Psoriasis is one of the most common skin disorders seen by general practitioners. It is a chronic skin disease that affects 2–3 per cent of the population in Western Europe. Worldwide, there are estimated to be 80 million people suffering from psoriasis.

The prevalence of psoriasis is identical in men and women, and across all socio-economic groups. Certain areas, such as South America, China, and Nigeria, have a particularly low prevalence.

Psoriasis can develop at any age, although it commonly appears between the ages of 15 and 22. A second peak appears during the 60–69 age range. Females tend to develop psoriasis slightly earlier than males, and those with a family history also have an earlier age of onset. The disease may last for just a few weeks or for a lifetime, with alternating periods of relapses and remissions. It is difficult to predict the course of the disease.

**DESCRIPTION**

Psoriasis is an inflammatory and proliferative disease of the skin that results in a rapid turnover of the skin cells. The turnover of cells can rise to seven times the normal rate, leading to thickening of the superficial layers of the skin. The most characteristic lesions consist of sharply demarcated, dull-red or salmon-pink thickened patches with silvery scales.

The extensor surfaces of the limbs (especially the elbows, knees, and shins), scalp, and lower back/buttocks are particularly affected, but psoriasis may involve any part of the body. When psoriasis involves the groins, armpits, perineum and the area under the breasts, the lesions tend to be less scaly and rather shiny.

The disease is highly variable in duration and extent, and there are several common morphological variants. Contrary to popular belief, up to 50 per cent of affected patients experience significant itch, especially on the scalp and lower legs.

In some cases, psoriasis is associated with psoriatic arthritis, a condition similar to rheumatoid arthritis, that causes inflammation and stiffness in and around joints. About 15 per cent of people with psoriasis will develop psoriatic arthritis, and psoriatic arthritis can also be present without psoriasis.

**AETIOLOGY**

There is evidence that psoriasis can be inherited, but there is much controversy over the mode of inheritance. The history of psoriasis in some families seems to suggest a simple autosomal inheritance with reduced penetrance, although evidence has been presented for multifactorial genetic components. (Penetrance is the frequency with which a mutant gene produces its characteristic effect in those individuals possessing it.) Examination of large numbers of family pedigrees suggests that no single pattern predominates, and the absence of 100 per cent concordance among monozygotic twins does indicate that environmental factors contribute to the aetiology.

There is also evidence of a link with human leucocyte antigen (HLA) phenotypes. Specifically, there is a strong association of psoriasis with the phenotype, HLA-CW6, with the relative risk of developing the disease being increased 10-fold. The phenotypes, HLA-B13 and HLA-B17 have also been linked with psoriasis.1,2

The precise cause of psoriasis is not clear, but the enhanced keratinocyte proliferation results in thickening of the epidermis. Initially, the rapid keratinocyte proliferation seen in psoriasis was thought to be at least partly due to reduced cell cycle time. Recent evidence suggests that the augmented growth rate of the epidermis is a result of an increased proportion of cycling cells recruited from the basal epidermis rather than a change in the cell cycle time.3,4

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**PATHOGENESIS**

Lymphocytes have been implicated in the pathogenesis of psoriasis. The evidence for this includes the following:

- Infiltration of psoriatic lesions with activated T cells
- The efficacy of treatments that target T cells, such as, ciclosporin, anti-CD4 monoclonal antibodies, and a lymphocyte-selective toxin
- Raised serum levels of interleukin-2
- The efficacy of treatments that target T lymphocytes, such as, ciclosporin, anti-CD4 monoclonal antibodies, and a lymphocyte-selective toxin
- The demonstration that T cell clones released from lesional biopsies release growth factors that induce keratinocyte proliferation

One of the immunocyte-derived factors that is believed to alter keratinocyte phenotype is tumour necrosis factor (TNF). This cytokine induces pro-inflammatory effects by binding to specific TNF receptors and activating a signal transduction pathway. Although its role in psoriasis is not completely understood, TNF may be involved in many of the steps that lead to the induction and progression of the disease. TNF can stimulate the processes required to produce immunocyte infiltration in tissues, including the upregulation of cell adhesion molecule expression and the induction of secondary cytokines and chemokines.

TNF-alpha has been shown to be overexpressed in psoriatic skin lesions and increased concentrations have been found in the serum in generalised pustular psoriasis. The inhibition of TNF-alpha using drugs such as etanercept and infliximab has been shown to be a useful therapeutic modality.

The involvement of T lymphocytes may be the result of a specific cellular immune response in psoriatic lesions, due either to putative autoantigen or perhaps related to beta-haemolytic streptococci. It has therefore been suggested that psoriasis is a T cell-mediated autoimmune disease.

**EXACERBATING FACTORS**

Certain conditions can provoke or exacerbate psoriasis. These include trauma, infection, sunlight, drugs, alcohol, smoking and AIDS.

Trauma It is a well-known fact that psoriasis tends to appear at sites of injury (Köebner phenomenon). A variety of stimuli have been demonstrated to elicit this response and psoriasis may also show a predilection for scars that have been present for several years. Psoriasis can also develop on tattoos.

Infection Streptococcal infection, especially of the throat, has long been known to provoke acute guttate psoriasis in patients with or without a previous history of psoriasis. However, there is also evidence that continuing, subclinical streptococcal infection may be a contributory factor in refractory psoriasis.

Sunlight Although sunlight generally benefits psoriasis patients, a small minority of patients experience a worsening of their condition when exposed to strong sunlight.

Drugs There are over 200 drugs that have a tendency to exacerbate psoriasis, the most prominent being beta-blockers, lithium and antimalarials. Recent reports suggest that the smoking cessation drug bupropion may trigger acute pustular psoriasis in susceptible individuals.

Alcohol/smoking Excessive consumption of alcohol at a level detrimental to general health has been associated with severe psoriasis in men. It is likely, however, that alcohol is not a direct exacerbating factor but is associated with poor treatment compliance and is a symptom of the stress associated with severe skin disease.

Smokers are at an increased risk of chronic plaque psoriasis and almost all patients with palmoplantar pustular psoriasis are smokers.

HIV infection Psoriasis has been shown to flare significantly and to appear de novo as HIV infection progresses.

**CLINICAL FEATURES**

Psoriasis has several clinical variants. These differ in severity, location, longevity, and shape and pattern of the scaling. The commonest of these clinical variants are:

- Plaque psoriasis
- Guttate psoriasis
- Pustular psoriasis
- Erythrodermic psoriasis

Plate psoriasis Plate psoriasis is also known as chronic stable plaque psoriasis or psoriasis vulgaris (see Figure 1, p.189). Chronic plaque is the most common form of psoriasis. The lesions are of a deeper pink colour than those seen in eczema or seborrhoeic dermatitis, although they can look rather bluish on the legs. The distinctive nature of this hue of pink is lost in individuals who are dark-skinned.

The classical sites of involvement are the knees, elbows, buttocks, scalp and the anterior shins and forearms.

The plaques usually begin as small red papules that subsequently scale as they grow larger. As the plaques grow in size, they can merge to form annular (ring-shaped) and gyrate (coiled) forms. These plaques usually have a clearly defined edge in contrast to the rather vague outline seen in eczema.

The amount of scaling is highly variable, the most characteristic being the silvery scale, which varies considerably in thickness. The top scales lift away easily but deeper scales stick together, and when removed, the exposed skin leaves punctate bleeding points. This is known as Auspitz sign and occurs because there are dilated tortuous capillaries within the papillary dermis. It can be a useful clinical sign to aid diagnosis but is not exclusive to psoriasis. When scaling is not evident, it may be induced by lightly scratching the surface of the plaque.

Plaques may be few or many and they tend to be symmetrical. Thickened plaques can fissure, especially those that overlie areas of joint movement.

Scalp The scalp is often affected in psoriasis. Well-defined pale red plaques with a thick surface of silvery scales are seen (see Figure 2, p.189). These may become confluent and the entire scalp can be involved. The scaling tends to be quite adherent and rarely, can cause local alopecia. A specific form of scalp psoriasis seen mainly in younger patients is pityriasis amiantacea, where large scales of skin become stuck to the hair shafts. The term is derived from amiant, the French word for asbestos because the scales are said to resemble the layers seen when raw asbestos is mined.

Flexures Lesions of psoriasis in flexures, especially under the breasts, and in the natal cleft and perineum can appear different from plaques elsewhere. The scale is usually reduced or absent, leaving shiny deep pink plaques, which may fissure in the depth of the skin crease. These lesions may follow intertrigo in the area and are generally more common in older patients, as well as in those who are overweight.

Hands and feet Psoriasis can affect the hands and feet and can be difficult to distinguish from contact dermatitis or endogenous eczema when it involves the palms and soles. A history of psoriasis elsewhere can aid diagnosis. Again, the well-defined edge is characteristic and significant nail dystrophy is more suggestive of psoriasis. There may be significant itch. The skin of the palms and soles may become quite thick. However, the most troublesome symptom is often painful splitting. Splitting occurs over the fingertips and heels, leaving painful fissures which may be slow to heal. There may be cyclical thickening, splitting and peeling, leaving the fingertips raw and tender. Psoriasis of the dorsal aspect of the hands tends to present as well-defined areas of dull-red thickening, with variable scaling, especially over the knuckles.

Nails The fingernails and toenails may show dystrophic changes of psoriasis that may be marked, and can aid diagnosis. Nail
Figure 1: Chronic plaque psoriasis

Figure 2: Scalp psoriasis

Figure 3: Onycholysis (lifting of the nail plate)

Figure 4: Severe psoriatic nail dystrophy with destruction of the nail plate

Figure 5: Guttate psoriasis on the trunk

Figure 6: Palmoplantar pustular psoriasis
changes may occur with significant disease, or herald the development of psoriasis elsewhere. In some patients, nail dystrophy remains the only manifestation of psoriasis for many years. Pitting is the commonest nail change. It is manifested as small discrete pits in the nail plate (often referred to as "thimble pitting", because of its similarity to the surface of a thimble). However, the whole of the nail may loosen and become raised from the nail bed. This is known as onycholysis (see Figure 3, p189). Patches of psoriasis under the nail bed. This is known as onycholysis (see Figure 3, p189). Patches of psoriasis under the nail bed. This is known as onycholysis (see Figure 3, p189).

In severe onycholysis, marked thickening of the nail plate, along with a build-up of keratotic material under the free edge of the nail plate (known as sub-ungual keratosis) is also commonly seen. Psoriatic nail dystrophy, especially in the absence of classical psoriasis elsewhere, may be mistaken for a fungal infection (see Figure 4, p189).

Guttate psoriasis This form of psoriasis more commonly affects children and young adults and often follows a streptococcal sore throat. It classically appears as many small, red, drop-like, scaly spots (the term guttate is derived from the Latin word for "raindrop"). Each lesion is usually 0.2–1cm in diameter and round to oval in shape (see Figure 5, p189). Guttate psoriasis may develop into the more common chronic plaque form of the disease. The percentage of patients who go on to develop plaque psoriasis is unclear, but may be as high as 40–50 per cent. Patients with chronic plaque psoriasis may also develop a guttate flare following upper respiratory tract infections.

Pustular psoriasis There are two forms of pustular psoriasis: palmar-plantar and generalised.

Palmar-plantar pustulosis Palmar-plantar pustulosis is also known as palmar-plantar pustular psoriasis. It is a localised form of psoriasis presenting as sterile pustules of the palms and soles, usually arranged symmetrically. This form of psoriasis is extremely rare before adulthood, and may appear de novo or in patients already known to have psoriasis. There is usually well demarcated erythema and scaling, with areas of pustulation (see Figure 6, p189). Early pustules are classically creamy-white on an erythematous base. They usually mature to a mid-brown colour. The skin of the hands and feet can become very thick and crack painfully. Both conditions may be intensely itchy. There appears to be a strong association of palmar-plantar psoriasis with smoking; up to 95 per cent of those affected are smokers.

Generalised pustular psoriasis Generalised pustular psoriasis is a dermatological emergency. Sheets of sterile pustules appear, usually on a background of erythroderma (total skin involvement, see below). There may be areas of classical psoriasis to aid diagnosis but often patients are just extremely red with little or no scaling. Oral steroids can trigger this condition and should never be used routinely for the treatment of psoriasis. Patients are usually systemically unwell and have to be admitted to hospital as a matter of urgency.

Erythrodermic psoriasis Erythroderma is the term that is used when more than 95 per cent of the skin is involved in a rash of any kind. Erythrodermic psoriasis can arise in two ways:

- Chronic lesions may gradually evolve into an exfoliative phase, resulting in extensive plaques covering most of the body. This condition is less likely to cause systemic upset and usually responds well to mild to moderate treatments.
- Unstable psoriasis can develop suddenly or follow a period of increasing instability and intolerance to topical therapy. This is a medical emergency and patients should be admitted to hospital for intensive therapy and monitoring. It is often associated with significant systemic upset and can result in loss of temperature control and fluid imbalance. The condition may be triggered by hypocalcaemia, antimarial drugs, coal tar, or withdrawal of systemic therapy, especially systemic steroids scratching. Palmar and plantar eczema can be hyperkeratotic and differentiating it from psoriasis can be quite difficult.

Candidiasis Candidiasis can also coexist in the flexures. Small satellite pustules and papules are suggestive of candidiasis.

Athlete’s foot Trychophyton rubrum is a fungus that commonly causes athlete’s foot. When it infects the nails it can look similar to the onycholysis seen in psoriasis. Evidence of athlete’s foot elsewhere is suggestive of the infection. This fungus may also infect the palm or sole. However, the pattern tends to be asymmetric, which is unusual for psoriasis at this site.

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**SUMMARY**

Psoriasis is a common skin condition with a genetic predisposition. The typical lesions of chronic plaque psoriasis are characteristically well defined, salmon-pink, and with a variable silvery scale over the extensor surfaces. Many patients will also have nail and scalp involvement. The course is variable but could be lifelong.

Guttate psoriasis tends to have a better prognosis, and may occur with or without a previous history of psoriasis. There is a strong association with beta-haemolytic streptococci.

Some patients will not have a classical rash, but factors that may suggest the diagnosis of psoriasis include a positive family history, scaling in the scalp and prominent nail changes.

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**REFERENCES**