Chronic plaque psoriasis

Synonyms: psoriasis vulgaris (chronic stationary type)

What is plaque psoriasis?

Plaque psoriasis is a common, chronic, relapsing, inflammatory skin disorder with a strong genetic basis. Psoriasis is a T cell-mediated autoimmune disorder, resulting from the interaction between multiple genetic and environmental factors. T cells are induced to produce cytokines, which stimulate keratinocyte proliferation and the production of dermal antigenic adhesion molecules in the local blood vessels, further stimulating the T-cell cytokine response.

Epidemiology[1]

- The prevalence of psoriasis is estimated to be about 1.3-2.2% in the UK, with the highest prevalence being in white people.
- Men and women are equally affected.
- It can occur at any age but the majority of cases first present before the age of 35 years. It is uncommon in children.
- Plaque psoriasis accounts for 90% of all people with psoriasis.
- Joint disease is associated with psoriasis in a significant proportion of patients (reported in one study to be 13.8%).

Psoriasis risk factors

- There is a multifactorial pattern of inheritance. About 30% of patients with psoriasis have a family history. Twin studies support the role of genetic factors with a three-fold increase in concordance in monozygotic twins compared with fraternal twins[2] . Linkage studies suggest multiple susceptibility loci.

- Environmental factors: a number of factors may trigger or exacerbate plaque psoriasis, including:
    - Sunlight: there is usually a decrease in severity during periods of increased sun exposure (ie it often improves in the summer and is worse in the winter) but a small minority has an aggravation of symptoms during strong sunlight and sunburn can also lead to an exacerbation of plaque psoriasis.
    - Infection:
        - Streptococcal infection is strongly associated with the development of guttate psoriasis but this may also apply to chronic plaque psoriasis.
        - HIV infection and AIDS - although other comorbid skin conditions may mimic plaque psoriasis[3] .
    - Psychological stress is widely believed to play a role but evidence for a causal relationship is lacking.
    - Postpartum hormonal changes.

- Drugs including:
    - Lithium.
    - Antimalarials.
    - Withdrawal of systemic steroids.
    - Beta-adrenoreceptor blocking drugs.
    - Non-steroidal anti-inflammatory drugs.
    - Angiotensin-converting enzyme (ACE) inhibitors.
    - Trazodone.
    - Terfenadine.
    - Gemfibrozil.
    - Antibiotics - eg, tetracycline, penicillin.
    - Imiquimod [4] .
- Smoking and alcohol.
- Trauma - psoriasis may be spread to uninvolved skin by various types of trauma.

Associated diseases

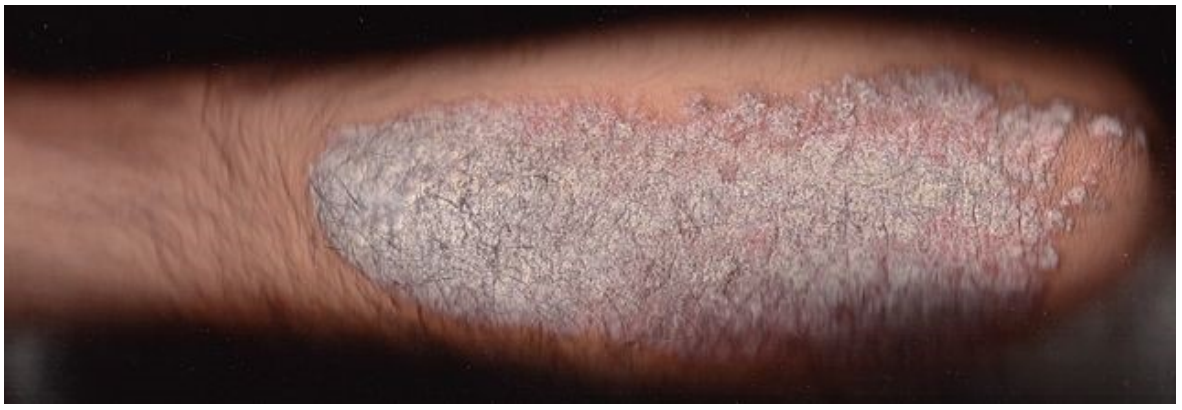
Plaque psoriasis is associated with [5] :

- Psoriatic arthritis - a seronegative inflammatory arthritis, which between 7-40% of people with psoriasis will develop.
- Inflammatory bowel disease.
- Metabolic syndrome (abdominal obesity, hypertension, insulin resistance, dyslipidaemia).
- A number of studies have suggested that people with psoriasis may have an increased risk of cardiovascular disease, lymphoma and non-melanoma skin cancer [1] .

Psoriasis symptoms

An assessment of any patient with psoriasis should include disease severity, the impact of disease on physical, psychological and social well-being, whether they have psoriatic arthritis, and the presence of any comorbidities [1] .

Chronic plaque psoriasis is typified by itchy, well-demarcated circular-to-oval bright red/pink elevated lesions (plaques) with overlying white or silvery scale, distributed symmetrically over extensor body surfaces and the scalp.



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- Fissuring within plaques can occur when lesions are present over joint lines or on the palms and soles.
- Gentle scraping accentuates the scale (vigorous scraping causes pinpoint bleeding - Auspitz' sign).
- The psoriatic lesions are a very distinctive rich, full, red colour. When present on the legs, lesions sometimes carry a blue or violaceous tint.
- Psoriatic plaques occasionally appear to be immediately encircled by a paler peripheral zone.
- New lesions often appear at sites of injury or trauma to the skin (Köbner's reaction), typically 1-2 weeks after the skin has been injured.

- Plaque psoriasis presents slightly differently in children. Plaques are not as thick and the lesions are less scaly. Psoriasis may often appear in the nappy region in infancy and in flexural areas in children. The disease more commonly affects the face in children than it does with adults.
- Nail changes are often seen, with pitting, onycholysis, subungual hyperkeratosis, or the oil-drop sign (yellow-red discolouration of the nail bed looking like a drop of oil beneath the nail). See the separate Psoriatic Nail Disease article.

Acute episodes of plaque psoriasis may evolve into more severe disease - eg, pustular or erythrodermic psoriasis.

Assessment of severity [1]

The extent and duration of chronic plaque psoriasis are very variable. Lesions vary in size from one to several centimetres. The number of lesions may range from few to many at any given time. Smaller plaques may coalesce into larger lesions, especially on the legs and sacral regions.

When assessing psoriasis severity, the following should be recorded:

- The results of a static Physician's Global Assessment (six-point scale assessing overall disease severity at the point of assessment as clear, nearly clear, mild, moderate, severe or very severe).
- The patient's assessment of current disease severity - eg, using the static Patient's Global Assessment.
- The body surface area affected.
- Any involvement of nails, high-impact and difficult-to-treat sites (eg, the face, scalp, palms, soles, flexures and genitals).
- Any systemic upset, such as fever and malaise, which are common in unstable forms of psoriasis such as erythroderma or generalised pustular psoriasis.

Plaque psoriasis may be classified as mild, where it affects <5% of the body's surface area, moderate where it affects 5-10% and severe at >10% involvement [6] .

Tools such as the Psoriasis Area and Severity Index (PASI) may be used to express disease severity, based on severity of lesions and extent of skin involvement [7] [8] .

Differential diagnosis

- Bowen's disease.
- Cutaneous T-cell lymphoma (consider where a rash is not responding to optimal treatment or if there is colour variation between plaques).
- Drug eruptions.
- Lichen planus.
- Discoid lupus erythematosus.
- Dermatitis.
- Pityriasis rosea.
- Seborrhoeic dermatitis.
- Tinea corporis.
- Syphilis.
- Superficial basal cell carcinoma.

Investigations

Plaque psoriasis diagnosis is usually made on clinical findings. Skin biopsy is very rarely required to confirm plaque psoriasis diagnosis. Dermoscopy can occasionally be useful [9] .

Plaque psoriasis treatment and management

Management options for the treatment of psoriasis include [1] :

- First-line therapy which includes traditional topical therapies - eg, corticosteroids, vitamin D analogues, dithranol and tar preparations.

- Second-line therapy which includes phototherapy, broad-band or narrow-band ultraviolet B light, with or without supervised application of complex topical therapies such as dithranol in Lassar's paste or crude coal tar and photochemotherapy, psoralens in combination with UVA irradiation (PUVA), and non-biological systemic agents such as ciclosporin, methotrexate and acitretin.
- Third-line therapy which refers to systemic biological therapies that use molecules designed to block specific molecular steps important in the development of psoriasis, such as the TNF antagonists adalimumab, etanercept and infliximab, and ustekinumab, anti-IL12-23 monoclonal antibody.

There is no strong evidence that any of the interventions have a disease-modifying effect or impact beyond improvement of the psoriasis itself.

General

- Give a full explanation of psoriasis, including reassurance that it is neither infectious nor malignant, with appropriate written patient information.
- Discuss treatment options (including no active treatment), likely benefit from treatment, and side-effects; agree a management plan.
- Ask directly about the social and psychological effects of psoriasis and signpost sources of support, such as patient support groups [10] . The impact of psoriasis is not directly related to the overall area affected or disease activity but more to the site distribution and the attitudes of the patient. Tools such as the Dermatology Life Quality Index may be helpful [11] .
- Consider an individual's cardiovascular risk where the plaque psoriasis is severe (affecting >10% of the body's surface area; if there has been previous inpatient treatment or the patient has had UV light treatment or other systemic therapy) and monitor and manage this appropriately [5] . A large cohort study has cast doubt on the link between psoriasis and the risk of major cardiovascular events [10] . However, the National Institute for Health and Care Excellence (NICE) guidance, recommending a five-yearly assessment of smoking, alcohol use and blood pressure to all patients with severe psoriasis, is still valid [12] .

- Screen for the development of psoriatic arthropathy and advise to seek medical help for unexplained joint pain or swelling. The Psoriasis Epidemiology Screening Tool (PEST) is suggested (others are available) [13] .

Topical therapy [14]

The sequence of choice of topical agents will vary according to the extent and pattern of psoriasis and the patient preference. Try to keep the number of treatments per day to a minimum to improve concordance.

Practical support and advice about the use and application of topical treatments should be provided. A potent corticosteroid applied once daily, plus vitamin D or a vitamin D analogue applied once daily (applied separately, one in the morning and the other in the evening) for up to four weeks, should be offered as initial treatment for adults with trunk or limb psoriasis [1] .

Regular emollients reduce scale and itch. Use liberally and frequently (apply 3-4 times a day in the direction of hair growth) to soften and reduce scaling and irritation. Use a combination of bath oil, soap substitute and emollient. Do not underestimate quantities for prescriptions: adults with generalised disease will need 500 g emollient/week. Ideally, patients with plaque psoriasis should have a daily soak in the bath (with bath oil), then pat their skin dry, and then apply a thick layer of emollient.

Topical steroids

- Short-term/intermittent use of a potent topical steroid (eg, beclometasone 0.1%) or a combination product with calcipotriol (eg, Dovobet®).
- A Cochrane review found that potent to very potent corticosteroids perform as well as vitamin D analogues, with a lower incidence of local adverse events but combining corticosteroid with vitamin D analogue was the most effective [15] .
- Dovobet® is licensed for up to four weeks' use.
- Topical use of potent corticosteroids on widespread psoriasis can lead to systemic as well as to local side-effects and the development of complications such as erythroderma or generalised pustular psoriasis.

- Current guidelines therefore suggest that potent steroids can be used in the short term to gain control of chronic plaque psoriasis in a primary care setting but that long-term use should be avoided. Very potent corticosteroids shouild not be used continuously at any site for longer than four weeks. Potent corticosteroids shouild not be used continuously at any site for longer than eight weeks [16] .

Vitamin D analogues, usually calcipotriol (eg, Dovonex®), are used for longer-term treatment. Where this causes local irritation, switch to alternatives such as calcitriol or tacalcitol. Improvement generally occurs within two weeks but improvement frequently reaches plateau at eight weeks. Do not exceed the maximum recommended dosage, due to risk of hypercalcaemia and parathyroid hormone suppression.

If a vitamin D analogue is not tolerated or is ineffective, options include:

Coal tar (solution, cream or lotion) - preparations with between 1% and 5% are as effective as stronger ones; stronger tar preparations tend to be messy. A large cohort study did not show any increase in cancer (both skin and non-skin malignancies) associated with the past use of topical tar treatments [17] .

Tazarotene gel - a vitamin A analogue that is clean and odourless. Irritation is common (occurs in about 20%) but it is minimised by applying tazarotene sparingly to the plaques and avoiding normal skin. It should not be used by pregnant women or women planning a pregnancy, due to potential teratogenicity.

Short contact dithranol - for 30-minute exposures in patients with few but relatively large plaques, building from 1-10% (as tolerated) [18] . Patients need to be shown how to apply creams carefully to minimise side-effects (skin irritation and temporary skin staining). Products can cause permanent staining of fabrics and bath.

Scalp psoriasis [14]
For patients with thick scaling of the scalp, initial treatment with overnight application of salicylic acid, tar preparations or oil preparations (eg, olive oil, coconut oil) to remove thick scale is recommended.

Facial and flexural psoriasis [14]

- Moderate-potency topical corticosteroids (eg, clobetasone butyrate) are recommended for short-term use in facial and flexural psoriasis.
- If moderate-potency topical corticosteroids are ineffective in facial and flexural psoriasis then vitamin D analogues or tacrolimus ointment are recommended for intermittent use.

Widespread plaque psoriasis
For very widespread plaque psoriasis, the same treatments may be appropriate but dithranol is often impracticable and more potent corticosteroids hazardous if used on a long-term basis.

Secondary care referral

Referral to a dermatology specialist is indicated if [1] :

- There is diagnostic uncertainty.
- Psoriasis is severe or extensive - eg, more than 10% of the body surface area is affected.
- Chronic plaque psoriasis cannot be controlled with topical therapy.
- Any associated nail disease has a major functional or cosmetic impact.
- Psoriasis is having a major impact on a person's physical, psychological or social well-being.

Secondary care management [1] [14]

Phototherapy is a second-line treatment and is used for extensive and widespread disease or where there is resistance to topical treatment:

- **Narrow-band ultraviolet B (UVB) therapy** offers superior efficacy with less risk of burning:

    - NICE recommends that narrow-band UVB phototherapy should be offered to people with plaque psoriasis that cannot be controlled with topical treatments alone. Treatment with narrow-band UVB phototherapy can be given three or two times a week. A response may be achieved more quickly with treatment three times a week.
    - The major drawback of this therapy is the time commitment required for treatments and the accessibility of the UVB equipment. A Scottish study reported that home treatment was safe and effective and its provision should be encouraged [19] .
    - Advise patients against the use of sunbeds as a UV source for self-treatment.

- **Photochemotherapy** uses a photosensitising drug (eg, PUVA) to treat patients with more extensive or resistant disease. Therapy is usually administered 2-3 times per week, with maintenance treatments every 2-4 weeks until remission.

    - Adverse effects of PUVA therapy include nausea, pruritus and a burning sensation.
    - Long-term complications include increased risks of skin damage and skin cancer.
    - PUVA has been combined with oral retinoid derivatives to decrease the cumulative dose of UVA radiation to the skin.

Systemic agents are reserved for severe or refractory plaque psoriasis.

- Systemic non-biological therapy should be offered to people if psoriasis cannot be controlled with topical therapy, it has a significant impact on physical, psychological or social well-being and one or more of the following apply:

    - Psoriasis is extensive (eg, more than 10% of body surface area is affected or there is a PASI score of more than 10); or
    - Psoriasis is localised and associated with significant functional impairment and/or high levels of distress (eg, severe nail disease or involvement at high-impact sites such as the face, flexures, genitalia, scalp, palms and soles); or
    - Phototherapy has been ineffective, cannot be used or has resulted in rapid relapse (defined as greater than 50% of baseline disease severity within three months).
- Methotrexate is usually the first choice of systemic agent for people with psoriasis who fulfil the criteria for systemic therapy.
- Methotrexate is useful for extensive chronic plaque psoriasis in patients who are inadequately controlled by topical therapy alone, or where there is concomitant psoriatic arthropathy. Methotrexate can cause a clinically significant rise in transaminases, and long-term therapy may be associated with liver fibrosis.
- Ciclosporin should however be offered as the first-choice systemic agent for people who:
    - Need rapid or short-term disease control (eg, a psoriasis flare).
    - Have palmoplantar pustulosis.
    - Are considering conception (both men and women) and systemic therapy cannot be avoided.

A short course of 4-12 weeks in duration is usually given, which could be repeated if the condition relapses.

- Acitretin is an oral retinoid. It is indicated for severe extensive psoriasis resistant to other forms of therapy and for pustular psoriasis.

- People with moderate to severe plaque psoriasis can now receive dimethyl fumarate (Skilarence®) as a licensed oral treatment option for those needing systemic therapy [20] . It can be prescribed as first-line induction therapy and long-term maintenance treatment. Dimethyl fumarate as Fumaderm® is already used as an unlicensed product in the UK. The anti-inflammatory and immunomodulating effects of dimethyl fumarate are not fully understood but are thought to involve a shift in T helper cells from the Th1 and Th17 phenotypes to the Th2 phenotype, with a resultant decrease in the production of inflammatory cytokines and inhibition of keratinocyte proliferation. It can reduce leukocyte production, and a full blood count is advised before initiating, and three-monthly thereafter.
- Second-tier agents include hydroxycarbamide, mycophenolate, sulfasalazine, azathioprine and leflunomide.

Biological therapies - etanercept, efalizumab, adalimumab, infliximab and ustekinumab - are recommended as a treatment option for adults with plaque psoriasis when the following criteria are met [21] [22] [23] [24] :

- The plaque psoriasis is severe.
- The psoriasis has not responded to standard systemic therapies including ciclosporin, methotrexate and PUVA, or the person is intolerant of, or has a contra-indication to, these treatments.
- Treatment should be discontinued if there is an inadequate response. Efalizumab should only be used if the psoriasis has failed to respond to etanercept.
- Changing to an alternative biological drug should be considered in adults if [1] :
    - The psoriasis does not respond adequately to a first biological drug, ie 10 weeks after starting treatment for infliximab, 12 weeks for etanercept, and 16 weeks for adalimumab and ustekinumab (primary failure); or
    - The psoriasis initially responds adequately but subsequently loses this response, (secondary failure); or
    - The first biological drug cannot be tolerated or becomes contra-indicated.

Studies suggest these drugs are both safe and effective [25] .

NICE recommends that bimekizumab, a more recently developed biologic, should be an option if

[26]

:

- The disease is severe, as defined by a total Psoriasis Area and Severity Index (PASI) of 10 or more and a Dermatology Life Quality Index (DLQI) of more than 10; and
- The disease has not responded to other systemic treatments, including ciclosporin, methotrexate and phototherapy, or these options are contra-indicated or not tolerated; and
- The company provides the drug according to the commercial arrangement.

In addition, NICE recommends that:

- Bimekizumab be stopped at 16 weeks if psoriasis response is not adequate.
- The least expensive treatment should be chosen (including bio-similar products).
- The impact of skin colour on PASI score should be taken into account.
- The impact of physical, psychological, sensory or learning disabilities, or communication difficulties that could affect the responses to the DLQI, should be taken into account.

Secukinumab has since 2015 been approved by NICE for treatment of adults with severe (PASI ≥10, DLQI >10) plaque psoriasis that has failed to respond to systemic therapy such as ciclosporin, methotrexate and PUVA or where such treatments are contra-indicated.

NICE has now extended this recommendation to 6- to 17-year-olds with severe psoriasis where there is contra-indication to/lack of tolerance of or failure to respond to treatment, including ciclosporin, methotrexate and phototherapy [27] .

Plaque psoriasis complications

Chronic plaque psoriasis is often associated with significant psychosocial difficulties. The quality of life may be severely affected by pruritus, dry and peeling skin, fissuring and the adverse effects of therapy [1] .

Self-consciousness and embarrassment about appearance may lead to significant anxiety and depression.

Aggressive use of topical steroids may induce progression to pustular and erythrodermic forms of psoriasis.

Prognosis

- The course of plaque psoriasis is unpredictable. It is often intractable to treatment, with relapses occurring in most patients.
- Both early onset and a family history of disease are considered poor prognostic indicators.
- Pustular flares of disease may be provoked by systemic corticosteroid therapy. Such flares can be fatal. Disease-related mortality is otherwise very rare in psoriasis.
- Adverse effects of systemic treatments (eg, hepatic fibrosis from methotrexate) and phototherapy (eg, PUVA-induced skin cancers with metastases) are the primary disease-related causes of death.

Psoriasis prevention

- Avoiding specific exacerbating factors may help to prevent or minimise flare-ups but the cause of disease exacerbation is often unknown.

- Efforts should be made to prevent or detect and treat the non-cutaneous complications of psoriasis, such as cardiovascular disease and depression.

Further reading

- The Psoriasis Association
- Psoriasis Vulgaris, Chronic Stationary Type; DermIS (Dermatology Information System)
- British Association of Dermatologists and British Photodermatology Group guidelines for the safe and effective use of psoralen–ultraviolet A therapy 2015; British Journal of Dermatology (2016)

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