. It will usually resolve in 3-6 months.

Pigmentation is another complication that usually occurs in the first few months after the procedure. It can be minimized by avoiding sunlight exposure and applying skin lightening cream. With proper prevention, it will gradually decrease in 6-12 months.

Skin infection after the procedure can cause scarring. Prophylactic use of antiviral and antibacterial medication can prevent this unfavourable complication.

**New generation non-ablative lasers**
These laser machines target the water molecules in the upper dermis and hence promote the formation of new collagen without the undesirable effect on the epidermal layer. There is minimal downtime, and a low incidence of prolonged skin erythema, post-inflammatory pigmentation, skin infection and scarring. Commonly used examples include long-pulse 1064nm Nd:YAG laser (Vantage), 1540nm Erbium Glass laser (Aramis), 1320nm Nd:YAG laser (CoolTouch) and 1450nm

diode laser (SmoothBeam). The use of longer wavelengths allows dermal penetration of light and collagen shrinkening with eventual remodeling.

They are claimed to be particularly useful for fine wrinkles and improvement of skin texture. The procedure usually causes minimal discomfort. It is generally repeated at 4-6 weeks interval and optimal cosmetic effect is expected in 6-9 months. No special skin care is needed but avoidance of excessive sunlight exposure and application of broad spectrum sunscreen is still recommended to minimize the chance of post-inflammatory hyperpigmentation.

**Pigment lasers**

Pigment lasers (eg Q-switched Nd:YAG 532nm, Q-switched Alexandrite) target at the melanin molecules and are most useful for pigmentary problems such as freckles, tattoos, lentigines and some acquired or congenital pigmented nevus. Several treatment sessions under topical anaesthesia are generally needed. There are however no large scale randomized controlled studies confirm its effectiveness on treating melasma.

Post-treatment skin redness and swelling is common and usually subsides in 2-4 weeks. Pain and discomfort can be reduced by the use of analgesics and cold-compression. The laser wound should be cleansed regularly with sterile normal saline; antibiotic cream should be applied. The patient is reminded not to prick, scratch or rub the wound site as this may cause infection and scarring. Avoidance of sunlight and use of broad-spectrum sunscreen is recommended.

**Vascular lasers**

Vascular lasers (eg pulsed dye laser) target the red blood cells and hence are thought to be beneficial in treating telangiectases.

Several sessions of treatment are usually required (depending on the size, depth and severity of the vascular lesions). Local anaesthesia may be necessary. The procedure usually causes transient, self-limiting bruising for about 2 weeks. The patient is advised to clean the skin with cool water and avoid strong facial soaps. Again, avoidance of sunlight and the use of broad-spectrum sunscreens are suggested.

## *Intense Pulsed Light (IPL) Therapy*

This is not a laser because it produces a broad band of light with multiple wavelengths. The machine can produce a range of wavelengths from 500 to 1200nm. With the use of special cut-off filters, only the desirable spectrum of intense light is delivered to the target tissues such as melanin and haemoglobin. It is currently one of the most popular devices for photo-rejuvenation.

IPL is most useful for treating telangiectases, freckles and lentigines. It is NOT effective in the removal of deep wrinkles, melasma or scars. In most cases 4-6 monthly sessions are adequate for improvement with minimal "downtime". The treatment is generally safe. Topical anaesthesia can be applied at least 1 hour before the procedure. Minimal erythema is common and usually resolves after a few hours. In addition, before and after the procedure, the patient should refrain from sun tanning for at least 4 weeks and broad spectrum sunscreens and skin lightening cream are recommended to minimize the risk of hyperpigmentation.

## *Skin Tightening Devices*

Recent advances in technology allow selective heating of the collagen in the dermal layer leading to initial contraction and thickening of the collagen tissue. This initial change is followed by formation of new collagen which theoretically results in tighter and smoother skin appearance.

Currently, the common approaches include the use of radiofrequency (eg ThermaCool- monopolar system and Aluma- bipolar system).

The procedure is generally safe in experienced hands. The pain and heat sensation generated in the hand piece of the device can be reduced by the built-in cooling. Ttopical anaesthetic cream and analgesics may be needed.

The number and duration of treatment sessions depends on the severity of laxity and size of the area being treated respectively. The clinical result will gradually be seen in 2-6 months. Mild skin redness is common and lasts a few hours only. Sun avoidance and use of broad spectrum sunscreen is recommended to minimize the risk of post-inflammatory hyperpigmentation.

# *New Techniques*

**Fractional photothermolysis (eg Fraxel)**
This aims at producing multiple microthermal treatment zones (MTZ) of thermal injury to the skin. The normal skin next to these puncture holes helps to repair the holes and hence new collagen is formed resulting in improvement of wrinkles, scars and pigmentation.

Topical anaesthesia is usually required. After the procedure, mild burning sensation is common and usually subsides within hours. Mild redness and swelling, on the other hand, will last for a few days. The procedure needs to be repeated several times in 1-2 weeks as each treatment session targets around 20% of the skin. The clinical result should become evident in 3-6 months.

**LED photomodulation**
This involves the use of narrow band, (590nm) low-energy light source emitting diodes (LEDs), transmitting a fixed frequency to the skin cells. The light will activate the skin cells to produce collagen and the result is a softer, smoother facial complexion with fewer wrinkles and freckles. The procedure is very safe as this is non-thermal and non-ablative. No anaesthesia is needed and the treatment can be repeated twice a week for approximately 4 weeks to obtain the best cosmetic result.

# FUNGAL SKIN INFECTION

## *Pityriasis Versicolor (Tinea Versicolor)*

This is a harmless skin disorder caused by a yeast, *Malassezia furfur*, which may be found on normal skin. It is NOT contagious. Usually the yeast grows sparsely without causing a rash. For some unknown reasons it grows more actively in certain individuals, resulting in small round to oval, sometimes confluent slightly raised macules and papules on the trunk, neck, or arms. Pityriasis versicolor is pink or coppery in pale subjects, but on tanned skin the patches are lighter, since tanning does not occur in the affected areas. The yeast produces a chemical which diffuses down and impairs the function of the pigment cells in the underlying skin. The skin usually tans normally after the rash clears up, although with long standing infection the post-inflammatory pigmentation may take months to recover, or even become permanent.

**Differential diagnoses**

- Pityriasis rosea
- Secondary syphilis
- Dermatophyte infection
- Erythrasma
- Pityriasis alba
- Vitiligo

**Investigations**

Wood's lamp examination shows yellow fluorescence from the involved skin. Skin scraping from affected skin is confirmatory and can help excluding dermatophyte infection.

**Treatment**

- Antifungal cream eg miconazole cream (Antifungal) LA bd for 4-6 weeks. Difficult to cure the condition because some areas of affected skin may be missed.
- Selenium sulfide (Selsun) liquid 2.5% qd for 5 days is the preferred treatment. Advise the patient to let the liquid stay on the skin in lather form for 15 minutes before rinsing.
- Oral antifungals in more severe cases: itraconazole (Sporanox) 200mg qd for 7 days, or ketoconazole (Yucomy) 200mg qd for 14 days

## *Dermatophyte Infection*

**Tinea pedis**

3 common clinical patterns:

- Interdigital scaling, particularly in the 4th and 5th interspaces
- Diffuse dry scaling of the soles
- Recurrent episodes of vesication

**Tinea manum**

They are usually symmetrical and almost always associated with tinea pedis.

**Tinea cruris**

- Affects men more than women
- Unilateral or symmetrical, sparing genitalia
- Upper thigh could be involved
- Sharply demarcated plaques with peripheral scaling

**Tinea corporis**

- Plaques with scaling and erythema most pronounced at the periphery
- Llesion expanding slowly with healing in the centre leaving a ring-like pattern, thus the name "ringworm".

**Management**

- ALWAYS examine the feet of a patient with any dermatophyte infection
- Advise the patient to keep the affected areas dry
- Avoid re-infection by interrupting channels where the fungi may again land on the body (eg public towels, shared slippers…etc)
- Use antifungal cream eg Miconazole cream LA bd for 2-4 weeks. Add a topical steroid for a week or so if inflammation is severe. Topical antifungals should be applied on the affected skin until 2 weeks after all the lesions become invisible.
- Use oral anti-fungal agent in more severe cases, eg *Sporanox cap 2 bd for 1 week*.

# *Onychomycosis*

Onychomycosis is fungal infection of nails. Affecting about 3% of the general population, onychomycosis is increasingly common with age. It can be due to:

- Dermatophytes such as *Trichophyton rubrum* (ie tinea unguium).
- Yeasts such as *Candida albicans*.
- Moulds especially *Scopulariopsis brevicaulis*.

**Clinical features**

Onychomycosis is usually associated with tinea pedis, and may affect one or more toenails/fingernails. It can present in one or several different patterns:

- Lateral onychomycosis: a white/yellow opaque streak at one side of the nail
- Subungual hyperkeratosis: scaling occurs under the nail
- Distal onycholysis: lifting end of the nail, often with crumbling edge
- Superficial white onychomycosis: flakey white patches and pits
- Proximal onychomycosis: yellow spots appearing in the half-moon
- Complete nail destruction

**Differential diagnoses**

- Bacterial infection (eg *Pseudomonas aeruginosa*) which turns the nail black or green
- Psoriasis
- Lichen planus
- Onychogryphosis (nail thickening and scaling under the nail)

**Nail clippings**

Clippings should be taken from crumbling tissue at the end of the infected nail. The discoloured surface of the nails can be scraped off. The debris can be scooped out from under the nail. Previous treatment can reduce the chance of growing the fungus successfully in culture so it is best to take the clippings before any treatment is commenced. Onychomycosis is often a straightforward clinical diagnosis; nail clippings are sometimes indicated to:

- confirm the diagnosis - antifungal treatment will not be successful if there is another explanation for the nail condition.
- identify the responsible organism - moulds and yeasts may require different treatment from dermatophyte fungi.

**Medical treatment**

Mild infections may respond to topical antifungal medications but cure usually requires an oral antifungal medication. Treatment with griseofulvin is disappointing. Even with itraconazole pulse

therapy (as below) the patient should expect significant clinical improvement in no less than 6 months, and a complete cure in at least 12 months.

**Itraconazole (Sporanox) "pulse therapy"**

Toenail infection: *Sporanox 200mg bd* for 1 week every month for 3 consecutive months.
Fingernail infection: *Sporanox 200mg bd* for 1 week every month for 2 consecutive months.
Skin infection: *Sporanox 200mg bd* for 1 week.

Recent studies showed that the incidence of sporanox-induced liver toxicity is extremely low. As a result pre-treatment and interval LFTs are now considered unnecessary in an average patient. Patients with heart failure and/or on statins or dormicum should not take itraconazole.

# MOISTURIZERS / EMOLLIENTS

Emollients soften skin and moisturizers add moisture. They are used to correct dryness and scaling of the skin, fine lines and wrinkles and mild irritant contact dermatitis. Basically they contain one or both of the following:

- Occlusives, which provide a layer of oil on the surface of the skin to slow water loss and thus increase the moisture content of the stratum corneum.
- Humectants, which are substances introduced into the stratum corneum to increase its water holding capacity.

**Occlusives**
These consist of oils of non-human origin, either in pure form or mixed with varying amounts of water through the action of an emulsifier to form a lotion or cream. A wide range of products is available, reflecting that there is no "right' moisturizer for all patients.

- Bath oil deposits a thin layer of oil on the skin upon rising from the water.
- Lotions are more occlusive than oils. These are best applied immediately after bathing, to retain the water in the skin, and at other times as necessary. They are used for the scalp and other hairy areas and for mild dryness on the face, trunk and limbs.
- Creams are used when more emollience is required. Thicker barrier creams containing dimeticone are particularly useful for those with hand dermatitis.
- Ointments are the most occlusive, and include pure oil preparations such as equal parts of white soft and liquid paraffin or petroleum jelly. They are prescribed for drier, thicker, more scaly areas, but many patients find them too greasy

Aqueous cream is a good all-round moderate-strength moisturizer that suits many patients because it is non-greasy, cheap and available in bulk without prescription. Because it contains an emulsifier, aqueous cream can mix with sweat and it can be washed off. Aqueous cream can be made greasier to suit individual preferences by adding white soft paraffin.

*NB: Although dry skin often look scaly, scaling does not always mean dryness. Giving aqueous cream to patients suffering from fungal skin infection with scaling may worsen the condition as fungus is supposed to grow in moist environment.*

In general, 250g (or ml) is a minimum quantity for an occlusive emollient and often 500g or 1Kg is needed: liberal and regular usage is to be encouraged. How frequently it is applied depends on how dry the skin is: very dry skin may benefit from a greasy emollient every couple of hours, but a light moisturiser may only be needed on slightly dry skin at night.

**Humectants**
Humectants, agents adding water to the stratum corneum, include:

- Glycerine
- Urea
- Alpha hydroxy acids (AHA) such as lactic acid or glycolic acid. At higher concentrations these also have a descaling or keratolytic action by thinning the stratum corneum: they are often known as peeling agents.

Urea and lactic acid preparations often sting if applied to broken (scratched or cracked) skin. Humectant / keratolytics are particularly important in management of the ichthyoses (inherited or acquired scaly disorders of the skin).

# *Causes of Dry / Scaly skin*

- Dry air (eg low humidity in winter)
- Exposure to the wind
- Over-washing
- Reduced production of sebum in old age
- Diuretics
- Hypothyroidism
- Inherited factors
- Eczema, psoriasis or ichthyosis
- Any combination of the above

**Dry skin** results from lack of water in the stratum corneum, the outer, compacted layer of non-living cells that covers the entire body like a layer of cling film. When it becomes dehydrated this layer loses its flexibility and becomes cracked and scaly. The stratum corneum contains natural water-holding substances that retain water seeping up from the deeper layers of the skin. Water is also retained in the stratum corneum by a surface film of sebum and broken-down skin cells, which slows down evaporation (trans-epidermal water loss).

**Scaly skin** arises from visible detachment of cells from the surface of the stratum corneum. In normal skin this process is invisible because the scale consists of individual cells. In scaly skin the cells have difficulty in detaching from each other and come off in little 'rafts' which are easily visible. This occurs in dry skin from any cause but also in eczema, psoriasis and ichthyosis where the skin cells are imperfectly formed and do not detach properly.

# *Treatment of Dry Skin*

To correct a dry skin tendency from any cause reduce contact with soap and water and apply a moisturiser or emollient.

**Reduce bathing**

- Reduce washing to every second day, or less often, although the body folds may be sponged daily if desired.
- Baths or showers should be kept as brief as possible.
- Water should be lukewarm.
- Minimise the use of soap. Use a mild soap or better still, a detergent-based cleanser. Cleansers that have the same pH as the skin (5.5) may be advantageous.
- Reduce the need for bathing by keeping as clean as possible both at home and at work.

**Apply a moisturizer or emollient**

**Other treatments**

Other agents are often needed to normalize skin cell formation and correct the scaling. These include:

- Topical steroids
- Coal tar
- Calcipotriol
- Retinoids
- Ultra violet light

# *Adverse Reactions*

**Irritant reactions**
Some people experience irritation from certain moisturizers, sometimes from most. This is particularly common in those patients with atopic dermatitis or rosacea.

**Allergy**
True allergy to moisturizers and emollients is rare. Suspected contact allergy can be investigated by patch testing. But even if a patient's allergens are identified, their presence in commercial preparations can be difficult to ascertain and it often comes back to trial and error.

**Folliculitis**
Over-occlusive emollients can result in blocked hair follicles, folliculitis and even abscesses.

**Facial rashes**
Over use of facial moisturisers, especially if they are occlusive, can aggravate acne or cause an unsightly rash, perioral dermatitis.

# PEDICULOSIS PUBIS

The causative agent, Phthirus pubis (crab louse), is about 2 mm in length and has claws adapted to grasp the pubic hair. It feeds by sucking blood from human host. It resides primarily on pubic hair but is also found on other hair over the body. Transmission through sexual or intimate contact is commonest although infestation acquired from shared beds and clothing has been recorded.

## *Clinical Features*

- Pruritus resulting from allergic sensitisation to louse bite develops within 1 week of infestation.
- Complications including excoriations, secondary bacterial infections and eczematization may pursue.
- Asymptomatic individuals may present with incidental identification of nits or lice on pubic hair, or black specks on underpants.

## *Diagnosis*

Diagnosis is established by demonstration of lice or nits over infested sites. Detection can be aided by shining light on hair from the side and by the use of hand lens. Microscopic examination of hair sample further confirms presence of nits.

## *Treatment*

- Shaving of infested hair is unnecessary.
- The mainstay of treatment is topical *Benzyl Benzoate Emulsion 25% (Anti-scabio).*
- Eyelashes infestation is treated by Vaseline, which will smother lice by obstructing their breathing apparatus.
- Clothing and bed linen should be washed in the hot cycle of the washing machine and dried completely in the sun or a hot drier. This way it is unnecessary to wash the clothing and bed linen separately.
- Sexual contacts should be traced and treated at the same time.

**Method of applying Anti-scabio in pediculosis pubis**

After a hot shower, the emulsion is painted onto the affected areas, avoiding contact with the eyes, and allows drying naturally. After 12 hours, the emulsion should be washed off and clean clothes put on. A second application may be required.

# ROSACEA

Rosacea is a common but idiopathic condition characterized by facial flushing and a spectrum of clinical signs including erythema, telangiectasia, coarseness of skin, and an inflammatory papulopustular eruption resembling acne. It affects more women than men, and should always be included in the differential diagnoses of acne in middle-aged patients. A study in Sweden revealed an incidence of 1 in 10 middle class workers.

## *Diagnosis*

Rosacea is diagnosed by noting persistent erythema of the central portion of the face lasting for at least 3 months. Supporting criteria include symmetrical distribution, flushing, papules, pustules, telangiectasias, and absence of comedones or seborrhoea. Secondary characteristics are burning and stinging, oedema, plaques, a dry appearance, ocular manifestations, and phymatous changes.

Rosacea is a clinical diagnosis. Skin biopsy may be necessary to exclude other diseases, eg polycythemia vera, connective tissue diseases (eg SLE, dermatomyositis), photosensitivity, carcinoid mastocytosis, long-term application of topical steroids, contact dermatitis, and photosensitivity.

## *Treatment*

Before the initiation of therapy, the triggering factors that exacerbate the condition should be identified and avoided if possible. Common triggering factors include hot or cold temperatures, wind, hot drinks, caffeine, exercise, spicy food, alcohol, emotions, topical products that irritate the skin and decrease the barrier, or medications that cause flushing. AVOID STEROIDS as they may exacerbate the condition.

**Medications**
First line: Topical metronidazole gel 0.75% bd, with or without oral doxycycline 100mg daily
Second line: Oral metronidazole or oral isotretinoin (Roaccutane). Rosacea fulminans is treated with moderately high doses of prednisolone (30-60 mg daily) followed by oral isotretinoin.

**Sunscreens**
The use of daily broad-spectrum (UVA and UVB) sunscreen is recommended for all patients with rosacea. The sunscreen should also contain protective silicones such as dimethicone or cyclomethicone. Physical blockers such as titanium dioxide and zinc oxide are usually well tolerated. The patient is encouraged to avoid astringents, toners, menthols, camphor, waterproof cosmetics requiring solvents to be removed, or products containing sodium lauryl sulfate.

**Laser**
Nonablative laser is effective by remodeling of the dermal connective tissue and improving the epidermal barrier. It usually requires 1-3 treatments 4-8 weeks apart. Intense pulsed-light (IPL) therapy was developed specifically for the treatment of benign vascular lesions, such as facial telangiectasia. It is effective in relieving erythema and flushing associated with rosacea.

**Surgical Care**
Permanent telangiectasia may be treated by electrosurgery, although new telangiectasias may later develop. Cosmetic improvement of rhinophyma may be produced by mechanical dermabrasion, carbon dioxide laser peel, and surgical shave techniques.

## *Complications*

- Rosacea keratitis and keratoconjunctivitis sicca are recognized complications.
- Rosacea fulminans is a rare.
- Scarring generally does not occur.

## *Prognosis*

With proper treatment most cases can become stable with variable residual symptoms, but for some patients the disease takes a chronic relapsing or progressive course.

# SCABIES

This is a highly contagious skin condition caused by the 8-legged mite *Sarcoptes Scabei*, and characterized by intense itchiness, burrows between fingers and a generalized papular rash sparing the head and neck.

The incubation period is around 6 weeks (during which time sensitisation to the mite's faeces and/or saliva occurs). Finger web spaces and wrists (flexor surface) are favoured sites for burrows (seen in >85%). Lesions on the penis produce red nodules. Burrows are non-linear and are 3-15mm long; they are better felt than seen.

## *Diagnosis*

Trying to tease a mite out of her burrow with a needle for microscopic examination (x10) often fails - but if a drop of oil is placed on the lesion, a few firm scrapes with a scalpel will provide microscopically recognizable faeces and eggs.

## *Treatment*

- Use topical Benzyl Benzoate Emulsion 25% (Anti-scabio).
- Treat the whole household and give the family specific written instructions.
- Despite treatment itchiness may continue for 2 weeks - calamine lotion and other symptomatic treatment may be indicated.

**Method of applying Anti-scabio in scabies**

After a hot shower, the emulsion is painted from the neck down (including the head in children younger than 2 years old), avoiding contact with the eyes, and allows drying naturally. The whole body (sparing the face, but including the soles) should be painted, including the soles. The emulsion is washed off after 24 hours, and clean clothes are put on. If the hands are washed in less than 24 hours, they should be re-painted. A second application may be required.

# SEBORRHOEIC DERMATITIS

Seborrhoeic dermatitis is a common, harmless, scaling rash affecting the face, scalp and other areas. It occurs on the scalp (pityriasis capitis, aka dandruff), eyebrows, eyelid edges, ears, the skin near the nose and skin-folds of the armpits and groin. Sometimes seborrhoeic dermatitis produces round, scaling patches on the middle of the chest or on the back, and may be associated with chronic blepharitis and otitis externa.

Seborrhoeic dermatitis may appear at any age after puberty. It fluctuates in severity and may persist for years. It may predispose to psoriasis.

## *Aetiology*

Seborrhoeic dermatitis is probably related to proliferation of a normal skin inhabitant, a yeast called *Pityrosporum ovale* (aka *Malassezia*). It is neither contagious nor related to diet, but may be aggravated by stress, fatigue, seasonal changes and reduced general health. Those with neurological disorders including Parkinson's disease and stroke are more prone to be affected.

It is uncertain whether infantile seborrhoeic dermatitis is the same condition. This arises in newborn babies up to the age of 6 months. It usually presents as cradle cap, but infantile seborrhoeic dermatitis may also affect skin creases such as armpits and groin. Non-itchy salmon pink flaky patches may appear on the face, trunk and limbs in severe cases.

## *Treatment*

Seborrhoeic dermatitis in adults can be very persistent. However, it can generally be kept under control with regular use of a local steroid-antifungal combination. Eparcort cream (econazole / triamcinolone) or a self-mixed cream of 1% hydrocortisone and ketoconazole to be applied 2 times a day for 4-6 weeks is useful. Scalp lesions may be treated with Selsun (selenium sulfide) liquid 2.5% as shampoo for 4 weeks. Ketoconazole 2% shampoo (Nizoral) and tar shampoo are good alternatives, especially for those who find selenium sulfide irritative.

For severe and unresponsive cases a short course of oral itraconazole (Sporanox) may help.

Infantile seborrhoeic dermatitis usually clears up completely before the baby is 6 months old and rarely persists after 1 year.

# SKIN CANCER

## *Classification*

(A) There are approximately 30 histologically distinct types of skin cancer, of which basal cell carcinoma (BCC), squamous cell carcinoma (SCC) and malignant melanoma (MM) make up almost 99%.
(B) It is a common practice to classify skin cancers into two groups: melanomas and nonmelanoma skin cancer (NMSC) due to different biological behaviour of the 2 groups.
(C) Skin cancers can be primary or secondary.

## *Epidemiology*

- The incidence of skin cancer generally increases with age.
- MM tends to affect younger patients compared to BCC (> 40) and SCC (> 55 ).
- Sun exposure is an important risk factor - episodes of severe childhood sunburn is associated with an increased risk of MM while the accumulated sun exposure is more significant for BCC and SCC.
- NMSC share other common risk factors, eg immunosuppression and arsenic exposure.
- Abnormal skin with chronic inflammation (eg radiation dermatitis, chronic sinus or ulcer) and dysplasia are at risk of malignant transformation, most commonly into SCC.
- The absence of any risk factors is also significant in that skin cancers in these patients tend to be more aggressive.
- BCC is thought to be the most common human cancer, but its true incidence is unknown.
- Compared to Hong Kong, the incidence of MM is 30 times higher in the UK and US and 100 times higher in Australia.
- In general, skin cancers in non-Caucasians usually present later and have a worse prognosis, with the exception of BCC.

## *Principles of Management*

Early detection is the single most important modifiable factor that affects the mortality and morbidity. This is achieved by the following:

- Familiarity with the appearance of the common malignant lesions.
- Early referral to an experienced clinician.
- Early biopsy. It is important to know when and how to perform a biopsy. The quality of a biopsy affects the accuracy of the histopathological diagnosis.
- Correlation of the pathology report with the clinical findings. Review of slides or re-biopsy might be required sometimes.
- Follow up the patients even if the lesions appear benign clinically or histopathologically.

## *General Follow-up Guidelines*

**Melanoma**

- In situ: No follow up required.
- < 1 mm: Every 3 months for 3 years.

- > 1 mm: + Every 6 months for 2 years

**SCC**

- 5 years for the high risk group.
- 95% recurrence and 95% metastases occur within 5 years

**BCC**

- Controversial.
- Some experts advise following up for > 5 years.

# *Biopsy*

A lesion should be biopsied when:

- It shows malignant features.
- A positive diagnosis of a benign lesion could not be made clinically.
- A benign looking lesion that behaves abnormally.
- An ulcer that fails to heal or shows signs of healing within a reasonable time.

Biopsy should not delay the referral of lesions suspicious of MM.

**Excisional biopsy**

- When melanoma is suspected.
- When the patient desires lesion removal regardless of histology.

**Partial biopsy (punch or incisional)**

- Subject to sampling error.
- When the lesion is extensive or in an anatomically important area.
- When surgery is not the treatment of choice (eg mycosis fungoides) or when surgery is not the only effective treatment (eg BCC).
- When the biopsy is used to determine the extent of lesions that are large, ill-defined or lesions known to have significant subclinical extension (eg angiosarcoma, DFSP ie dermatofibrosarcoma protuberans).

**Practical hints**

- Never inject local anaesthesia directly into the lesion.
- Avoid crushing or cauterising the specimen (which may cause artefacts).
- Take biopsy from the active areas (edge of the lesion, areas with the darkest pigmentation, the most nodular area)
- Take multiple samples if the lesion is large, polymorphic or multiple.
- It is important to document exactly where the biopsies had been taken from. This is especially important when the lesion is large or when the patient has multiple skin lesions or field changes.
- Specimen handling: Orientate specimens for the pathologist by placing marking sutures at one margin. It may also be useful to place an extra marking suture close to the important areas such as the epicanthi. Avoid dehydration of the specimens. Fix the specimens quickly with formalin. If lymphoma is suspected, send the specimen fresh to the lab immediately unless it is placed within a special transport medium.

# *Medico-legal Issues*

In a study on litigations involving skin cancer in America, the most common complaints were failure to diagnose (54%), failure to biopsy (48%) and misdiagnosis of the pathological specimens (20%).

All lesions that are clinically suspicious should be biopsied and should a patient choose not to have a biopsy (or whenever the recommended form of treatment has been declined), the reasons should be documented carefully.

It is important to arrange for follow up for patients:

- who did not have a biopsy because of low clinical suspicion
- who had a negative pathology report on a lesion which has not been excised completely and
- who had non-excisional treatment for lesions believed to be pre-malignant.

Malignant/ pre-malignant conditions mistaken as benign conditions:

- DFSP - keloid
- Amelanotic melanoma - pyogenic granuloma
- Well-differentiated SCC - keratoacanthoma
- Bowen's disease - psoriasis
- Desmoplastic melanoma - scar, dermatofibroma
- Recurrence through an old scar - hypertrophic or keloid scar.
- Extramammary Paget's disease (EMPD) - perineal eczema, psoriasis, intertrigo

The presence of signs suggestive of benign lesions cannot be used to exclude malignancy:

- A lesion with hair (the 'hair sign') is most likely to be benign but there are reports of the presence of hair in a malignant lesion.
- A slow growing lesion could still be malignant, eg BCC.
- A mobile lesion could be malignant.

An evolving skin cancer might not have the typical appearance of a skin cancer and often recurrent lesions might not have the typical appearances of the primary cancer.

An advanced skin cancer might not show the typical appearance and appears as an ulcer. Spitz naevus resembles melanoma histologically and usually occurs in childhood. Beware of a report of spitz naevus in an adult and excise the whole lesion if possible.

# STEROID CREAM

## *Relative Strengths*

**Class 1: Very Potent (up to 600 times as potent as hydrocortisone)**
Clobetasol propionate (*Univate, Dermovate*)

**Class 2: Potent (100-150 times as potent as hydrocortisone)**
Betamethasone valerate (*Uniflex*. *Betnovate*)
Diflucortolone (*Nerisone*)
Fluticasone valerate (*Cutivate*)
Methylprednisolone aceponate (*Advantan*)
Hydrocortisone 17-butyrate (*Locoid*)

**Class 3: Moderate (2-25 times as potent as hydrocortisone)**
Clobetasol butyrate (*Eumovate*)
Fluocinolone acetonide (Synalar)
Triamcinolone acetonide (*Kemacort*)

**Class 4: Mild**
Hydrocortisone 0.5-2.5%

## *Absorption*

Steroids are absorbed at different rates from different parts of the body. A steroid that works on the face may not work on the palm. But a potent steroid may cause side effects on the face. Below is an estimate of the relative absorption:

- Genital - 30%
- Eyelid – 30%
- Face - 7%
- Armpit - 4%
- Forearm - 1%
- Palm - 0.10%
- Sole - 0.05%

The risk of side effects of local steroid treatment depends on the **strength** of the steroid, the **length** of application, the **site** treated, and the nature of the dermatological **condition**. If a potent steroid cream is used on the face as a moisturiser, side effects will develop within a few weeks. If 1% hydrocortisone cream is used on the plams for 25 years, the side effects would be negligible.

In hairy areas, more potent steroid should be used as the absorption is poorer at those regions.

## *Admixtures of Creams & Ointments*

Mixing 2 creams together in 1:1 proportion dilute both creams by 50%. The recommended method of giving 2 creams to the same area is to prescribe the patient with 2 separate creams, instruct them to apply the creams one after the other with at least a 30-minute interval. There are some fixed-dose dermatological preparations in our formulary. Mixing dermatological preparations without proper testing for stability and other factors is professionally unacceptable.

# UV RADIATION & THE SKIN

The sun gives energy in the form of light waves of different lengths and intensity. Ultraviolet radiation is located just above visible light spectrum. UVR is divided into different energy levels from shortest to longest wavelengths: UVC, UVB, and UVA.

**UVC**
UVC has the shortest wavelength, the highest energy and fortunately does not penetrate the ozone layer of the atmosphere.

**UVB**
UVB is the most potent UVR that reaches the earth. UV**B** causes sun**B**urn and can predispose to skin cancers. SPF (sun protection factor) ratings measure a product's ability to block UVB rays.

**UVA**
The UVA rays, while having less energy, penetrate deepest into the skin. UV**A** causes skin **A**ging. It is the least associated with skin cancer, but if delivered in high dosages can cause skin cancer. UVA is divided into two parts, long UVA and short UVA. For all practical purposes, short UVA behaves very much like UVB. It can cause sunburn and is at least partially blocked by most sunscreens. Long UVA, however, does not cause sunburn. In fact it does not cause any sort of immediate reaction, even in pretty large doses. The SPF number provides no information about a sunscreen's UVA blocking capabilities.

## *Sunscreens*

This is one of the most important skin care products that should be used at an early age. To obtain the best protection wearing sunscreen should become a habit, just like wearing clothes.

**Physical sunscreen** usually contains zinc oxide or titanium oxide which directly reflects and scatters UVA and UVB light.

**Chemical sunscreen** against both UVA and UVB contain different constituents, namely oxybenzone, avobenzone or mexoryl for UVA and octyl methocycinnamate, octyl salicylate, phenylbenzimidazole sulfonic acid or octocrylene for UVB.

**SPF (for UVB)**
SPF 20 means that you can stay in the sun 20 times longer than without sunscreen before starting to burn. A product with SPF 5 covers 80% of sun rays; SPF 10 covers 90%; SPF 20 covers 95%; and SPF 40 covers 97.5%. Sunscreens with higher SPF values (eg > 20) carry a higher risk of blocked skin follicles. Whatever the SPF value, wearing sunscreen should not give you a false sense of security.

**PA (for UVA)**
PA is the measure of the change (darkening) in skin pigmentation after exposure to UVA rays. The indicator for measuring protection offered in a product, which is known as PFA (protection factor A), ranges on a scale from 1-8, with a protection of 1 offering the least. This is how PA ratings correspond to a product's protection capabilities against UVA: PA+ (PFA 1-3), PA++ (PFA 4-5) and PA+++ (PFA 6–8).

**Broad-spectrum protection**
The phrase indicates that a product shields against UVA as well as UVB. It does not guarantee protection against all UVA wavelengths, however. Most broad-spectrum sunscreens and sunblocks with an SPF of 15 or higher do a good job against UVB and short UVA rays; if they also contain

avobenzone (also called Parsol 1789), zinc oxide, or titanium dioxide, they should be effective against the entire UVA spectrum.

Most dermatologists recommend daily use of a broad-spectrum (UVA PA+ /UVB SPF > 15) sunscreen for optimal sun protection. In order to maximize sun protection, the product should be applied > 30 minutes before sun exposure and should be generously slathered on and rubbed into the skin. Frequent reapplication (at least every 2 hrs) is necessary, especially if a person has been swimming or sweating, to ensure that the lotion has not rubbed off. Additional makeup or powder on top of the sunscreen should not create any problem.

## *How our Skin Tans?*

Tanning takes place in the epidermis. About 5% of the cells in our epidermis are melanocytes. When exposed to UVB, melanocytes are stimulated to produce melanin. The pinkish melanin travels up through the germinative layer and is absorbed by other skin cells. When exposed to UVA, the melanin oxidizes and becomes darker.

This darkening is your skin is a way of protecting itself against too much UV light. This is called tanning, and the cells continue being pushed upward, toward the keratinized layer of the epidermis. Heredity dictates how much melanin your body's melanocytes naturally will produce, since everyone has basically the same number of melanocytes.

Since a tan occurs in the epidermis, it is eventually lost through exfoliation. Every 28-30 days, our skin completely replaces all of its cells, and the cells at the epidermis are eventually sloughed off, allowing the new cells to reach the skin's surface. When the old cells are exfoliated, they take with them the darkened melanin, thus fading the tan.

## *Indoor Tanning Equipment*

It is claimed that professional indoor tanning equipment is designed to give their clients measured amounts of ultraviolet light, and when used properly (eg under the supervision of a trained professional) one can develop a tan without burning.

In a professional salon, exposure times for every tanning session are established by a schedule present on every piece of equipment that takes into account the tanner’s skin type and the intensity of the equipment to deliver a dosage of UVR designed to minimize the risk of “sunburn”. Without specific data on how much of what radiation these machines are emitting, it is difficult to form further informed medical opinion on the subject.

# VIRAL SKIN CONDITIONS

## *Warts*

If the warts are asymptomatic, advise the patient to leave it alone as most of them will resolve spontaneously when immunity is regained. Treatment usually removes visible warts, but does not eradicate the wart virus.

In general, facial common warts are best treated by electrocautery or careful cryotherapy. Solitary, stubborn and painful warts should be treated by surgical excision.

**Topical treatment (may take up to 3 months to clear all lesions)**
Plantar warts: Podofim Wart Paint (10% salicylic acid and 20% podophyllin resin) LA qd until the wart is soft and spongy. The paint should be applied to cover the surface of the wart (but not the surrounding skin) after moistening it in hot water for at least 5 minutes. The lesion is then dried, and any dead tissue/old paint is removed with an emery board. Stop treatment and wait until the wart drops off in a few days. If it does not, repeat the above treatment. If there is no progress after regular and correct use of wart paint for 12 weeks, alternative treatment should be considered.

Genital warts: Wartec (0.5% podophyllotoxin) LA bd for 3 days. If residual warts persist, further treatment may be repeated after 7 days. If there is an incomplete response after 4 courses alternative treatment should be considered.

*Please refer to the chapter "Genital Warts" in the section "Genito-Urinary Medicine".*

Podophyllin Vs Podophyllotoxin: Podophyllin is a resin extracted from the root of the plant *Podophyllum sp Berberidaceae* (mandrake), which contains podophyllotoxin as the principal active component. Randomized control studies comparing podophyllin and podophyllotoxin found no difference between them in treating genital warts. In practice, the preparation of Podofim wart paint (containing 10% salicylic acid), while very useful in thick keratinized skin, is contraindicated in mucosal lesions such as genital warts.

**Cryosurgery (may take up to 4 months to clear all lesions)**
Warts are frozen by applying liquid nitrogen (-196 degree Celsius) every 2-3 weeks. It usually takes several applications before the warts disappear. Alternative treatment should be considered if there is no improvement after 5 sessions.

Histofreeze (-49 degree Celsius), although less potent than liquid nitrogen, is highly portable, easy to use and potentially safer. It can be effective in treating genital warts and molluscum contagiosum.

**CO2 laser**
Laser treatment is used when warts are in places that are difficult to reach, very extensive or resistant to other treatments.

**Electrocauterization / surgical excision**
This is usually indicated in extensive or resistant cases, performed under local or even general anaesthesia. In case of plantar warts, surgical excision may leave a painful scar and wart recurrence in the scar is not uncommon.

## *Molluscum Contagiosum*

This is a common viral skin infection transmitted through close contact especially in wet conditions such as when children bathe or swim together. Sexual transmission is possible in adults. Molluscum contagiosum presents as clusters of papules distributed especially in warm moist areas like armpits, groins and popliteal fossas. The lesions range in sizes from 1 to 6 mm and may be pearly white, pink or even brown. They often have a waxy look with central umbilication. As they resolve, they may become inflamed, crusted or scabby. There may be few or hundreds of spots on one individual.

Molluscum contagiosum is usually harmless but may persist for months or even years. New lesions can develop through autoinnoculation. Molluscum contagiosum tends to be more serious and last longer in children with atopic eczema.

**Treatment**
Treatment is by puncturing each papule with a sterile needle or by curettage. Wart paints may be effective. Cryotherapy, laser ablation or surgical excision may be indicated. As spontaneous resolution can occur without scarring, in many cases no specific treatment is necessary.

## *Chickenpox*

This is a highly communicable disease caused by the varicella virus occurring most frequently in winter and early spring. Virtually everyone who is not vaccinated acquires chickenpox by adulthood.

**Transmission**
Chickenpox is transmitted through direct contact, droplet or airborne spread of discharges from an infected person's nose and throat or indirectly by contact with articles freshly soiled by discharges from the infected person's lesions. A person is most able to transmit chickenpox from the first 2 days before the onset of rash until all lesions have crusted. Past infection generally results in lifelong immunity. However, this infection may remain hidden and recur years later as shingles in a proportion of older adults and sometimes in children.

**Symptoms**
They commonly appear 14-16 days (range of 10-21 days) after exposure to someone with chickenpox or herpes zoster (shingles). Initial symptoms include sudden onset of slight fever and fatigue, soon followed by an itchy vesicular rash more on covered than exposed parts of the body. The diagnosis is usual;ly made by the presence of active and healing lesions, in all stages of development, within affected locations. Chickenpox lesions characteristically heal (dry, crust over and form scabs) without scarring, although excoriation or secondary bacterial superinfection predisposes to scar formation. The disease is usually more serious in adults than in children.

**Vaccination**
Chickenpox vaccine is recommended for persons over 12 months of age. To protect high-risk newborns and immunocompromised patients from exposure, a shot of varicella zoster immune globulin (VZIG) is effective in modifying or preventing disease if given within 96 hours after exposure.

**Treatment**
(ASPIRIN OR ASPIRIN-CONTAINING PRODUCTS SHOULD NEVER BE GIVEN TO A CHILD WITH CHICKENPOX BECAUSE OF THE HIGH RISK OF REYE'S SYNDROME)
Mild attack – topical calamine lotion and symptomatic treatment
Severe attack or immunocompromised patients – oral acyclovir 20mg/kg qid for 5 days

## *Herpes Simplex*

**Herpes simplex type 1: Herpes labialis**

The virus hides in the ganglion roots of peripheral nerves and no topical treatment is effective in eradicating the virus. Treatment is mainly symptomatic, plus an acyclovir cream (Euroclovir LA 5 times a day for 5 days). Oral acyclovir (Danovir 200-400mg 5 times a day) as continuous prophylaxis may be indicated for immuno-compromised patients and those with severe recurrence.

**Herpes simplex type 2: Genital herpes**

*Please refer to the chapter "Genital Herpes" in the section "Genito-Urinary Medicine".*

# *Herpes Zoster*

In herpes zoster, the varicella-zoster virus causes the characteristic herpetic lesions similar to those in herpes simplex. While varicella represents a primary lesion, herpes zoster (shingles) represents reactivation of the virus from the dorsal root ganglion and results in the classic painful, unilateral and dermatomal vesicular-pustular eruption. Thoracic dermatome is affected in 50% of cases. It is rare in children.

**Complications**

Acute phase:

- Common - Secondary bacterial infection
- Uncommon - ocular zoster (the ophthalmic branch of the trigeminal nerve), cutaneous or visceral dissemination

Chronic phase

- Common - Post-herpetic neuralgia (especially in the elderly), scarring
- Uncommon – Motor neuropathy, post-herpetic encephalomyelitis

**Treatment**

Topical

- Acyclovir cream (Euroclovir) is of NO USE in herpes zoster.
- Topical antibiotic cream may be useful in lesions with secondary infection.

Oral

- Acyclovir (Danovir) 800mg 5x/day for 7 days has been shown to speed up recovery and prevent post-herpetic neuralgia.
- Famciclovir (Famvir) 500mg tds for 7 days and valacyclovir (Valtrex) 1,000mg tds for 7 days are good alternatives because of the tds dose regime

Intravenous

- Acyclovir (Zovirax) 50mg/kg q8h for 7 days (actual duration of treatment depending on clinical progress) for more severe, hospitalized cases.

**Postherpetic neuralgia**

- Primary treatments include tricyclic antidepressants such as amitriptyline, anticonvulsant agents such as gabapentin and pregabalin (Lyrica), and analgesics.
- Placebo-controlled trials of various antivirals have shown clear reductions in the pain and duration of postherpetic neuralgia among treated populations. Studies involving the ability of antivirals to prevent postherpetic neuralgia in any age group are inconclusive.
- The US Food and Drug Administration (FDA) recently licensed a live attenuated varicella-zoster vaccine to be used in immunocompetent adults older than 60 years because it has been shown to reduce the incidence of acute herpes zoster by >50% and a reduction in the incidence of postherpetic neuralgia of 67% in the treated population.

**Patient education**

- During the acute phase, patients are infective to others and should be instructed to avoid contact with elderly people, people who are immunocompromised, pregnant

women, or people with no history of chickenpox infection.

- Patients should be instructed to not scratch the lesions, which may predispose them to secondary bacterial infections.