Hair and nails are elements of dermatology that can often be omitted from the dermatological assessment. However, there are common and distressing hair and nail conditions that require diagnosis and management.

**Objective**
This article considers common and important hair and nail presentations to general practice. General and specific conditions will be discussed.

**Discussion**
Hair conditions may have significant psychological implications. This article considers assessment and management of conditions of too much hair, hair loss or hair in the wrong places. It also considers the common nail conditions seen in general practice and provides a guide to diagnosis and management.

**Keywords:** nail diseases; hair diseases; hirsutism; alopecia; onychomycosis; skin diseases

The hair and nails are often neglected in our dermatological assessments, as the sheer number and breadth of conditions affecting the skin can seem overwhelming. This article focuses on common and important presentations to general practice, including general and specific conditions affecting both hair and nails.

**Hair**

**Structure and function**
Although hair no longer has any vital physiological function, its social and psychological role is extremely important. Abnormalities of hair often significantly affect self image and the associated psychological distress should not be ignored or dismissed.

Hair arises from the hair matrix (part of the epidermis) and is made up of modified keratin. In humans, hair follicles show intermittent activity. Over its lifecycle, each hair grows to a maximum length (this phase is called anagen and can last 3–7 years), and is retained for a short time without further growth (catagen, this phase lasts from a few days to 2 weeks), and is eventually shed and replaced (telogen, variable period) by a new anagen phase (Figure 1).

**Hypertrichosis – too much hair**
Hypertrichosis can be congenital (eg. trisomy 18 and porphyria) or acquired (eg. thyroid conditions, fetal alcohol syndrome, malnutrition), and refers to excessive hair growth which may be localised or universal (Figure 2). Two important considerations are iatrogenic causes such as certain drugs (eg. cortisone, penicillamine, psoralens, phenytoin, diazoxide, minoxidil, cyclosporine, streptomycin), and repeated or chronic dermal inflammation (eg. chronic rubbing, burns).

**Hirsutism – hair in the wrong spot**
Hirsutism is when a woman’s body hair is in the same pattern as normal postpubertal males, ie. hair in the midline involving the lip, chin and sternum, and male pattern of pubic hair that rises up toward the umbilicus (Figure 3). Hirsutism varies in severity, and its acceptability is influenced by cultural and social factors.

Assessment of a hirsute patient should include a general examination to identify an underlying endocrine abnormality (such as polycystic ovarian syndrome or congenital adrenal hyperplasia), particularly if there is a history associated with amenorrhea and signs of virilisation, although there is debate about how far to
investigate patients with hirsutism. It has been suggested that morning blood testosterone concentration should be measured when the hirsutism is severe, combined with menstrual irregularities, of recent onset or combined with virilisation.

Treatment of both hypertrichosis and hirsutism is directed at the underlying cause (eg. ceasing a drug, treating thyroid condition) where possible. Hyperandrogenic hirsutism may also respond to cyproterone acetate and spironolactone. Symptomatic options include bleaching agents, depilatory creams, shaving, waxing and electrolysis.

Alopecia – diffuse

Hair loss may be the primary reason for presenting to a general practitioner. Assessment should include whether the hair loss is diffuse or circumscribed, in addition to whether the scalp skin is also affected.

Androgenic alopecia

Androgenic alopecia is often referred to as ‘male pattern baldness’. In males, the typical pattern is of recession of the frontotemporal hair with progression to affect the vertex. While this condition affects mainly men (50% of males by the age of 50 years), one shouldn’t forget the impact this condition has on the smaller proportion of female sufferers (where the pattern usually is confined to the vertex) which occurs more commonly after menopause. The scalp is unaffected (Figure 4).

Causes of androgenic alopecia appear to be multifactorial and are generally triggered by a genetically determined androgenic sensitivity of the hair. This leads to a reversal of the usual long anagen/short telogen phase of the hair cycle, resulting in increasingly shorter and finer hair growth which eventually transforms into vellus-type hair. While most sufferers are androgenically normal (for their gender), it is worth considering assessing clinically for signs of androgen excess such as acne, hirsutism, irregular menses or virilisation, and if present, blood testing is indicated.

Options for treatment of this common cause of baldness include surgical (eg. hair transplantation), cosmetic (wigs, hair styling), or medical (topical minoxidil or oral finasteride) measures. Improvements from medical treatments are only sustained for the duration of treatment, so it is important to explore the patient’s expectations of treatment when discussing these options.

Telogen effluvium

Telogen effluvium is a transient condition that often occurs 2–4 months following a physically or psychologically stressful event. The event, which could range from surgical stress, acute severe illness, emotional crisis, or pregnancy, leads to a number of hairs to progress from anagen to catagen. This then results in a large number of hairs being shed at the same time a few months after the event. Therefore, taking a history of the preceding few months before presentation can provide important clues.
exact triggering aetiology is not well understood, with autoimmune, emotional, infective and chromosomal problems being proffered in the literature.\textsuperscript{1,3} Alopecia areata most commonly occurs in the first two decades of life and has an equal gender distribution.

This condition can affect any hair-bearing body region, but commonly presents as scalp involvement. Physical examination reveals ‘exclamation mark hairs’ at the periphery of the affected patch with sparing of white hairs. This phenomenon may result in the perception of the hair ‘going white overnight’.\textsuperscript{1,3,5} The skin should be completely normal and a biopsy should be considered to exclude differential diagnoses.

Current management options are usually unsatisfactory, and may include potent topical, intralesional or systemic corticosteroids, cyclosporine, minoxidil, and chemotherapy. General practitioners should consider a dermatologist’s opinion regarding treatment, which may result in a ‘wait and see’ approach, as spontaneous recovery is usual (95% in 12 months).\textsuperscript{6} The prognosis is poorer with more widespread involvement, coexisting atopic eczema and younger age of onset (less than 5 years of age).\textsuperscript{3–5}

**Trichotillomania**

Another cause of patchy hair loss, without scalp involvement, is trichotillomania. This is caused by excessive pulling or twisting of the hair (often part of a habitual behaviour). It is most commonly seen in children, but can be seen in adults with coexisting mental health concerns (when there is a poorer prognosis).\textsuperscript{3,6} Clinically the affected area is asymmetrical (often to the side of hand dominance), revealing twisted and fragmented broken hairs of differing lengths. Differential diagnoses include traumatic (eg. traction from excessively tight hair styling), chemical and infective (eg. secondary syphilis, tinea capitus) causes.

**Alopecia – scarring**

The scarring forms of alopecia are permanent due to fibrotic destruction of the hair follicle (Figure 6). These conditions are commonly grouped together under the term ‘primary cicatricial alopecia’ and include lichen planopilaris, discoid lupus erythematosus and forms of folliculitis. The term pseudopelade is used to describe scarring alopecia of unknown cause.

Diagnosis of the cause of cicatricial alopecia involves assessing the scalp for signs of folliculitis, follicular plugging or broken hairs. Hairs from the edge of the bald area should be sent for microscopy and culture. In addition to a general skin examination and systemic studies (carried out where appropriate, such as if concerned about systemic lupus erythematosus), the GP should arrange to biopsy the affected area, aiming for multiple 4 mm punch biopsies of early/active lesions sent for histology and direct immunofluorescence. The clinical and histological features will permit a more specific diagnosis, which guides further management and/or referral. The prognosis of these conditions is variable, depending on the amount of scarring at the time of diagnosis. Many of these conditions tend to relapse once treatment is stopped.
alopecia and/or keloid formation. The cause is unknown and treatment includes systemic antibiotics, intralesional steroids and/or isotretinoin. It is associated with the similar conditions, acne conglobata and hidradenitis suppurativa.1,4

**Discoid lupus erythematosis**

This itchy condition is characterised by scarring, erythema, hypopigmentation and follicular plugging of the scalp (Figure 8). Discoid lupus erythematosis is a common cause of scarring alopecia and is treated with potent topical steroids.3

**Others**

Other forms of scarring alopecia include loss of hair follicles secondary to burns, trauma, radiotherapy, neoplasia, leprosy, tuberculosis, kerion, pemphigoid and morphea.

**Nails**

**Structure and function**

Like hair, nails are made of modified keratin. Their main function is as a protective covering for the fingertips and toes. Fingernails also permit precise and delicate finger functions by providing counter-pressure over the volar skin and pulp.1 A simple task such as scratching becomes a whole lot more difficult without nails! Fingernails take about 5 months to grow out, whereas toenails can often take more than double this timeframe.

**Folliculitis decalvans**

This condition of unknown aetiology is characterised by induration of the scalp with pustules, scale and erosions (Figure 7). *Staphylococcus aureus* is invariably grown from the pustular lesions. Treatment involves a prolonged course of systemic anti-staphlococcal therapy.

**Lichen planopilaris**

Lichen planopilaris is essentially lichen planus affecting the scalp, resulting in alopecia. The affected skin is itchy, with a violaceous appearance, associated perifollicular erythema, follicular plugging and scarring. Lichen planopilaris is treated with potent topical steroids.

**Erosive pustular dermatitis**

Erosive pustular dermatitis usually occurs in elderly women. It presents as red, painful, crusted erosions of the scalp. These erosions need to be differentiated from squamous cell carcinoma.

**Dissecting folliculitis**

This less common, chronic, progressive scalp disorder almost exclusively affects Afro-American males. It presents as suppurative, painful, boggy, sterile abscesses of the scalp, leading to scarring and
Figure 9 illustrates the anatomy of the nail. Clinical nail signs are listed in Table 1.

### Infections of the nail

#### Paronychia

Paronychia, infection of the nail folds, presents in both acute and chronic forms (Figure 10). The former usually has a bacterial cause (often *S. aureus*) secondary to injury. Patients will often present with a solitary painful distal finger. There may be pus evident. An important differential is herpetic whitlow. Management involves antibiotics and possible drainage of any collection of pus.

Chronic paronychia is usually caused by a candida yeast infection and patients whose occupation exposes their hands to moisture (eg. dishwashing) are at most risk. It is usually painless (unless complicated by acute infection) and presents as nail fold swelling with loss of cuticle. As the infection progresses, ridging and discolouration may occur. Management focuses on keeping the skin dry (eg. using cotton lined gloves for ‘wet work’) and avoiding manicures which disrupt the protective barrier function of the nail cuticle. This, plus topical imidazoles and time, usually allows the condition to resolve.

#### Onychomycosis

Perhaps the most common nail condition, tinea infection of the nails (especially toenails), can be primary or secondary in an already traumatised nail. This condition is characterised by asymmetrical nail discoloration and nail thickening with subungal hyperkeratosis (Figure 11).

### Table 1. Clinical nail signs

<table>
<thead>
<tr>
<th>Nail sign</th>
<th>Description</th>
<th>Related conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abnormalities of nail surface</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pitting</td>
<td>Small nail plate depressions</td>
<td>Alopecia areata, eczema, psoriasis, Reiter syndrome, twenty nail dystrophy</td>
</tr>
<tr>
<td>Ridging</td>
<td>Visible horizontal (Beau) or longitudinal lines</td>
<td>Beau lines – any severe systemic illness, pemphigus, Raynaud disease, trauma (single nail) Longitudinal – physiological, lichen planus, rheumatoid arthritis, peripheral vascular disease, Darier disease</td>
</tr>
<tr>
<td>Trachyonychia</td>
<td>Rough surface affecting all of the nail plate (‘sand blasted’ nails)</td>
<td>Twenty nail dystrophy, alopecia areata, psoriasis, lichen planus</td>
</tr>
<tr>
<td>Abnormalities of nail shape</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clubbing</td>
<td>Digit pulp hypertrophy with increased longitudinal and transverse nail curvature</td>
<td>Inflammatory bowel disease, bronchial carcinoma, cirrhosis, bronchiectasis</td>
</tr>
<tr>
<td>Koilonychia</td>
<td>Thinned concave (‘spoon shaped’) nails</td>
<td>Occupational trauma, iron deficiency anaemia, haemachromatosis, systemic lupus erythematosus (SLE), Raynaud syndrome</td>
</tr>
<tr>
<td>Abnormalities of nail colour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melanonychia</td>
<td>Melanin pigmentation</td>
<td>May be normal in dark skinned patients, otherwise exclude melanoma</td>
</tr>
<tr>
<td>Splinter haemorrhages</td>
<td>Tiny linear blue/brown/black streaks</td>
<td>Trauma, psoriasis, embolic disease, vasculitis, endocarditis</td>
</tr>
<tr>
<td>Terry’s nail</td>
<td>White proximal and normal distal nail plate</td>
<td>Cirrhosis, congestive cardiac failure and adult onset diabetes mellitus</td>
</tr>
<tr>
<td>Oily spot</td>
<td>Yellow patch of dyscolouration</td>
<td>Specific to psoriasis</td>
</tr>
<tr>
<td>Exogenous</td>
<td>Colouring of the nail plate due to external causes</td>
<td>Nicotine (in recently quit exsmoker)</td>
</tr>
<tr>
<td>Leukonychia</td>
<td>White nail plate – may be diffuse, or localised</td>
<td>Alopecia areata, Darier disease, trauma, psoriasis, fungal infections, cirrhosis, congenital hepatic fibrosis, diabetes mellitus, hyperthyroidism, malnutrition</td>
</tr>
<tr>
<td>Abnormalities of nail attachment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subungal hyperkeratosis</td>
<td>Thickening of the undersurface of the nail plate</td>
<td>Onychomycosis, wart virus infection, psoriasis, pityriasis rubra pilaris, eczema, Darier disease</td>
</tr>
<tr>
<td>Onychomadesis</td>
<td>Complete loss of nail plate</td>
<td>Trauma, severe local (eg. bullous disorders, toxic epidermal necrolysis and paronychia) or systemic disease, some drugs</td>
</tr>
<tr>
<td>Onycholysis</td>
<td>Separation of the nail plate from the nail bed</td>
<td>Amyloidosis, connective tissue disorders, hyperthyroidism, phototoxicity, psoriasis, sarcoidosis, impaired peripheral circulation, hypothyroidism, hyperhidrosis, Reiter syndrome, fungal infection</td>
</tr>
</tbody>
</table>
Infections may be superficial, proximal or distal and sampling for microscopy and/or culture may involve nail plate scraping, punch biopsying or collection of subungal debris. The collector should aim to obtain as much tissue as possible and ensure antifungals have not been used in the preceding month (which may lead to false negative results). While there are numerous contributing organisms, dermatophyte fungi are the most common cause (>95% of nail plate infections).6

Confirming the diagnosis (with positive microscopy and culture results) is essential before commencing treatment, as the signs of onychomycosis overlap with other conditions such as psoriasis or squamous cell carcinoma of the nail bed.

Topical antifungals are usually ineffective, although amorolfine nail lacquer does have some evidence of being effective for nonproximal involvement, if used continuously until the nail grows out.7 Oral terbinafine is considered the systemic treatment of choice, with itraconazole and fluconazole as alternatives.2

**Ingrowing nails**

Abnormal growth of the nails (most commonly of the great toes) may lead to the distal edge of the nail plate to grow into the distal digit or lateral nail folds. This may then result in a painful and infected toe. Early ingrowing toenails can be managed with topical or systemic anti-infectives, education about correct toenail care and avoidance of tight fitting footwear. If severe, or unresponsive, this condition can be treated surgically with a partial or complete nail resection.

**Nail signs of dermatological conditions**

**Tumours**

Tumours of, or growing near, the nail, can directly alter the colour, contour or shape of the affected nails. Benign tumours include:

- warts
- enchondromas
- pyogenic granulomas

Malignant tumours include:

- squamous cell carcinoma
- melanoma (Figure 12)
- metastatic (50% from lung).1

While discussion of the management of these conditions is beyond the scope of this article, it is important to exclude malignant causes (clinically, radiologically or histologically). For example, while a brown discolouration of the nail may be related to subungal haemorrhage due to trauma, an acral melanoma should be considered, especially in the absence of an acute onset related to trauma.

**Psoriasis**

Psoriasis is one of the most common dermatological conditions that affects the nails. Nail changes also may be the only clinically evident
signs in some individuals with psoriasis. Clinical signs to look for include pitting, transverse ridges, onycholysis, oil spots, subungual hyperkeratosis and trachyonychia. While nails changes are evident in 80% of patients with psoriasis,8 there are no nail-specific treatments. Nail changes should improve with general psoriasis management.

**Darier disease**

This uncommon condition affects both the nails and general skin (presenting with brownish keratotic papules/plaques. The nails have characteristic nails signs: longitudinal streaks, distal subungal hyperkeratosis, and triangular-shaped fissuring of the free edge of the nail plate (Figure 13).5

**Eczema**

While eczema does not classically cause nail problems, patients may suffer from brittle nails and some nail plate changes as a reaction to the underlying inflammatory process.

**Trauma**

Nail trauma is relatively common and the usual mechanisms involved are levering or compressive forces.

Compression (such as a crush injury) usually leads to a subungal haematoma (Figure 14). Drainage is indicated where this causes acute pain or greater than 50% of the nail plate is affected. This can easily be achieved by gently ‘drilling’ down over the blood-filled area with a 19 gauge needle, or gently pressing down with a heated, opened paperclip end. Either method produces a satisfying release of blood and rapid pain relief.

Nail plate avulsion (whether partial or complete) is managed by replacing the lifted nail plate back onto the nail bed and controlling the bleeding through a dressing. The nail matrix is rarely damaged and the new nail will grow out, replacing the damaged nail plate as it does so.

Trauma to the nail matrix itself (eg. laceration) is an indication for referral to a hand surgeon, to ensure the best possible nail cosmetic outcome.

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**Nail manifestations of systemic conditions**

Clinical examination of the nail is not just important when assessing patients for dermatological conditions, but can also provide important clues in the assessment of other bodily system disorders. Table 1 provides a summary of various signs and the conditions that are commonly related.

**Summary**

Conditions affecting the hair and nails are very common and are easily examined within the setting of most general practice consultations. In doing so, the GP can gain important diagnostic insights into a patient’s dermatological, psychological and systemic health.

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