Introduction

Up to one-quarter of primary care visits involve skin disorders, and most patients can be treated in primary care. Therefore it is important that primary care physicians have a working knowledge of how to manage common skin conditions and recognize patients who need to be referred to specialist services because of diagnostic difficulties or disease severity.

History

History-taking from a patient with skin disease should follow a systematic and logical framework. Important points to remember include the following.

How long have skin lesions been present?: ask the patient when the very first rash arose, as well as how long the current rash may have been present. Some eruptions (e.g. drug eruptions, allergic contact dermatitis) begin acutely, whereas others (e.g. eczema, psoriasis, pityriasis versicolor) are more insidious. The time course of individual lesions is important: urticarial lesions typically come and go within 24 hours, leaving no marks, whereas psoriatic plaques typically change over weeks to months.

Where did the first skin lesions arise?: some rashes have a typical distribution, which can give clues to the diagnosis. For example, the extensor surfaces and hairline are typical for psoriasis, the flexor surfaces for atopic eczema and the toe webs for tinea pedis.

Are there any symptoms?: for example, does it itch or cause pain? Some skin conditions (e.g. scabies, eczema) can be extremely itchy, while others (e.g. herpes zoster) are painful. Some skin conditions (e.g. erythropoietic protoporphyria) cause burning.

Oral and topical medications: the history of topical treatments used and the response to them is important and can help to confirm clinical suspicions. Inflammatory skin rashes, for example eczema, should respond to topical anti-inflammatory agents such as topical corticosteroids. Mild cutaneous infection should respond to topical antimicrobial agents. Topical treatments can, however, also be the cause of rashes such as allergic contact dermatitis and photoallergic reactions.

Ask which medication was being taken at the time of onset of the rash. Possible drug-related rashes are a common reason for requesting a dermatological opinion for medical in-patients. Make a comprehensive list of medications the patient is currently taking and any recent changes, particularly in the 2–3 weeks before the rash began (although medications taken up to 2 months beforehand can be implicated in drug rash eosinophilia systemic symptoms).

Many individuals use alternative therapies such as homoeopathic and herbal remedies, but may not offer this information in a ‘conventional’ medical setting. Specific questions can be asked about such therapies and also about over-the-counter medications.

General medical history: it is important to be aware of a wide range of systemic conditions that can manifest as skin conditions (Table 1, Figure 1).

Table 1. Cutaneous manifestations of some systemic conditions

Diabetes mellitus
•
Granuloma annulare

•
Necrobiosis lipoidica (Figure 1)

•
Xanthoma

•
Bullous disease

•
Diabetic dermopathy

•
Diabetic stiff skin

•
Neuropathic leg ulceration

•
Increased risk of cutaneous infection (e.g. candidiasis)

Sarcoidosis
•
Lupus pernio of the nose

•
Erythema nodosum

•
Granulomatous invasion of old scars

•
A wide variety of presentations in cutaneous sarcoid

Internal malignancy
•
Paraneoplastic pemphigus (solid organ cancer)

- Dermatomyositis (lung cancer, breast cancer, upper gastrointestinal tract cancer, any solid organ tumour)
- Erythema gyratum repens (lung, uterus and breast cancer)
- Acanthosis nigricans

Genodermatoses: genetically determined syndromes with a cutaneous component that predisposes at-risk individuals to developing cancer. Skin diseases in this group include:

- Cowden's disease
- Gorlin's syndrome (basal cell naevus syndrome)
- Neurofibromatosis
- Torre–Muir syndrome

Porphyria cutanea tarda

- Vesicles, blisters, erosions in light-exposed areas
- Skin fragility
- Hypertrichosis
- Scarring

Hyperthyroidism/Graves' disease

- Pretibial myxoedema
- Thyroid acropachy (from periosteal new bone)
- Diffuse alopecia

•
Palmar erythema

Addison's disease
•
Hyperpigmentation of skin and mucous membranes caused by pituitary melanocyte-stimulating hormone and adrenocorticotropin

Cushing's syndrome
•
Thinning of the skin, spontaneous bruising, striae, diffuse alopecia, acne, hirsutism

Acromegaly
•
Acne

•
Skin thickening

Figure 1
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Figure 1. Necrobiosis lipoidica of the shins associated with diabetes mellitus.

Occupational and recreational history: occupational dermatoses are common and are a frequent cause of time lost from work. Allergic contact dermatitis is more common in certain occupations (Table 2). Evidence suggesting occupational dermatosis includes:
•
similar dermatoses in other employees at the patient's workplace

•
a time relationship between exposure and dermatitis

•
improvement of the rash when the patient is away from the workplace.

Table 2. Common occupational causes of contact dermatitis

•
Hairdressers – irritant hand dermatitis, contact allergic dermatitis to para-phenylenediamine in permanent hair dye

•
Bricklayers – contact allergic dermatitis to chromate in cement

•

Mechanics – irritant hand dermatitis to solvents, lubricants, cooling system fluid, battery acid

•
Dairy farmers – milkers' nodule (paravaccinia virus)

•
Gardeners – contact allergic dermatitis to plants (Primula obconica, Compositae), pesticides, lichens

It is also important to ask about hobbies, recreation and sporting activities. These can lead to contact allergies, but the patient may not associate them with their condition.

Family history: some skin conditions have a genetic basis; examples include atopic eczema, psoriasis, ichthyosis and keratoderma.

Contact history: certain skin conditions (e.g. impetigo, scabies) are acquired from others. A history of family and social contacts, including affected children at school, is important to avoid continuing cross-infection.

Current residence: this is important with infectious outbreaks (e.g. scabies).

Provocative factors: some skin rashes develop only after exposure to ultraviolet radiation or are worsened by it. Chronic actinic dermatitis is an eczematous eruption occurring on sun-exposed sites during the summer. It can be confused with atopic eczema. Discoid lupus erythematosus can be made worse by light exposure and affects mainly sites exposed to ultraviolet radiation. Psoriasis often improves in the summer.

Always ask about other possible exacerbating factors, such as heat, cold, exercise and menses.

Travel: ask about overseas travel. Knowledge of diseases that are endemic in other parts of the world is important.

Changes in pigmented skin lesions: patients presenting with changes in a pigmented lesion should be asked about their lifelong history of sun exposure, whether they are prone to burning on sun exposure (skin typing), and any family history of multiple pigmented lesions (dysplastic naevus syndrome) or personal or family history of skin cancer. When assessing a pigmented lesion, it is important to ask about:1
•
changes in shape

•
increase in size

- changes in colour (has the lesion become darker, or has more than one colour developed within it?)
- changes in outline (from regular to irregular)
- whether the lesion has become more raised from the skin
- any new symptoms (e.g. itching, bleeding).

Psychological factors: psychological factors can cause skin disease, as in dermatitis artefacta.

Examination
A thorough examination of the skin should always be undertaken using a natural light source. Although the affected area must be closely examined, the entire skin surface must be scrutinized – patients presenting with a single malignancy on the face may have another on their back of which they are unaware.

Full examination should include the mucosae, scalp and nails. Pattern recognition is also important as some rashes have a typical distribution and morphology.

Inspection and palpation of rashes and individual lesions are important as the texture, temperature consistency, texture, surface features and tenderness of the skin help with diagnosis.

General examination
Distribution:Figure 2 shows the typical distribution of some common skin conditions:

- flexor – typical of atopic eczema
- extensor – typical of psoriasis
- scalp, eyebrows, sides of nose and central chest (especially in men) – typical of seborrhoeic dermatitis
- sun-exposed sites – sparing of skin under the chin, behind the ears and around the scalp margin, which can help to differentiate photodermatoses from contact dermatitis for airborne allergens. Photodermatoses include chronic actinic dermatitis, solar urticaria, and photoallergic rashes associated with systemic

medication.

Figure 2
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Figure 2. Typical distribution of lesions in common skin disorders.

Morphology: many rashes have characteristic morphological features. A precise description of skin conditions is impossible without using the correct terminology (Figure 3).

Figure 3
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Figure 3
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Figure 3. Morphology of skin conditions.

Full general examination is often needed as many dermatoses are associated with systemic disease. Examination for metastases is important in patients with skin tumours.

Specific examination
Hair: there are many disorders of hair and hair growth. Some occur in isolation; others occur in association with generalized skin diseases or systemic disease.

Alopecia (loss of hair) can have many causes and patterns. It can be localized or generalized.

Localized alopecia
•
Alopecia areata presents with a non-inflamed scalp, and pathognomonic ‘exclamation mark’ hairs may be seen at the edges of the affected area.

•
Scalp ringworm (kerion) presents with inflammation and sometimes pustulation of the scalp.

•
Traction alopecia usually results from hair-styling.

•
Trichotillomania (habitual hair-pulling) presents with a well-defined area of hair loss with broken hairs.

•
Lichen planus causes scarring alopecia.

•

Systemic lupus erythematosus causes scarring alopecia.

•
Aplasia cutis presents at birth and causes scarring alopecia.

Generalized alopecia
•
Androgenic alopecia tends to be diffuse, particularly over the crown.

•
Telogen effluvium occurs when hairs simultaneously enter the telogen (resting) phase. Hair-shedding tends to occur several months after childbirth or after severe illness.

•
Endocrine causes include hypothyroidism, hyperthyroidism and hypopituitarism.

•
Alopecia can be caused by iron deficiency or malnutrition.

•
Oral contraceptives and antimitotic drugs can cause hair loss.

Hirsutism is excessive hair growth in women in a distribution usually seen in men, although familial and racial variations in hair growth must be taken into account. Causes of hirsutism include:
•
ovarian – polycystic ovary syndrome

•
adrenal – Cushing's syndrome

•
virilizing tumours

•
pituitary – hyperprolactinoma, acromegaly

•
drug-induced – anabolic corticosteroids.

Inherited hair disorders – diagnosis of hair growth disorders may require analysis of plucked hair. Electron microscopy is performed to identify shaft defects. There is no treatment for such disorders. Examples include:
•

monilethrix – beaded hair shafts causing easy breakage

•
pili torti – fragile hair because of a flattened, twisted hair shaft

•
trichorrhexis nodosa – node formation along the hair shaft that predisposes to easy fracture.

Hypertrichosis – generalized excessive hair growth is uncommon. Causes include:
•
anorexia nervosa

•
drugs – minoxidil, diazoxide

•
porphyria cutanea tarda

•
fetal alcohol syndrome

•
hypertrichosis lanuginosa – fetal lanugo hair not lost before birth.

Nails: nail changes can provide valuable clues to associated medical and skin disorders (Table 3, Figure 4).

Table 3. Nail changes associated with skin disease

•
Psoriasis – pitting, ridging, onycholysis, nail loss

•
Atopic eczema – pitting, transverse ridging

•
Alopecia areata – fine pitting may occur in severe cases

•
Lichen planus – longitudinal ridging, thinning of nail plate

•
Darier's disease – notching of free edge of nail

Figure 4

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Figure 4. Nail psoriasis with pitting, ridging and onycholysis.

Diagnostic tools and methods
Most dermatological diagnoses are made clinically, but certain diagnostic tools are used to aid or confirm these:

Skin biopsy: the type and depth of the lesion dictates the type of biopsy taken (e.g. shave, punch, incisional, excisional).

Histological examination of fixed tissue (haematoxylin and eosin (H&E) and other stains) – tissue is submitted in formalin and examined using H&E staining. More complex stains are often needed. Close collaboration between the dermatologist and histopathologist is needed for complex cases.

Direct immunofluorescence (DIF) – this is used to look for the presence and staining pattern of immunoglobulins (IgG, IgM, IgA), the third component of complement (C3) and fibrinogen. DIF results are expected to be positive in diseases such as immunobullous disorders and lupus erythematosus.

Mycological testing: skin scrapings and hair and nail samples are taken to confirm dermatophyte infection (ringworm, tinea). Scrapings can be sent to the laboratory for microscopic examination and culture. Potassium hydroxide can be added to a scraping placed on a glass slide, heated gently and examined directly under a microscope to identify fungal hyphae.

Skin swabs: swabs can be taken from vesicles, pustules, erosions and ulcers to identify bacterial or viral infection using culture technique. Skin biopsy is sometimes needed for microbiological examination in diseases such as atypical tuberculosis.

Wood's light: this low-energy ultraviolet light source is shone directly onto a patient's skin to detect fluorescent conditions and locate the borders of some lesions. Normal skin does not fluoresce, but certain bacterial and fungal infections do. This light source can also be used in other conditions, with the following findings:

- bright white – vitiligo
- ash leaf spot – tuberous sclerosis
- coral red – erythrasma caused by Corynebacterium minutissimum
- golden yellow – pityriasis versicolor caused by Malassezia furfur

•
green – scalp ringworm caused by Microsporum spp.

Patch testing and skin prick testing: patch testing is used to diagnose type IV hypersensitivity reactions (i.e. contact allergic dermatitis secondary to direct contact with a given substance). Skin prick testing can be used to diagnose latex allergy.

Dermatoscopy: the dermatoscope is a hand-held device that uses non-polarized light and allows ×10 magnification of cutaneous lesions. It is mainly used to identify typical features within melanocytic lesions2 (Figures 5 and 6), but can also help to distinguish vascular lesions.

Figure 5
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Figure 5. Malignant melanoma.

Figure 6
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Figure 6. Dermatoscopic view of malignant melanoma from Figure 5, showing a blue-grey veil centrally.

Quality-of-life indexes: there are many ways in which skin disease can adversely affect an individual's quality of life. Measurement of this impact is required for clinical and health service research, but is also valuable in clinical practice in evaluating the effectiveness of new treatments.

The Dermatology Life Quality Index was developed at the Department of Dermatology, University of Cardiff, UK.3 It is a validated, reliable and reproducible questionnaire on adult patients' perception of the impact of their skin disease on themselves and their lives. The questionnaire can be downloaded at www.dermatology.org.uk.

Disease-specific quality-of-life measures include the Psoriasis Disability Index4 and the Acne Disability Index. There is also a Children's Dermatology Life Quality Index5 for use with children.