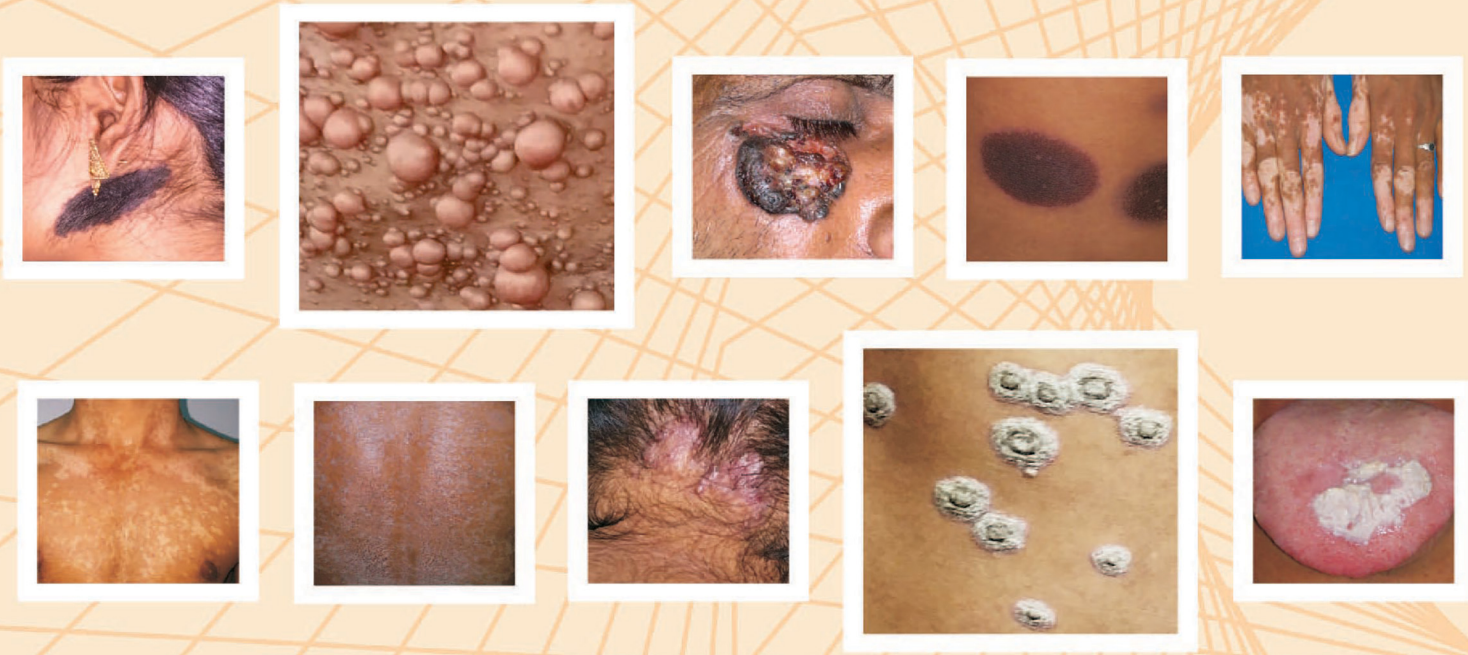
IADVL's CONCISE TEXTBOOK OF DERMATOLOGY



SECOND EDITION

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CHAPTER

15

Psoriasis

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LEARNING OBJECTIVES

- Identify and diagnose psoriasis and to know different clinical variants.
- Acquire basic knowledge about the pathogenesis, risks, and triggering factors of psoriasis.
- Learn about the comorbidities and their impact on the patient's quality of life.
- Grade the disease according to the severity and know the basic principles of treatment depending on it.
- Have knowledge about various treatment modalities both topical and systemic including the biologics available for treatment.
- Have insight on the scenarios where the patient may need referral.

INTRODUCTION

Psoriasis is a common chronic inflammatory skin disease characterized by well-demarcated erythematous, raised plaques with silvery white scales. The different phenotypes of psoriasis may be the result of interplay of genetic, environmental, and immunological factors. The skin lesions of psoriasis are often obvious and visible to others and this may result in social stigma and impaired quality of life (QoL).

Robert Willan was the first one to recognize psoriasis as a distinct entity hence, it is also termed as *Willan's lepra*. The term "psoriasis" is derived from the Greek word "psora" meaning itch although psoriasis per se may not be associated with itching in all patients. Despite the availability of effective treatments, the impact of this disease on patient's QoL is still significant even in modern times owing to the physical appearance and various systemic comorbidities associated with psoriasis like arthritis, depression, obesity, and metabolic syndrome.

EPIDEMIOLOGY

Psoriasis is a common skin condition with worldwide prevalence ranging from 0.5% to 11.4% in adults and 0–1.4% in children. It is known to have higher prevalence in the polar regions of the world compared from those closer to the equator, suggesting the beneficial effects of ultraviolet radiation (UVR) exposure in this condition. Few epidemiological studies from India have estimated the prevalence rate between 1% and 2%. Prevalence is higher in adults as compared with children with a dual peak of onset; one at the age of 30–39 years and other between 50 years and 69 years of age. The prevalence range of psoriatic arthritis (PsA) among patients of psoriasis lies between 7% and 26%, with almost equal incidence among men and women.

RISK FACTORS AND ETIOPATHOGENESIS

Disease initiation of psoriasis is a complex interplay of various factors. Psoriasis can be triggered or precipitated in genetically predisposed individuals when they are exposed to environmental triggers.

Genetics

The risk of acquiring or developing psoriasis increases among first-degree relatives with psoriasis and approximately 40% of patients with PsA have a positive family history. Genome-wide association studies (GWASs) have demonstrated multiple susceptibility regions, which

contain genetic polymorphisms conferring an increased risk of developing psoriasis. Based on GWAS studies, about nine chromosomal loci (PSORS1–9) and about 40 genes have been identified to be associated with susceptibility to psoriasis. One of the major genetic determinants is the psoriasis susceptibility (PSORS1) locus located within the major histocompatibility complex (MHC) on chromosome 6p21. HLA-Cw6 is an important allele which is associated with susceptibility to early-onset psoriasis, guttate psoriasis, and PsA. HLA-B27, HLA-B38, and HLA-B39 are also associated with psoriatic arthritis.

Environmental Triggers

Environmental factors are equally important in triggering psoriasis which includes drug intake, infections, trauma, smoking, alcohol, and stress. Drugs such as chloroquine, hydroxychloroquine, quinidine, terbinafine, imiquimod, antidepressants (lithium), antihypertensives (beta-blockers), and also antitumor necrosis factor (anti-TNF) antibodies (etanercept, infliximab, and adalimumab) have all been associated with triggering or worsening of psoriasis. Streptococcal throat infection may also trigger the condition or exacerbate existing psoriasis mainly in the form of guttate psoriasis. Vitamin D deficiency has also been recently recognized as a risk factor for developing psoriasis.

Direct skin trauma due to scratching, injury, or even insect bite can also trigger psoriasis with psoriatic plaques appearing at the site of trauma (Koebner phenomenon).

Keratinocyte Hyperproliferation and Immune System

Psoriasis has historically been considered to be a disorder of skin hyperproliferation characterized by decrease in epidermal turnover time leading to immature keratinocytes reaching the surface and being shed as scales. However, it is now believed that psoriasis occurs due to crosstalk between keratinocytes and immune system components like neutrophils, T lymphocytes, and dermal dendritic cells. Psoriasis is predominantly a Th1 lymphocyte-mediated disease with high levels of cytokines like interferon-γ, TNF-α, etc.; however, recent studies have observed that the chronic inflammation is maintained by the Th-17 lymphocyte pathway inflammation and epidermal proliferation via secretion of cytokines IL-17 and IL-22. This research in the pathogenesis of psoriasis has opened new avenues for the development of targeted therapies that work by selectively blocking these cytokines or inflammatory pathways.

CLINICAL FEATURES AND CLASSIFICATION

Psoriasis is diagnosed on the basis of clinical findings (skin lesions, changes in nails, and joint involvement) and majority of the times, the diagnosis is straightforward. The clinical manifestations can be divided as dermatologic and nondermatologic that includes PsA and other comorbidities.

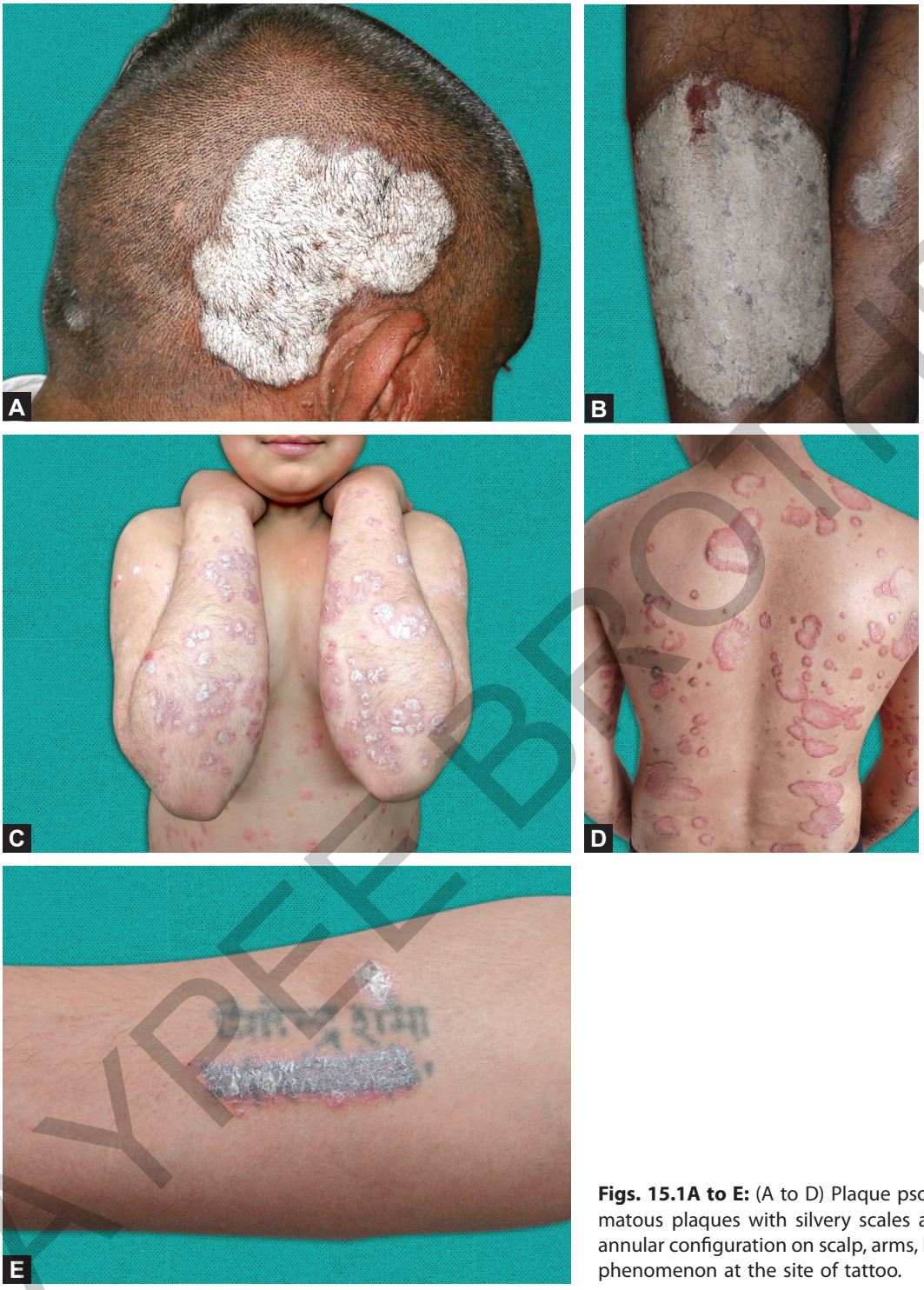
Dermatologic Manifestations

The main morphological types of psoriasis are: plaque-type, guttate, unstable, pustular psoriasis, erythrodermic psoriasis, and atypical forms like linear, elephantine, follicular, etc. with several further subtypes based on age at onset (early <40 years or type I vs late >40 years or type II), anatomical localization (flexural, scalp, palmoplantar, and nail), size (large >3 cm vs small <3 cm), and disease activity (unstable vs stable).

Chronic plaque psoriasis or psoriasis vulgaris is the most common type or variant of psoriasis and is characterized by sharply demarcated round or oval erythematous, raised plaques with silvery white scales generally distributed on the scalp, extensor surfaces of the arms, legs, and trunk (Figs. 15.1A to D). The plaques may be asymptomatic, pruritic, and sometimes painful. Various signs of historical importance associated or considered diagnostic of psoriasis are the Auspitz sign and presence of Woronoff's ring. The appearance of pinpoint bleeding at the base of a plaque after scale is removed by Grattage is called Auspitz sign. Sometimes in the absence of evident scaling, scratching the plaque with glass slide may induce scaling (Grattage test). Woronoff's ring is the white ring on normal skin around red plaques being treated with coal tar or phototherapy. It is thought to be due to depletion of prostaglandin, PGE2. Koebner phenomenon or isomorphic phenomenon is the development of skin disease at sites of skin trauma and can be seen in patients with chronic plaque psoriasis (Fig. 15.1E).

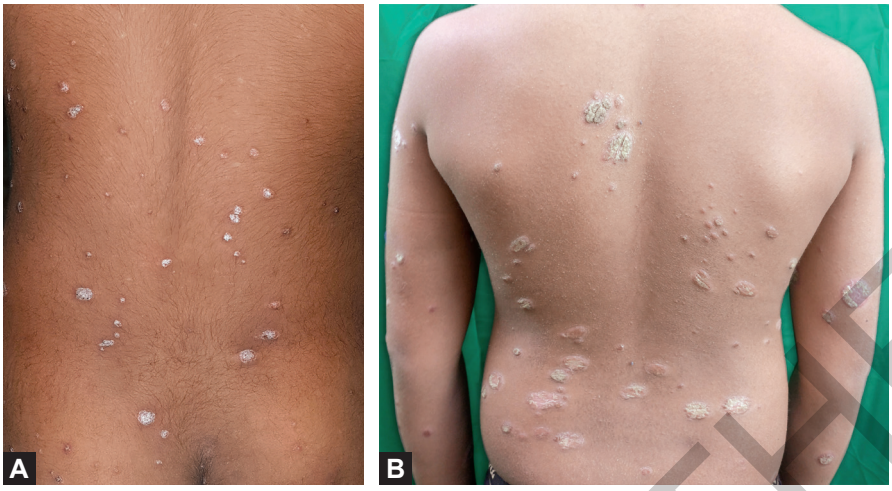
Guttate psoriasis is characterized by abrupt onset of multiple small (<1 cm) scaly plaques usually occurring around the trunk (Fig. 15.2A), upper arms, and thighs. It is more commonly seen in children and young adults and may appear in patients with no prior history of psoriasis but sometimes patients with preexisting plaque psoriasis may develop guttate psoriasis flare or exacerbation (Fig. 15.2B). There is a strong association between recent upper respiratory tract infection, notably streptococcal pharyngitis in children and young adults.

Generalized pustular psoriasis (GPP), also known as Von Zumbusch psoriasis, is a rare but potentially life-



Figs. 15.1A to E: (A to D) Plaque psoriasis—well-defined erythematous plaques with silvery scales and extensor distribution or annular configuration on scalp, arms, legs, and trunk; (E) Koebner's phenomenon at the site of tattoo.

threatening disease characterized by acute onset of widespread erythema, scaling, and sheets of superficial pustules which may be discrete and/or confluent that appear like lakes of pus (Figs. 15.3A and B), along with high fever, fatigue, hypocalcemia, and leukocytosis. It may be associated with acute respiratory distress, sepsis, hepatic, and



Figs. 15.2A and B: (A) Guttate psoriasis; (B) Chronic plaque psoriasis with guttate exacerbation.

renal complications. Acute attacks often occur during pregnancy (impetigo herpetiformis or pustular psoriasis of pregnancy) and may be triggered by infections, withdrawal of drugs like corticosteroids. GPP (Fig. 15.3C) can be associated with plaque-type psoriasis or may arise *de novo*.

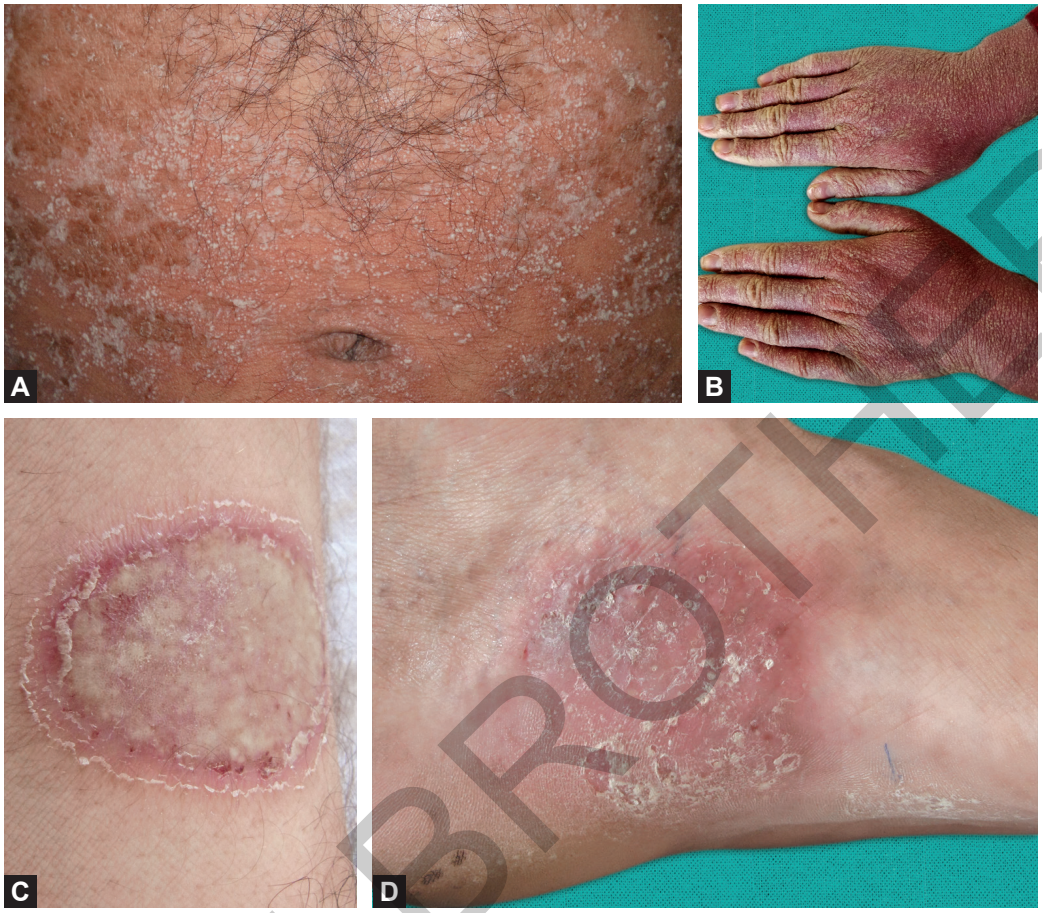
Pustular psoriasis can also be localized; the two variants of localized pustular psoriasis are: (1) acrodermatitis continua of Hallopeau in which pustular lesions affect the distal digits and nails and (2) palmoplantar pustulosis with discrete deep-seated pustules appearing on the palms and soles (Fig. 15.3D).

Psoriatic erythroderma, characterized by widespread diffuse erythema, with or without scaling, involving more than 90% of the skin surface is one of the severe forms of psoriasis which causes significant morbidity and is also potentially life-threatening (Fig. 15.4). It occurs in 1–2.25% of all the psoriatic cases. Psoriatic erythroderma can occur due to worsening of psoriasis or sometimes it may be the initial presentation of psoriasis. A detailed history and thorough evaluation of the patient are necessary to establish a diagnosis and rule out conditions that closely mimic erythrodermic psoriasis like erythroderma due to drugs, eczemas, and Sézary syndrome. The diagnosis can be confirmed by histopathology. It is often associated with systemic symptoms that may include fever or hypothermia, tachycardia, lymphadenopathy, and peripheral edema. Associated laboratory abnormalities include anemia, leukocytosis or leukopenia, elevated erythrocyte sedimentation rate, hypoalbuminemia, and elevations of liver transaminases, lactate dehydrogenase. Significant morbidity and life-threatening complications may occur due to the disrupted barrier function leading to fluid and electrolyte disturbances, and infection or sepsis and high-output cardiac failure.

Inverse/flexural psoriasis or flexural psoriasis is localized predominantly to the body folds or the intertriginous regions like axillae, inframammary regions, abdominal folds, and inguinal folds, which is opposite to the distribution seen in chronic plaque psoriasis hence, the name inverse psoriasis. The morphology is also different as inverse psoriasis lesions are well-defined shiny erythematous, thin plaques without significant scaling. It is frequently misdiagnosed as intertrigo or tinea cruris.

Nail Psoriasis (Psoriatic Onychodystrophy)

About 40% of patients with psoriasis can have nail psoriasis over the lifetime. It may occur at any time during the course of the disease and is an important diagnostic pointer for psoriasis as well as PsA. Sometimes, the patients may present with only nail involvement and no or minimal skin lesions. The nail findings in psoriasis depend on the involvement of nail bed or the nail matrix (Table 15.1). Nail pitting is characterized by small round depressions on the surface of the nail plate and although coarse pits are characteristic of psoriasis but these can also be seen in other diseases such as eczema, alopecia areata, and lichen planus. Other signs of nail psoriasis include the salmon patch or oil drop sign, onycholysis (separation of the nail plate from the nail bed), red spots in the lunula, subungual hyperkeratosis, splinter hemorrhages in the nail plate, leukonychia, and vertical or transverse ridging (Fig. 15.5). With severe involvement, the nail may get crumbled and ultimately detach.



Figs. 15.3A to D: (A) Pustular psoriasis with discrete sterile pustules on erythematous base; (B) Multiple pustules on the hands in a patient of generalized pustular psoriasis (GPP); (C) Pustules on psoriasis plaque; (D) Plantar pustular psoriasis.

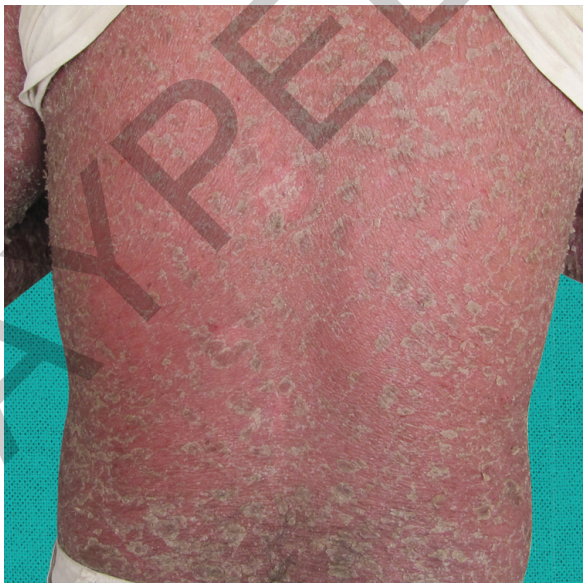


Fig. 15.4: Erythrodermic psoriasis.

Table 15.1: Nail changes in psoriasis.

Nail matrix	Pitting, leukonychia, red spots on the lunula, and crumbling of the nail plate
Nail bed	Oil drop sign, onycholysis, subungual hyperkeratosis, and splinter hemorrhages

Nondermatologic Manifestations

Psoriatic Arthritis

Psoriatic arthritis is a seronegative inflammatory arthritis that develops on an average after 12 years following the onset of skin disease. The estimated prevalence ranges from 7% to 26% of patients with psoriasis, and there is no gender predilection. The patients should be enquired about presence of joint pain, morning stiffness, and back pain to screen for the presence of PsA. The characteristic lesion of PsA is enthesopathy or inflammation of soft tissues like

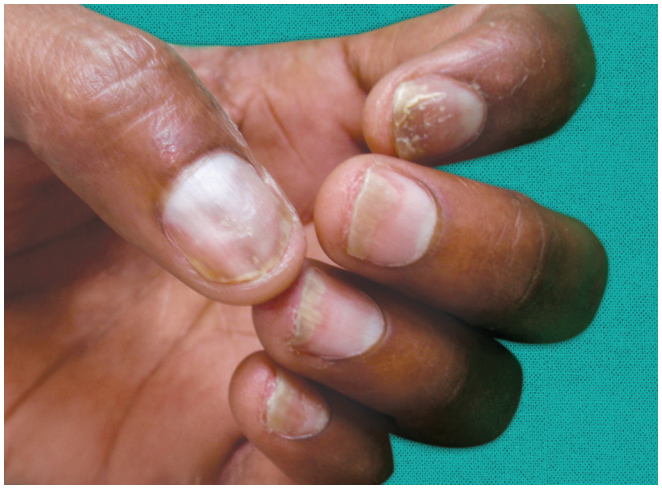
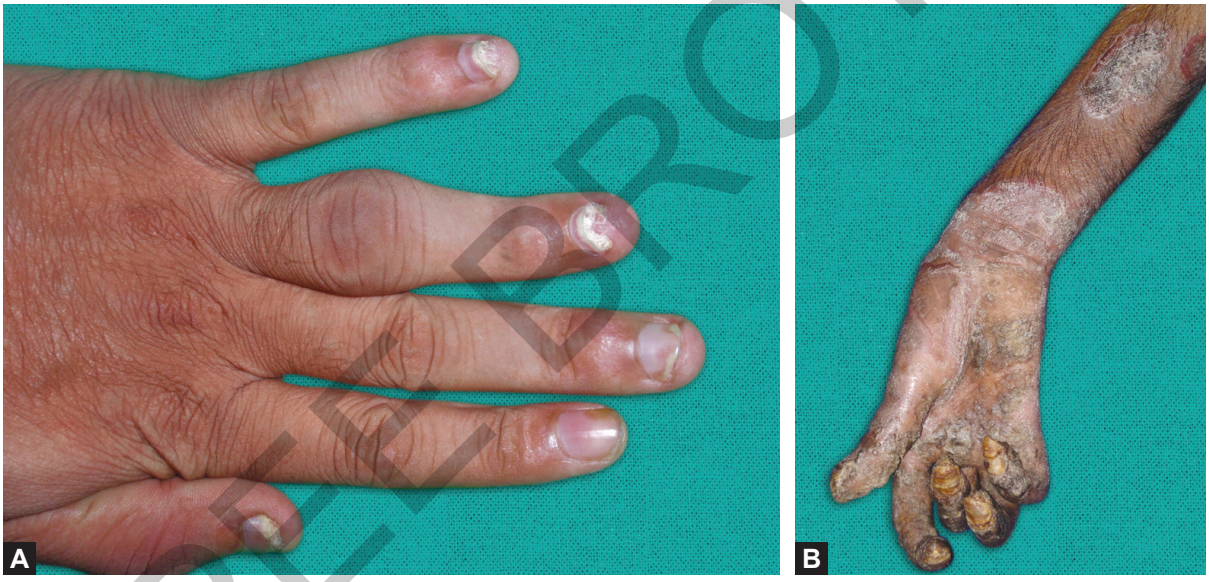


Fig. 15.5: Psoriatic nail changes. Nail pitting, subungual hyperkeratosis, and dystrophy seen in psoriasis.



Figs. 15.6A and B: Psoriatic arthritis and deformities of small joints of hands.

tendon insertion into bone, tenosynovitis, and dactylitis—"sausage digits" (Fig. 15.6A). The different clinical patterns of PsA are:

- *Distal arthritis*: Distal interphalangeal (DIP) joints
- *Asymmetric oligoarthritis*: Asymmetric involvement of five small and/or large joints
- *Symmetric polyarthritis*: Rheumatoid arthritis-like involvement
- *Arthritis mutilans*: Deforming and destructive arthritis (Fig. 15.6B)
- *Spondyloarthropathy*: Sacroiliitis and spondylitis.

Associated Comorbidities

There is an increased risk of a variety of comorbidities in patients of psoriasis (Table 15.2). The exact reason for these associations is not well understood. The proposed mechanisms are chronic inflammation, lifestyle factors, shared risk factors, and the adverse effects of systemic therapies.

In addition to the above-mentioned comorbidities, psoriasis patients are also at increased risk of chronic kidney disease, nonalcoholic fatty liver disease, coronary artery disease, obstructive sleep apnea, chronic obstructive pulmonary disease, inflammatory bowel

Table 15.2: Comorbidities in psoriasis.

Comorbidity	*Comments*
Depression	Psoriasis is more often seen in patients with obesity and metabolic syndrome.
Metabolic syndrome, obesity	• Pooled OR for obesity—1.66 • Metabolic syndrome—OR 1.42
Autoimmune diseases	Increased risk for multiple autoimmune diseases like alopecia areata, Crohn's disease, celiac disease, systemic sclerosis, and vitiligo
Malignancy	A risk analysis showed that nonmelanoma skin cancer, lymphoma, and lung cancer had the strongest associations with psoriasis due to immunesupression (treatment induced) or long-term photochemotherapy and the presence of a chronic inflammatory state may predispose psoriasis patients to development of malignancy
Atherosclerotic disease	Psoriasis is associated with increased risk for the development of atherosclerotic vascular disease including cardiovascular, cerebrovascular, and peripheral vascular disease. The risk of myocardial infarction (MI) is noted to be more in patients with severe psoriasis

disease, and psychiatric comorbidity like depression, anxiety, and suicidal ideation. Hence, the evaluation of psoriasis patients should also include screening for these comorbidities and referral to specialists for managing these comorbid conditions.

PSORIASIS IN CHILDREN

The prevalence of psoriasis is less in children compared to adults and children can present with morphologies of disease that are similar to adult psoriasis. In children, plaque psoriasis, scalp psoriasis, guttate type, linear/segmental/nevoid, and flexural psoriasis are more common than palmoplantar, pustular, and nail psoriasis. Psoriasiform diaper dermatitis is a common presentation in infants that presents as sharply demarcated, erythematous plaques in the diaper area with involvement of the inguinal folds. Annular pustular psoriasis is the most common variant of generalized pustular psoriasis in children and presents as a recurring subacute eruption of annular or figurate erythematous plaques with peripheral pustules and scale. It is often difficult to differentiate psoriasis and atopic dermatitis in young children and important clues for the diagnosis of psoriasis are distribution, dryness, scaling, and the relative lack of pruritus in the eczematous appearing patches.

DIFFERENTIAL DIAGNOSIS

Differential diagnoses of psoriasis include the enlisted conditions in Table 15.3.

DIAGNOSTIC TOOLS

Psoriasis is diagnosed on the basis of characteristic skin lesions and very rarely histopathology of skin may be required. Histopathology of a psoriatic plaque shows epidermal acanthosis with parakeratosis (retention of nuclei in the stratum corneum), loss of stratum granulosum, elongated rete pegs, and neutrophilic collections within the stratum corneum (Munro's microabscesses) or within the epidermis forming spongiform pustules of Kogoj. Early lesions may have only tortuous and dilated blood vessels with a perivascular lymphocytic infiltrate seen in the dermis.

In the patients having joint pains and swelling, X-rays or magnetic resonance imaging of the involved joints may assist in differentiating PsA from other forms of arthritis. Other investigations like lipid profile, blood sugar levels, and liver and kidney function tests should also be done to screen for comorbidities and while planning systemic therapy.

SEVERITY GRADING OF PSORIASIS

Evaluating severity of psoriasis is important in the evaluation of the patient as it helps in deciding the treatment modalities for a particular patient, to monitor the effectiveness of treatment, and to assess the effect of disease on patient's life. The severity scores that are commonly employed include body surface area (BSA) assessment, Psoriasis Area Severity Index (PASI), and Dermatology Life Quality Index (DLQI). The BSA measurement can be done by either the full handprint method (the surface area of palm and fingers equals approximately 1% of BSA) or the rule of 9 (different regions of the body are either 9% or a multiple of 9%). PASI score measures the psoriasis severity and the percentage of each body region that is head, arms, trunk, and legs involved. The severity of the lesion is measured with a four-point

Table 15.3: Differential diagnosis of psoriasis vulgaris.

Differential diagnosis	*Distinguishing clinical features*
Atopic dermatitis	Itching or pruritus is the predominant symptom and typical distribution or morphology (facial and extensor papulovesicular lesions and oozy patches in infancy and flexural lichenification in adults and older children)
Contact dermatitis	History of exposure to the irritant or allergen. Well-defined geometric outlines of the patches or plaques at the site of contact
Lichen planus/lichenoid drug rash	Intensely itchy, violaceous or purplish papules and plaques with mucosal involvement
Secondary syphilis	Syphilis is called a great mimic and can present as annular plaques, mucosal involvement, palmoplantar lesions, and generalized lymphadenopathy
Mycosis fungoides (MF)	Sometimes, it is very difficult to differentiate the plaque stage mycosis fungoides from psoriasis, some important hints for MF are irregularly-shaped lesions (arciform or horseshoe-shaped) with asymmetric distribution, and atrophy
Numular eczema	Erythematous or skin colored well-demarcated, round plaques 1–10 cm in size. The lesions have indistinct borders (unlike psoriasis). The face and scalp are spared
Tinea corporis	Annular scaly patches in the groin, buttocks, trunk, and intense itching
Pityriasis rosea	• Sudden onset of round to oval papules and patches with collarette of scale and "Christmas tree" configuration on trunk and proximal extremities with relative sparing of the face and distal extremities • Presence of "Herald patch" may be seen

scoring system that documents erythema, scale, and the thickness of the plaques. The impact of the disease on the patient's QoL can be determined by a validated, 10-point questionnaire-based tool called DLQI that generates a score between 0 and 30 and a score more than 10 suggests a significant effect on patient's life. Another tool to estimate the psychological impact of psoriasis on patient is Psoriasis Disability Index (PDI) which consists of questions regarding daily activities, personal relationships, leisure, and treatment during last 4 weeks.

MANAGEMENT

Patient Education

Patient education should commence as soon as the diagnosis of psoriasis is made with emphasis on the chronic relapsing and remitting nature of the disease, its noncontagiousness, and explaining to the patient that there is no permanent cure for psoriasis, but it can be effectively controlled with appropriate therapy which is the goal of treatment. Exacerbating factors like stress, infections, trauma, and use of certain medications such as angiotensin-converting enzyme (ACE) inhibitors, beta-blockers, lithium, and the antimalarials should also be discussed and patient should be counseled to avoid these if possible.

Investigations

Routine investigations that include complete blood counts, liver and renal function tests, hepatitis B and C screening, chest X-ray/Mantoux test to rule out tuberculosis, and routine urine microscopy must be done in all patients with moderate to severe psoriasis who are being considered for systemic therapy. In addition, fasting lipid profile and blood glucose levels are helpful in screening the associated comorbidities like metabolic syndrome and atherosclerosis.

TREATMENT

Pharmacotherapy

Treatment must be individualized according to the severity of disease, the preferences of the patient and the potential benefits, and adverse effects of various therapies. Systemic therapy in patients with severe disease should preferably be offered only after consultation with a dermatologist.

The decision whether to use localized topical therapies or systemic (traditional or biologic) therapy and/or photo (chemo) therapy is based on many factors (Table 15.4).

Topical Therapies

Mild disease can be managed by topical therapies alone.

Table 15.4: Criteria for using local versus systemic therapy.

Candidates for local therapy	*Candidates for systemic/ photochemotherapy*
Limited body surface area (BSA) involvement (less than 3–5%)	Greater than 5% BSA involvement, or less than 5% BSA with involvement of certain sites like scalp, face, genitals, nails, palms, and soles
	Psoriatic erythroderma
	Pustular psoriasis
	Guttate psoriasis
	Disease resistant to local therapy
	Profound physical or psychological disability

Table 15.5: Photochemotherapy in psoriasis vulgaris.

Type of phototherapy	*Adverse effects*	*Comments*
Photochemotherapy: UVA phototherapy (320–400 nm) combined with psoralens	Nausea, vomiting, pruritus, dryness of skin, erythema, blistering and irregular pigmentation	The treatment is given three to five times a week till clinical remission. Protection from sun is essential and must be ensured after the session as further sun-exposure may lead to phototoxicity
UVB phototherapy: • Broadband (290–320 nm) • Narrowband (311–312 nm)	Burning, erythema, photoaging, and pruritus	Three to five sessions/ week till clinical remission. Can be safely used in children and pregnant women. Home-based units are also available

(UVA: ultraviolet A; UVB: ultraviolet B)

Topical corticosteroids are considered as the mainstay of topical therapy in mild plaque-type psoriasis. Their effect on reducing the disease activity is attributed to their anti-inflammatory properties. Superpotent formulations available as creams/ointments/gels/lotions can be used initially for disease control. The examples are clobetasol, betamethasone, and halobetasol. But their use for prolonged periods or in large quantities may cause atrophy, telangiectasias, and striae. Mid potency topical steroids like triamcinolone, mometasone, and fluticasone, are, therefore, used for maintenance therapy. The least potent topical steroids like hydrocortisone are preferred over face and flexures and in infants and young children.

Vitamin D analogs like calcipotriene, calcipotriol, and calcitriol are also useful topical agents in the treatment of psoriasis. They act by affecting the cellular differentiation and proliferation. It has been seen that combination of vitamin D analog with a high-potency topical steroid, e.g. calcipotriene and betamethasone propionate or clobetasol combination has enhanced efficacy in clearing plaque psoriasis than either of them used alone.

Coal tar preparations are among the traditional treatments for psoriasis. They are useful in patients with relatively mild disease and can be used as a maintenance therapy. These have antiproliferative and keratolytic activity particularly useful for chronic plaque-type psoriasis. However, they are to be avoided in unstable, erythrodermic and pustular psoriasis due to their irritant potential that may exacerbate the disease further.

Phototherapy and Photochemotherapy

The beneficial effect of sunlight in psoriasis is well known and it is because of the UVR in natural sunlight. Phototherapy can be used to treat widespread or refractory disease. Narrow-band ultraviolet B (UVB) is the preferred phototherapy spectrum. It is safe in children and pregnancy. Ideally, the treatment is performed three times every week over several months. Home-based units are also available and are effective. The efficacy is enhanced when combined with other systemic or topical therapies (Table 15.5).

Conventional Systemic Treatment

Acitretin is a vitamin A analog or an oral retinoid with daily dose ranging between 10 mg and 50 mg. Retinoids mediate their action via modulating epidermal proliferation and differentiation. They also have anti-inflammatory action. Due to the risk of teratogenicity, their use must be avoided in pregnant women or those planning for pregnancy. Dryness of the skin and lips is a common side effect. The drug can also derange serum lipid profile hence, regular monitoring is essential.

Methotrexate is an antimetabolite that has been used to treat psoriasis for many decades. This drug acts by inhibiting enzyme dihydrofolate reductase that inhibits epidermal proliferation. It is given as a once weekly regimen with the dose between 5 mg/week and 25 mg/week depending on the severity. Being an immunosuppressant, use in patients having any active infection should be avoided. It is contraindicated in pregnancy but can be used safely in pediatric population. It can cause bone marrow suppression and hepatotoxicity therefore, monitoring of blood counts and liver functions is essential while patient is on methotrexate.

Cyclosporine is a calcineurin inhibitor that inhibits T-cell proliferation. The dose is 2.5–5 mg/kg daily. The action of the drug is relatively fast along with better efficacy compared to other systemic therapies. Cyclosporine can derange lipid profile, renal functions, and has potential to raise blood pressure. Hence, all these parameters need regular monitoring.

Apremilast is a small molecule that inhibits phosphodiesterase type 4. It is approved for treatment of moderate to severe psoriasis and psoriatic arthritis. The dose is 30 mg BD and it can be used alone or in combination with other drugs. The drug is relatively safe hence, routine laboratory studies are not mandatory. The most common adverse events include diarrhea and nausea, which improve and subside with continuous therapy.

Biologic Therapies

Biologics are protein-based compounds that act against inflammatory cytokines involved in the pathogenesis of the disease. Since these agents target the cytokines and their receptors involved in psoriasis pathogenesis, they are considered as targeted therapy which will have lesser side effects or end-organ toxicities than the conventional agents.

Currently approved biologics for psoriasis include:

- Tumor necrosis factor inhibitors like adalimumab, etanercept, and infliximab
- Interleukin-12/23 (IL-12/23) inhibitors, e.g. ustekinumab
- Interleukin-17 inhibitor, e.g. secukinumab.

The initial screening for systemic treatment (conventional and biologics) includes testing for human immunodeficiency virus (HIV), tuberculosis, and hepatitis B and C.

INDICATIONS FOR REFERRAL TO A SPECIALIST

Whenever the diagnosis of psoriasis is doubtful, the patient should be referred to a dermatologist. Any patient with psoriasis having significant impact on their QoL, patients with moderate to severe psoriasis, psoriasis involving areas like face, hands, and feet which can have significant impact on QoL, or functioning of the patient or localized disease not responding to the topical therapy are indications for systemic therapy or phototherapy and referral to a specialist.

The dermatologist should also consider referral of the psoriatic patients having comorbidities like cardiovascular disease, obesity and metabolic syndrome, depression, PsA, and others inflammatory bowel disease to the concerned specialist for proper evaluation and management of these comorbidities. Collaboration of different fields of medicine provides best care to the patient with psoriatic disease.

KEY LEARNING POINTS

- Psoriasis is a common distressing, chronic disease with a relapsing and remitting course. Most common presentation is chronic plaque type. Others include guttate, intertriginous, pustular, erythrodermic, nail psoriasis, and arthropathic psoriasis.
- It is now recognized as systemic inflammatory disease associated with several comorbidities like obesity, metabolic syndrome, depression, and increased cardiovascular morbidity with significant impact on the patient's QoL.
- A detailed history and examination should be performed at the time of presentation which must include the extent, severity, and the subtype of psoriasis along with examination of the scalp, nails, and intertriginous skin.
- Various treatment options, like topical, phototherapy, and systemic are instituted according to the type and severity of psoriasis.
- Mild to moderate psoriasis often requires only topical therapies like topical steroids, calcineurin inhibitors, vitamin D analogs, and coal tar.
- Systemic drugs like acitretin, methotrexate, and apremilast are reserved for moderate to severe disease, unresponsive to topical therapy but these should be started under supervision of a specialist.
- Newer biologic agents have now been increasingly used; they offer the advantage of having a targeted and specific action but are very expensive and the long-term safety may be a potential concern.

SUGGESTED READING

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MULTIPLE CHOICE QUESTIONS

1. **The worldwide prevalence of psoriasis in adults is:**
   a. 5–25% b. 0.5–11.4%
   c. 1–2% d. 0.5–2.5%

2. **Family history of psoriasis is seen in what percentage of patients with psoriasis?**
   a. 10% b. 20%
   c. 40% d. 50%

3. **Which of the following drugs does not trigger or exacerbate psoriasis?**
   a. Lithium b. Chloroquine
   c. Imiquimod d. Methotrexate

4. **Which of the following is not true about pathogenesis of psoriasis?**
   a. Autoantibody formation
   b. Increased proliferation of keratinocytes
   c. Activation of T lymphocytes and macrophages
   d. None of the above

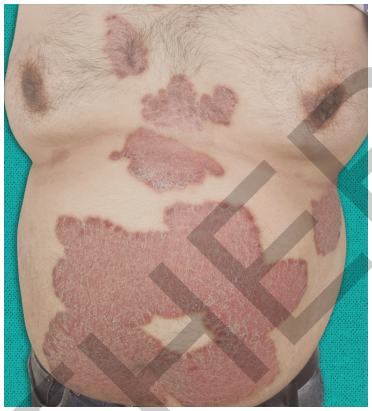
5. **Which of the following types of psoriasis can be life-threatening?**
   a. Guttate psoriasis
   b. Unstable psoriasis
   c. Localized pustular psoriasis
   d. Erythrodermic psoriasis

6. **The complications of erythrodermic psoriasis include all, *except*:**
   a. Jaundice
   b. Electrolyte disturbances
   c. Sepsis
   d. Cardiac failure

7. **Which of the following nail finding occurs due to nail bed involvement?**
   a. Pitting
   b. Onycholysis
   c. Crumbling of the nail plate
   d. Leukonychia

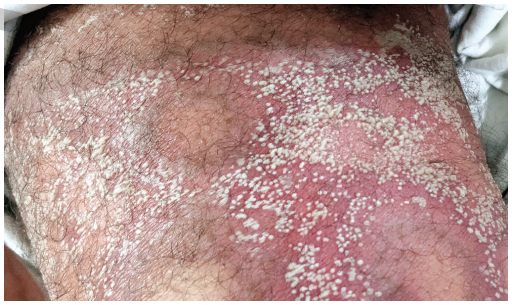
8. **Which of the following topical agents is used for mild to moderate psoriasis?**
   a. Fusidic acid
   b. Mupirocin
   c. Calcipotriol
   d. Adapalene

9. **Identify this clinical variant of psoriasis (clinical image).**



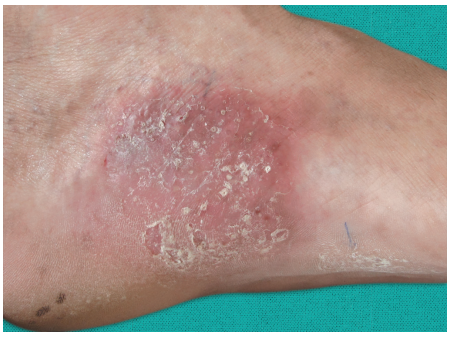
   a. Chronic plaque psoriasis
   b. Flexural psoriasis
   c. Guttate psoriasis
   d. Pustular psoriasis

10. **Identify this clinical variant of psoriasis (clinical image).**



   a. Chronic plaque psoriasis
   b. Flexural psoriasis
   c. Guttate psoriasis
   d. Pustular psoriasis

11. **Identify this clinical variant of psoriasis (clinical image).**



a. Chronic plaque psoriasis
b. Palmoplantar pustulosis
c. Guttate psoriasis
d. Pustular psoriasis

12. What plays a major role in pathogenesis of psoriasis?
a. Digestive system
b. Cardiovascular system
c. Immune system
d. Nervous system

13. The preferred treatment for erythrodermic psoriasis is:
a. Corticosteroids
b. Methotrexate
c. Coal tar
d. Isotretinoin

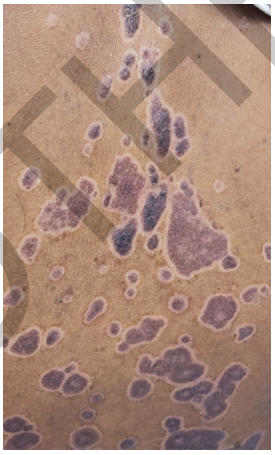
14. Psoriasis can be exacerbated by all, *except*:
a. Lithium
b. Chloroquine
c. Terbinafine
d. Paracetamol.

15. Which of the following biologics is used in treatment of psoriasis?
a. Infliximab
b. Canakinumab
c. Rituximab
d. Briakinumab

16. Routine laboratory monitoring is not required with which of the following drugs used in the treatment of psoriasis?
a. Methotrexate
b. Acitretin
c. Apremilast
d. Cyclosporine

17. Which of the following is not a TNF-α blocker?
a. Ustekinumab
b. Infliximab
c. Adalimumab
d. Etanercept

18. Identify this clinical sign (clinical image).



a. Grattage test
b. Auspitz sign
c. Woronoff's ring
d. Bull's eye sign

ANSWER KEY

1. b	2. c	3. d	4. a	5. d	6. a
7. b	8. c	9. a	10. d	11. b	12. c
13. b	14. d	15. a	16. c	17. a	18. c

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