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Introduction to dermatology

Part 2 – Diseases of the skin affecting the face

In the second part of our series for eye care practitioners discussing disorders of the skin, Dr Penny Thomson and Professor David Thomson describe the signs and symptoms of facial and adnexal skin disorders that may present in eye care practice. Module C13929, one general point suitable for optometrists and dispensing opticians

Skin disorders are very common, affecting 23-33 per cent of the population and accounting for 24 per cent of GP consultations in England and Wales[1] and a muti-million pound industry in over-the-counter creams and lotions. Skin disorders affecting the hands and face are often seen during an eye examination or when fitting spectacles. It is important therefore, for eye care practitioners to have a basic knowledge of skin disease and to be able to recognise conditions which may require urgent medical intervention.

Skin disorders can be broadly categorised as follows:

- Inflammatory skin conditions
- Infective skin conditions
- Disorders of the sebaceous glands
- Hair disorders
- Pigmentary disorders
- Blistering disorders
- Skin tumours.

In this article, we shall briefly consider the pathology, symptoms, signs and treatment of common non-cancerous skin conditions. Benign and malignant skin tumours will be discussed in the next article in this series.

Inflammatory skin conditions

Eczema (or dermatitis) is a common inflammatory skin condition which can be acute or chronic. It occurs in all age groups and can take various forms including atopic eczema, seborrhoeic dermatitis and allergic contact dermatitis.

- Atopic eczema (AE) usually presents in young children and is often associated with the other atopic diseases: asthma and hay-fever. Approximately 20 per cent of children worldwide are believed to suffer from AE and the prevalence appears to be increasing.[1] The acute presentation of AE is of weepy, red areas of skin which are very itchy and often located in the skin flexures. The itching can be severe and lead to sleep disturbance and irritability. The precise pathogenesis is poorly understood but it is thought to relate to an interplay between genetic and environmental agents leading to over stimulation of the inflammatory pathways in the skin. Environmental agents that are often implicated include the house dust mite, tree and grass pollens and possibly ingested allergens such as cow's milk. Longstanding eczema is characterised by patches of dry and scaly skin which becomes increasingly thick and leathery (lichenification) due to persistent scratching. AE is usually treated by the frequent application of copious quantities of moisturisers to the affected areas, avoidance of soaps and detergents and the use of a soap substitute. The use of topical steroids to the inflamed areas helps to reduce the inflammation. Mild topical steroids are usually safe to use for a limited period, but more potent topical steroids have side-effects such as thinning of the skin and risk of absorption if used for prolonged periods. In children over the age of two years, topical steroids may be substituted by a topical calcineurin inhibitor which, again, acts to down-regulate the inflammatory pathways. An oral antihistamine can also be useful to ameliorate the itching.

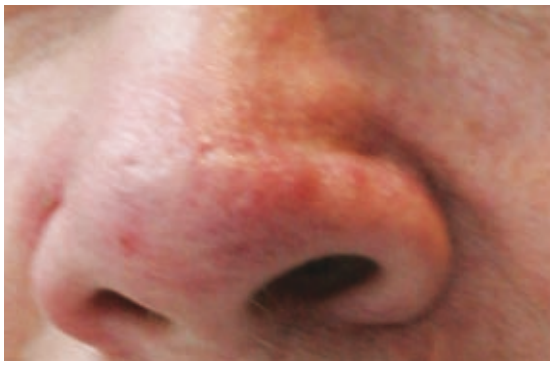

Figure 1 Seborrhoeic dermatitis

- Seborrhoeic dermatitis is caused by an immunological response to the commensual skin yeast: malassezia furfur. This condition particularly affects the nasolabial folds of the face (Figure 1) and the eyebrows. It is often associated with an itchy, scaly scalp (dandruff) and may affect the eyelid margins, causing blepharitis. It appears in all age groups but is particularly common in young adults. Treatment involves the application of topical anti-yeast preparations and mild topical steroids (often in combination). The scaly scalp is managed using an anti-yeast shampoo. Many anti-yeast products (creams and shampoos) can be purchased over the counter without a prescription. Blepharitis should be treated by meticulous attention to eyelid margin hygiene. Topical steroids applied sparingly, topical antibiotics, and topical anti-yeast preparations may also be helpful.
- Allergic contact dermatitis is usually manifest as an acute eczema. Nickel, a common constituent in costume jewellery, coins, cutlery, watches, metal zips and spectacle frames, is a common contact allergen. The eczema usually appears at the point of contact with the offending allergen. Eye care practitioners are most likely to encounter allergic contact dermatitis in the following scenarios:

– Allergic contact reaction to an eye ointment (either the active ingredient or the preservative) causing acute eczema in the skin around the eye

In response to tree or grass pollens causing red, itchy, watery eyes and sometimes eczema in the skin around the eyes

– In response to hair dyes causing acute eczema on the face and neck

– Dermatitis on the eyelids due to the patient touching an allergen and then transferring this to the face, eg allergy to nail polish often presents as a rash on the eyelids

– In response to contact with spectacle frames containing nickel.[2]

The primary management of allergic contact dermatitis is withdrawal of the offending allergen. The skin inflammation can be soothed with regular application of a bland emollient cream and possibly a topical steroid. If the allergic contact dermatitis reaction is severe, a short course of oral steroids may be required to limit the inflammation, swelling and pain. An oral antihistamine may be helpful if itchiness is a dominant feature and an oral antibiotic may be prescribed if secondary bacterial infection is suspected.

Plaque psoriasis is another chronic, inflammatory skin condition characterised by pink-red, scaly plaques occurring particularly over the elbows and knees. It is often associated with scaling around the scalp hair margins. Psoriasis affects approximately 1.5 per cent of the population in the UK[2] and it can occur at any age. There is often a positive family history and patients may have associated joint involvement.

Involvement of the skin around the eye is not common in psoriasis, but when it does occur in this site, the skin can be sore and uncomfortable. Good eye hygiene is important and the application of bland emollients can help. Mild to moderately potent topical steroids or topical calcineurin inhibitors are sometimes prescribed but using potent topical steroids around the eye requires extreme caution as the skin is very thin here and the steroid can be easily absorbed. Prolonged use of topical steroids around the eye also carries the risk of ocular complications such as glaucoma and cataracts, so patients in this category should be reviewed regularly by an ophthalmologist.[3]

Infective skin conditions

The skin can become infected with a variety of bacteria, viruses and fungi, resulting in inflammatory changes.

- Impetigo is a superficial bacterial skin infection usually caused by Staphylococcus aureus or Streptococcus species. Impetigo may present as small blisters on a background of red inflamed skin, sometimes with golden crusting. Other skin conditions, such as atopic eczema, can become impetiginised with these bacteria and the treatment is with topical antibiotic preparations and sometimes with a course of oral antibiotics.
- Erysipelas is a deeper infection (in the dermis) which can be caused by a variety of bacteria but often Streptococcus pyogenes. This condition presents as a well demarcated, red area that is painful, swollen and often located on the face. The patient often feels unwell with flu-like symptoms and there is a risk of septicaemia. If this occurs, the patient needs urgent medical treatment with oral or intravenous antibiotics.
- Cellulitis is a bacterial infection affecting even deeper tissue – the subcutaneous tissue. Peri-orbital cellulitis is more common in young children and is often associated with an upper respiratory tract infection.
- Herpes simplex is a viral infection which presents as a patch of small, painful blisters. Infection is often around the mouth where it is commonly known as a cold sore but it can present anywhere on the body including the cornea. Type 1 herpes simplex is usually contracted in childhood and affects non-genital skin whereas Type 2 herpes simplex is more likely to be acquired after sexual contact in young adults. Recurrent infections are common and often occur in the same site. Treatment is with topical or oral anti-viral agents.
- Herpes zoster is caused by re-activation of the chicken-pox virus which has lain dormant in the dorsal root ganglia of the spinal cord since the first illness. Pain or irritation may be felt in the skin 3-5 days before the rash appears. The rash typically consists of small, painful blisters appearing in crops along the path of the skin nerve. The patients are usually elderly and the ophthalmic division of the trigeminal nerve is involved in 10-25 per cent of cases. The appearance of herpes zoster vesicles on the tip and side of the nose (Hutchinson's sign) should alert the clinician to the likelihood of ocular involvement. Ocular complications of herpes zoster include keratitis, iritis, neuralgia and tissue scarring, leading to eyelid deformities.
- Fungal infections can appear anywhere on the skin, although they are not particularly common on the face. There are two main groups of fungus: dermatophytes and yeasts. Dermatophyte infections are superficial, infecting the stratum corneum and produce red, scaly, annular patches which are commonly called ringworm. These fungal infections can be contracted from person-to-person contact or from infected animals. Many yeast infections are caused by Candida albicans which lives in the intestines without doing any harm. However, it can infect the skin if there are predisposing features such as immunosuppression in the host or following the use of oral antibiotics. Oral and genital thrush may then occur as white patches which can be itchy or irritating. There are a variety of anti-fungal creams which can be used to treat these infections and again topical imidazoles such as clotrimazole can be purchased over the counter without a prescription.

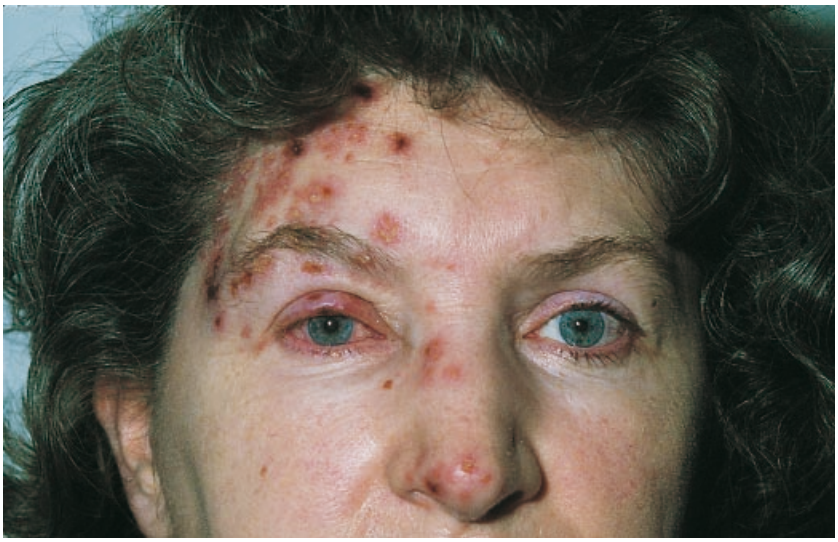

Figure 2 Hutchinson's sign. Image courtesy of J Kanski, Clinical Ophthalmology 4th edition Butterworth-Heinemann

Disorders of the sebaceous glands

- Acne is characterised by the presence of blackheads and whiteheads, pustules, cysts and often scarring. Acne tends to affect the face, chest and upper back, areas of the skin where the sebaceous glands are prominent. The condition is caused by overproduction of sebum from the sebaceous glands combined with inflammation in these glands

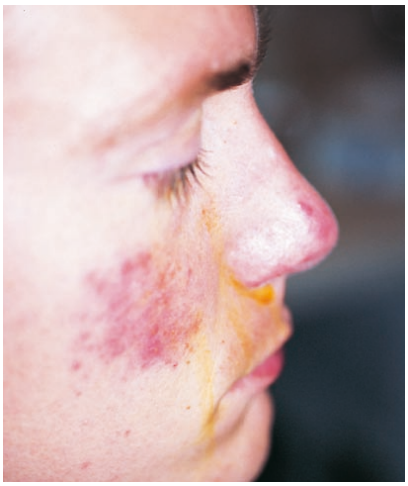

Figure 3 Acne rosacea

Images courtesy of J Kanski, Clinical Ophthalmology 4th edition Butterworth-Heinemann

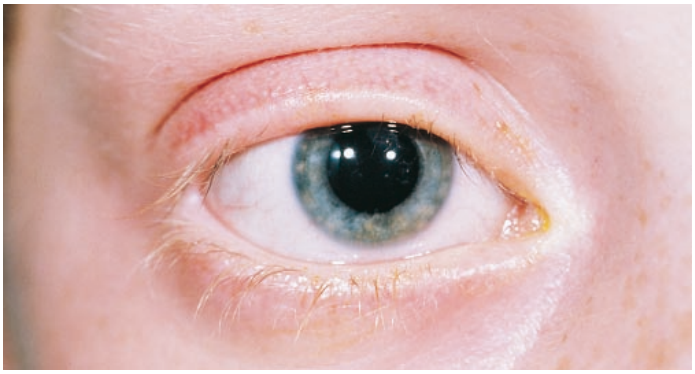

Figure 4 Alopecia of the lashes (Madarosis)

caused by the bacterium Propionobacterium acnes. In addition, there are often abnormalities of the opening of the sebaceous glands onto the skin which can then become blocked, forming microcomedones (blackheads and whiteheads). Many of these changes are under hormonal control, particularly by testosterone (which is produced by men and women) and explains why there is an increased incidence of acne at puberty.

Common treatments include oral and topical antibiotics and retinoids. More severe or persistent acne is treated with the oral retinoid: isotretinoin. This drug dries up the secretion of sebum and has antibiotic and anti-inflammatory properties. However, side-effects include dry lips and eyes, and patients taking this medication may require artificial tear solutions and experience contact lens intolerance.

- Rosacea is an inflammatory skin condition of unknown aetiology. It manifests as pustules on the face with a background of redness and telangiectasia (small dilated blood vessels) Figure 3. Rosacea can affect the eyelid margins, presenting with redness, itching or a gritty feeling. Rosacea can be aggravated by sun exposure and the use of topical steroid creams. There is some evidence that caffeinated drinks, hot spicy foods and alcohol can exacerbate the condition. Treatments for rosacea include avoidance of precipitating factors and a course of oral antibiotics, usually from the tetracycline group. A recent study has shown that treatment with oral doxycycline can help the ocular symptoms.[4] Topical antibiotic creams and simple un-perfumed moisturiser can also be helpful.

Hair disorders

Alopecia areata is an auto-immune condition in which the hair follicles are destroyed, leading to patches of hair loss, usually on the scalp but sometimes involving other hair-bearing sites including the eyelashes (Figure 4) and eyebrows (Madarosis). Where there is isolated loss of eyelashes, the main differential diagnosis is with

trichotillomania, a skin condition in which the patient is actually pulling the lashes out. In alopecia areata of the eyelashes, treatment with topical latanoprostlotion once daily has proved to be effective in some cases.

Pigmentary disorders

Albinism is an inherited autosomal recessive condition where there is little or no pigment production. The problem can involve the eyes alone or there can be concomitant skin involvement. Typically, patients have pale, white skin which is very sensitive to sun damage. Skin cancer is a risk, particularly for individuals living in sunny climates. The effects on the eye are well-documented and outside the scope of this article but include photophobia, reduced acuity and nystagmus.

Vitiligo is an acquired condition that affects approximately 1 per cent of the population. It is characterised by destruction of the melanocytes resulting in patchy depigmentation of the skin particularly around orifices such as the mouth and eyes and in skin creases, and the areas of skin subject to trauma such as elbows and knees. It is often symmetrical in distribution. It can occur at any age but 50 per cent of cases are seen before the age of 20 years. It is very distressing especially when it occurs in pigmented skin. Treatments are not particularly successful but include topical steroids, UV light treatment and also camouflage of the affected areas which can be offered by the Red Cross Camouflage Clinics found in many hospital departments.

Blistering disorders

- Pemphigus is an uncommon autoimmune disorder which is more prevalent in patients in their 50-60s. Superficial blisters are present which are easily traumatised, leaving eroded areas of skin. Often mucous membranes are affected especially in the mouth. The condition is caused by antibodies directed at the intercellular connections in the epidermis which are destroyed, allowing the cells in the epidermis to fall apart. This condition can be life-threatening and patients often need large doses of oral steroids and other immunosuppressive drugs to control the disease.
- Pemphigoid is another autoimmune disease where the antibodies are directed against a protein component of the hemidesmosomes that join the epidermis to the dermis at the basement membrane. The epidermis is then separated from the dermis and clinically, tense blisters are seen on the skin and less often the mucous membranes. This condition tends to affect older patients and often burns itself out after a few years. However, topical and oral steroids and other immunosuppressive drugs may again be required.

Cicatricial pemphigoid particularly affects the eye and may present as pain and conjunctivitis. There may be erosions on the conjunctiva and late complications include entropion.

The psychological effects of skin disorders

Patients with skin problems often suffer from psychological problems ranging from low self-esteem to acute depression. Conditions affecting the face are particularly problematic in this respect given the inability to conceal the problem and the importance of the face in communication.[5]

Some skin conditions result from underlying psychological conditions. Trichotillomania (hair pulling) and dermatitis artifacta are examples of self-harming and require referral to a psychodermatologist. Some patients suffer from body dysmorphic syndrome where they have an exaggerated perception of the severity of their skin problem This is a not uncommon problem in teenagers with acne but again can lead to loss of confidence, anxiety and depression.

In the next article we will discuss benign and malignant skin tumours.

MULTIPLE-CHOICE QUESTIONS – take part at opticianonline.net

1 What proportion of children globally are thought to present with atopic eczema?
A 1 per cent
B 5 per cent
C 10 per cent
D 20 per cent

2 Seborrhoeic dermatitis is caused by an immunological response to which of the following?
A A bacterium
B A yeast
C A virus
D It is an autoimmune response

3 Which of the following is a common trigger for allergic contact dermatitis in spectacle wearers?
A Nickel
B Copper
C Zinc
D Iron

4 What is the significance of Hutchinson's sign?
A It indicates the potential for ocular involvement with zoster
B It is indicative of the severity of infection
C It indicates herpes simplex infection
D It suggests atopy

5 Which of the following is useful to treat rosacea?
A Topical mast cell stabilisers
B Neutral emollient
C Topical tetracyclines
D Oral tetracyclines

6 Which of the following is true regarding pemphigus?
A It results in symblepharon
B It may be life-threatening
C It particularly affects the eye
D It leads to ectropion

Successful participation in this module counts as one credit towards the GOC CET scheme administered by Vantage and one towards the Association of Optometrists Ireland's scheme. The deadline for responses is June 17 2010

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