General medicine and surgery for dental practitioners.

Part 3 – skin disorders part A

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IN BRIEF

- A dentist should have a sound knowledge of skin disorders, particularly those which have oral manifestations.
- History and examination (lesion recognition) is important.
- Some of the treatments for skin disorders, particularly steroid treatment, may impact on dental treatment and should be borne in mind.

PRACTICE

Skin disorders are potentially important to dentists in diverse ways. The skin disease itself might have oral manifestations, and drugs used to treat skin disorders may impact on dental management. This first paper considering skin disorders examines points to look out for in the history and considers specific groups of conditions. Further conditions will be discussed in part B.

INTRODUCTION

The skin is subject to a number of disorders that can arise as a result of external insults such as trauma and infection, internal factors due to systemic disease, and disorders specific to the skin itself. Skin disorders can be congenital, developmental or acquired.

As areas of the skin such as the hands and face are visible, they can be easily examined in the clothed patient. Some skin conditions may present with oral manifestations that can occur either simultaneously or precede the main dermatological features.

This consideration of dermatology is divided into two papers. The first concentrates on general principles. In addition, the conditions summarised in the first part of Table 1 are considered. Further disorders (the second part of Table 1) will be discussed in Part 4 of this series.

Dermatology is a descriptive subject with an extensive range and variety of conditions that often appear clinically very similar and can only be differentiated histologically. Table 2 gives some of the commonly used terms and definitions used to describe skin conditions.

POINTS IN THE HISTORY

Patients with skin conditions present in a variety of ways. Such presentations can include the appearance (or change in appearance) of a lesion, a rash or an

Table 1 Broad categories that can be applied to skin disorders

- Lumps and bumps
- Malignant conditions
- Rashes
- Collagen vascular diseases
- Blistering disorders*
- Skin infections*
- Disorders of hair*
- Disorders of pigmentation.*

*Considered in Part 4

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Refereed Paper

Accepted 17 February 2010

DOI: 10.1038/sj.bdj.2010.448

©British Dental Journal 2010; 208: 453–457

Table 2 Examination and description of a skin rash

Macule	An area of discolouration. May be more red or paler than the surrounding skin, or may be a different colour, eg blue
Papule	A small raised area. A maculopapular rash is both raised and discoloured
Nodule	A firm papule (more than 0.5 cm diameter)
Vesicle	A small blister (less than 0.5 cm diameter)
Bulla	A large blister (more than 0.5 cm diameter)
Pustule	A papule that contains pus
Erythema	Redness due to increased perfusion of the skin
Scale	A flake of easily detached keratin
Crust	An accumulation of dried exudate
Atrophy	Thinning of skin, often with loss of skin markings and increased translucency
Sclerosis	An induration of the dermis, usually due to increased collagen
Excoriation	A scratch mark
Ulcer	A breach in the epidermis, which may range from a small superficial erosion to a massive defect of skin and underlying tissue

itch – the latter can vary from being a minor nuisance to a debilitating problem interfering with sleep. In addition, itching usually leads to scratching with resultant damage to the skin, pain, secondary infection and scarring. In some instances the skin disorder may be asymptomatic and the patient only presents after it is pointed out to them.

A thorough history is essential to making a diagnosis; this includes relevant past medical history and systemic enquiry. For skin conditions, the history should include specific questions about onset, any change in appearance over time, exacerbating and relieving factors and possible causative factors such as contact with potential infection or allergens; details about occupation and exposure to ultraviolet light (sunlight or sun-beds) (Table 3) are also important.

As many skin conditions, such as atopic eczema and psoriasis, have a genetic element, a family history should be included. When considering rashes, their spread and distribution over the body is an important feature, as many have a characteristic pattern. When oral mucosa is involved, tactful questioning about lesions of the genital and conjunctival mucosa should be made.

CATEGORISATION OF SKIN DISORDERS

A categorisation of skin disorders is given in Table 1, and these are discussed below and continued in Part 4.

1. Lumps and bumps

Basal cell papilloma (seborrhoeic wart) is a pigmented lesion which commonly occurs in the elderly (Fig. 1). It has a characteristic warty surface, often with a greasy appearance. It is unrelated to the more aggressive basal cell carcinoma and treatment is usually for cosmetic purposes using either surgical removal or cryotherapy.

Keratoacanthoma is a rapidly growing lesion which develops into a dome shaped lump with a central keratin filled crater (Fig. 2). The lesion can resemble a squamous cell carcinoma but may resolve spontaneously.

Pyogenic granuloma usually presents as a rapidly developing red lump that bleeds readily when touched (Fig. 3). In many cases there is a history of trauma to the

Table 3 Points in the history of a patient with a skin disorder

- Onset
- Change in appearance over time
- Exacerbating or relieving factors
- Possible causative factors:
 - Infections
 - Allergen contact
 - Exposure to ultraviolet light (sunshine or sun beds)
- If a rash, is it itchy?
- Past medical history
- Systemic enquiry
- Family history.

area before the appearance of the lump and it actually represents excess production of granulation tissue. These lesions are usually either surgically removed or treated with cryotherapy.

Epidermoid cyst is a common cystic lesion of the scalp, filled with a cheesy keratinous material. These lesions are commonly called sebaceous cysts although this term is a misnomer. The usual treatment is surgical removal.

2. Vascular anomalies

There are a number of vascular anomalies that can affect the skin and all can be identified as having a vascular nature by blanching on pressure. **Campbell de Morgan spots** are small capillary haemangiomas that occur on the trunk with increasing age and are of no significance. They should not, however, be confused with **hereditary haemorrhagic telangiectasia (HHT)**, which as the name implies has a genetic factor and can present with numerous red 'spots' around the lips as well as in other areas. HHT can lead to extensive bleeding from the nasal passages and bowel leading to iron deficiency anaemia. As a result, individual lesions may need to be cauterised.

'Port-wine stain' is a more extensive capillary haemangioma that is present at birth and can cause a considerable cosmetic problem. They can be treated by laser,¹ however some resort to cosmetic camouflage. Lesions on the face are occasionally associated with vascular malformations in the brain and resultant epilepsy. It is worth considering that lesions affecting the mandible or maxilla may extend into the adjacent bone and could pose a problem with dental extractions in the area. In such cases a pre-operative radiograph should be taken and if involvement

Fig. 1 Basal cell papilloma

Fig. 2 Keratoacanthoma

Fig. 3 Pyogenic granuloma

Fig. 4 Basal cell carcinoma ('rodent ulcer')

Fig. 5 Squamous cell cancer of lower lip

is shown, referral for angiography should be arranged.

Strawberry naevus is a term used to describe a vascular malformation that presents in infancy as a raised red lump. Such lesions initially appear to enlarge but eventually regress and consequently treatment should, if possible, be deferred until adolescence.

3. Malignant conditions

The most important factor predisposing to malignancy of the skin is ultraviolet radiation, and most cutaneous malignancy occurs on parts of the body exposed to light. As well as producing damage to genes, ultraviolet light may cause immunosuppression and this may be implicated in its role in carcinogenesis.² Other causes of skin cancer include X-rays, chemicals (eg arsenic and benzpyrene) and genetic factors. Lesions in this group include basal cell carcinoma and squamous cell carcinoma.

Basal cell carcinoma ('rodent ulcer') characteristically appears as a pearly papule that enlarges slowly and then ulcerates to form an ulcer with a rolled edge (Fig. 4). Although these lesions do not metastasise, they are locally aggressive and destructive and require prompt

Fig. 6 Malignant melanoma of hard palate

Table 4 Factors suggestive of possible malignancy in a pigmented lesion

- Progressive enlargement
- Colour change
- Spread of pigment beyond the edges of the lesion
- Bleeding, itching or inflammation.

referral. Treatment is usually surgical excision, although some lesions can be treated with radiotherapy.

Squamous cell carcinoma (SCC) often arises on skin that shows evidence of sun induced degenerative changes (eg solar elastosis or keratosis). The lesion may present as an indurated lump or an ulcer with a firm base (Fig. 5). Lesions require surgical excision and careful follow up. Affected patients need advice on limiting future exposure to ultraviolet light and need to be aware of changes in other areas of pre-existing solar damaged skin. **Bowen's disease** is a patch of non-invasive squamous cell carcinoma. It may mimic psoriasis and has a relatively good prognosis.

Melanotic lesions of the skin are common and represent collections of melanocytes within the epidermis, dermis or sub-dermal tissues. A variety of descriptive terms are used depending on the clinical appearance and histological distribution of the melanocytes, but all are commonly referred to as 'moles'. **Melanocytic naevus** (intradermal naevus) is due to melanocytes congregating in the dermis. They may develop at any time, but commonly enlarge during puberty or pregnancy. They may be variably pigmented, flat or raised, hairy or

hairless. They are essentially a cosmetic defect and rarely become malignant.

Malignant melanoma originates from melanocytes and may arise in a pre-existing mole or in otherwise normal skin or oral mucosa (Fig. 6). Factors that raise suspicion of malignant change in a pre-existing pigmented lesion include progressive enlargement, colour change, spread of pigment beyond the edge of the lesion, bleeding, itching or inflammation (Table 4). Any such changes require urgent referral as malignant melanomas have a propensity to metastasise widely at a relatively early stage. Treatment is usually surgical excision with a wide margin and careful follow up.

4. Rashes

Rashes are common. Most have a short duration and accompany viral infections, especially in childhood. A few are the main manifestation of the illness, such as in chickenpox, rubella (German measles) or measles. In this section the non-infectious causes of rashes are considered.

Eczema is a distinctive inflammation of the skin in which the prickle cells of the epidermis become separated from each other by oedema fluid. Eczema is characterised by severe itching and erythema, with a variable degree of papule formation, vesiculation, scaling and weeping.

Eczema can be divided into two main types: exogenous, due to an external cause, and endogenous, due to either an internal or unknown cause.

Exogenous eczema includes:

- **Primary irritant eczema** – arises as a result of irritants such as caustics, mineral oils and detergents. Occupational hand eczema is often due to regular contact with these chemicals
- **Allergic contact dermatitis** is due to a Type IV (delayed) hypersensitivity reaction and may develop to a variety of substances such as nickel, rubber and dyes (discussed further in Part 4).

Endogenous eczema usually begins in infancy and tends to clear during childhood. Severe cases can be life-long. In many instances there is a family history and the condition may be associated with hay fever, urticaria and asthma ('atopic' patients). It is an interesting observation that in such patients when their

eczema is bad, their asthma improves and *vice versa*.

Most affected individuals can control their skin condition with topical emollients and intermittent topical steroids and only in a few cases are systemic steroids required. Courses are usually kept for as brief as time as possible. In addition to conventional therapy a number of atopic patients could be using various complementary therapies, which may be self-prescribed. It is known that some of these, in particular herbal remedies, can interfere with medication such as antibiotics and it is worth checking what the patient is using before issuing a prescription.

Seborrhoeic dermatitis is an ill-defined type of eczema, classically causing dandruff, scaly eyebrows, redness of the nasolabial folds and patches of red rash over the sternum and in the body folds. Some patients have a greasy skin, but the term 'seborrhoeic' is probably a misnomer. Although the exact cause of this condition is unknown, the role of *Pityrosporum* yeasts has been recently emphasised. The condition is usually controlled with topical steroids, tar-based products and antifungal medication.

Varicose eczema affects the lower leg and is due to venous stasis. The affected skin often becomes irritable and pigmented. The affected area can readily ulcerate following often mild trauma. Management is usually symptomatic.

Psoriasis is a common inflammatory skin disease with well-demarcated patches of red skin covered with thick white scales (Fig. 7). The most commonly affected areas are the extensor surfaces, knees, elbows and base of spine. There are a number of recognised subtypes but apart from the scalp, the face is rarely affected. The exact cause of psoriasis remains unknown, although in a number of cases there is a strong family history.

The basic abnormality in psoriasis appears to be an increased rate of epidermal regeneration of the affected skin. Some patients develop an associated arthritis (psoriatic arthropathy) and pitting of the finger nails. Psoriasis can range from being a minor nuisance to a life-threatening incapacity. There are numerous therapies advocated for psoriasis, which depend on the severity of the condition but include topical coal tar preparations, steroids, ultraviolet

radiation and systemic treatments such as retinoids (vitamin A analogues).

Acne vulgaris is a common disease of adolescence and is characterised by greasy skin (seborrhoea), blackheads (comedones), papules and pustules. In addition, there may be deep-seated cysts which tend to leave pitted scars. Lesions start on the face and may spread to the shoulders, back and chest. The condition starts around puberty, when sebaceous glands become active due to androgenic stimulation. Colonisation with anaerobic diphtheroids follows, which break down the sebum to free fatty acids causing comedone formation. The exact cause of the subsequent inflammation is unknown. Antibiotics such as tetracycline decrease the bacterial count and suppress inflammation.

Acne rosacea is a skin disorder of the middle aged and elderly characterised by redness, papules and pustules of the face, a tendency to facial flushing and telangiectasia. The condition is exacerbated by sunlight and heat and can be distinguished from acne vulgaris by the absence of comedones and scarring. The exact cause of the condition is unknown and treatment is similar as for acne vulgaris.

Lichen planus is a disorder of unknown aetiology. It is characterised by flat topped, violaceous papules which are extremely itchy (Fig. 8). The most common sites affected are the flexor surfaces of the wrists, the shins and midriff; the face is rarely involved. The oral mucosa is frequently affected with white streaks, often with a reticulate pattern and is predominantly found on the buccal mucosa and lateral margins of the tongue (Fig. 8) although a number of different clinical features may be present.³ The oral lesions may become erosive and painful and chronic cases have a slightly increased risk of malignant transformation.

The natural history of lichen planus is for gradual resolution over 18 months to two years leaving residual pigmented macules. However, oral involvement can take much longer to resolve and can last for years. Treatment depends on severity and usually involves topical steroids⁴ with only the more severe cases requiring systemic treatment. More intractable disease can respond to specific immunomodulating drugs such as ciclosporin or tacrolimus.

Urticaria is a blotchy rash, characterised

Fig. 7 Psoriasis

Fig. 8 The skin and oral lesions of lichen planus

by wheals, erythema and itching. It usually develops rapidly, fading within 24 hours. The condition is a result of histamine release from mast cells increasing capillary permeability and giving a red axon flare. It is often due to a Type I hypersensitivity reaction to a specific food (for example, shellfish), food additives or drugs. In many cases no specific trigger is found and treatment is symptomatic with either avoidance of the trigger substance or antihistamines.

Angio-oedema is a similar condition to urticaria but the increased capillary permeability occurs at a deeper level, with swelling of the subcutaneous tissues. It most commonly affects the eyelids and lips. Rarely, it may cause respiratory obstruction due to laryngeal oedema in which case the condition becomes a medical emergency requiring the immediate use

of intramuscular adrenaline, otherwise the condition is managed in the same way as urticaria.

It should be remembered that cases due to a Type I hypersensitivity can have an exaggerated response on subsequent contact with the provoking allergen and can develop a potentially fatal anaphylaxis. In view of such a possibility affected patients are advised to carry an emergency supply of adrenaline for self-administration in an 'EpiPen®'.

A similar presentation to angio-oedema can arise due a genetic disorder in which a component of the control of the complement cascade is missing (C1 esterase inhibitor) with the result that minor trauma, including possible tissue handling during dental treatment, can provoke an inflammatory response with localised oedematous swelling. This condition is usually much less severe than its hypersensitivity counterpart and episodes settle without the need for intervention.

5. Collagen vascular diseases

Lupus erythematosus (LE) is an autoimmune disorder in which antibodies are directed against the skin. It can present in two forms, discoid LE and systemic LE.

Discoid LE (DLE) is a disease confined to the skin, although antinuclear factor may be present in the blood. The rash is characterised by disc shaped areas of redness with scaling and atrophy and mainly affects the sun-exposed areas of the skin, including the face. The condition is exacerbated by sunlight and consequently is worse during the summer months. About 5% of affected patients progress to the systemic form.

In systemic LE (SLE) the rash tends to be nonspecific, though classically patients

develop a 'butterfly' distribution over the cheeks and bridge of nose, reflecting the photosensitive nature of the condition. The systemic changes are variable but may include pyrexia, malaise, arthralgia, pleurisy, pericarditis, renal failure and neuropsychiatric involvement. Both DLE and SLE require specialist treatment. Such treatment often involves protracted courses of systemic steroids and steroid sparing immunomodulating medication such as methotrexate.

DLE and SLE can produce oral lesions which vary from non-specific mucosal ulceration to lesions with a lichenoid appearance. There is also an association between SLE and the development of dry eyes and dry mouth (Sjögren's syndrome) with oral consequences such as increased rate of dental caries, periodontal disease and secondary Candidal infection.

Systemic sclerosis is a chronic and ultimately fatal condition often presenting with Raynaud's phenomenon (painful vascular spasm of the extremities, usually fingers, triggered by cold) some years before an insidious induration of the skin develops. Facial changes are pathognomic and include immobile 'bound down' skin, small mouth with radial furrows and loss of bulk in the nasal alae – the result giving a taught, smooth skinned appearance. More systemic (and potentially fatal) involvement includes pulmonary fibrosis, loss of oesophageal peristalsis, renal failure and in the latter stages, progressive digital ischaemia with gangrene, ulceration and loss of digits.

Dermatomyositis is an autoimmune inflammatory disorder affecting skin and muscle. The rash is non-specific, but a violaceous rash of the eyelids and red plaques

over the knuckles suggest the diagnosis. A progressive proximal myopathy causes difficulty in climbing steps and eventually limits mobility. The disorder is associated with internal malignancy in 50% of middle-aged patients. A similar condition seen in children does not have the same association with malignancy.

Polyarteritis nodosa is an autoimmune disorder resulting in a necrotising vasculitis occurring in medium sized arteries. Any organ may be affected but the skin involvement includes a blotchy reticulate cyanosis (livedo reticularis), haemorrhagic blisters and irregular punched-out ulcers. There are many milder forms of vasculitis affecting smaller vessels only, with lesions confined to the skin. Some of these disorders are a result of circulating immune complexes.

CONCLUSIONS

There are several skin conditions which can be encountered by dental practitioners. Some may be incidental findings but others may be part of the oral condition. A thorough history and examination is important in every case.

On occasion, treatments being received for the skin condition may have a direct impact on dental management. This, together with further skin conditions will be considered in Part 4.

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