



A SYSTEMATIC REVIEW OF TYPES, SYMPTOMS AND TREATMENT OF PSORIASIS

Khushi Prajapati^{1*}, Dr. Shweta Paroha², Dr. Pragnesh Patani³

^{1*}Khyati College of Pharmacy, Plot No.116, B/h. Electrotherm Industries, Nr. Vraj Gopi-2, Palodia, Ahmedabad- 382115

²Associate Professor, Department of Pharmaceutics, Khyati College of Pharmacy, Ahmedabad

³Principal, Khyati College of Pharmacy, Ahmedabad

***Corresponding Author:** Khushi Prajapati

*Khyati College of Pharmacy, Ahmedabad, Email: khushiprajapati797@gmail.com

Abstract

Psoriasis is a chronic, multisystem inflammatory disease with predominantly skin and joint involvement. It has a bimodal age of onset (16 to 22 and 57 to 60 years)² and affects both sexes equally. Beyond the physical dimensions of the disease, psoriasis has an extensive emotional and psychosocial effect on patients, affecting social functioning and interpersonal relationships. As a systemic inflammation disease, psoriasis is associated with multiple comorbidities, including cardiovascular disease and malignancy. The diagnosis is primarily clinical and a skin biopsy is seldom required. Depending on the severity of the disease, appropriate treatment can be initiated. First-line treatment for mild to moderate disease involves topical therapies including corticosteroids, vitamin D3 analogues, and combination products. In this review, we have discussed types, symptoms and treatment strategies for Psoriasis.

Keywords: Psoriasis, Skin disorders, Chronic skin disease, types of psoriasis, treatment.

INTRODUCTION:

An inflammatory, non-communicable, chronic autoimmune condition affecting the skin and joints is called psoriasis. Psora, which in Greek means "itchy," and iasis, which means "condition," are the sources of the word psoriasis.^[1] Two percent of people globally have the condition, with developed nations having a greater prevalence of roughly 4.6%.^[2] It is typified by scaly, red, coin-sized skin lesions that are clearly defined. These lesions are typically found on the elbows, knees, scalp, hands, and feet. Itching, discomfort, stinging, and pain are some of the symptoms. Rarely, the body's whole skin surface could be affected.^[3] Psoriasis is an immune-mediated condition in which an excess of new skin cells are produced as a result of a normal skin cell misinterpreting a pathogen and sending out a false signal. Psoriasis is a persistent skin inflammatory and proliferative disorder. Any bodily part that experiences oxidative stress eventually experiences inflammation, which is a component of the immune system's reaction.^[4]

The skin's outermost layer is called the epidermis. The epidermis in healthy skin generates cells at a constant rate, pushing them to the surface over several weeks before they shed. This turnover rate is markedly enhanced in psoriasis. Skin cells quickly accumulate on the surface as a result of the skin cells proliferating (multiplying) far more quickly than usual.^{[5][6]}

Normal Process: The maturation and shedding of skin cells usually takes 10 to 30 days.

In cases of psoriasis, this treatment can be completed in three to five days. The ensuing thick, scaly sores are the result of the extra skin cells not having enough time to mature.^[7]

Lesion Formation: Psoriasis is characterized by thick, red plaques coated in silvery-white scales, which are the result of immature skin cells building up due to rapid turnover.[Figure 1]

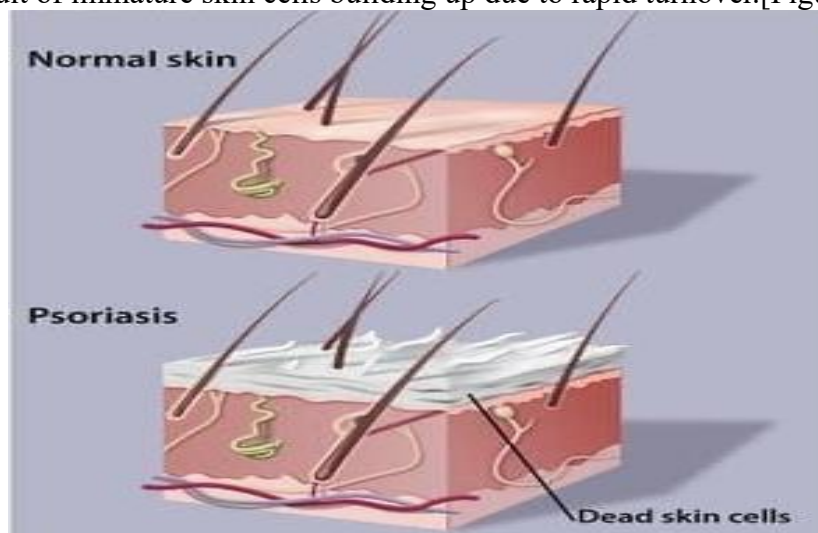


Figure 01: Psoriasis Skin.

Psoriasis normally runs in families, but it can skip generations. For instance, the parent of a grandchild may not be impacted, but a grandparent and grandchild may.^[8] Every individual suffering from this illness has a unique combination of triggers. One patient may not be affected by what sets off a flare-up in another. Finding the trigger accurately may aid the patient in avoiding a relapse of symptoms. Psoriasis factors such as cold, dry weather and stress exacerbate the condition's symptoms because they compromise the immune system. Nervous patients are also more likely to experience an epidemic.^[9]

- **EPIDEMIOLOGY:**

Psoriasis is a skin disease that affects people around the world. The affected population in the US is estimated to be 2%. There have been reports of high incidence of psoriasis in the Faroe Islands. Psoriasis is rare in Japan and may not exist in South American Indians and Aboriginal Australians. Any age can be affected by psoriasis. It has been established that the age of onset is bimodal. Psoriasis typically manifests for the first time between the ages of 15 and 20, peaking between 55 and 60 years old.^[10] Both men and women can have psoriasis, But the likelihood of developing it early is higher in women and those with a family history. Its beginning age exhibits a bimodal distribution, peaking 10 years earlier in women and 30–39 and 60–69 years older in men. It is more prevalent in places with older populations and higher incomes.^[11]

- **CAUSES OF PSORIASIS:**

Psoriasis is not completely understood however, it is thought to have a hereditary component. Immune system components and other biochemical compounds that typically control the orderly proliferation and maturation of epidermal cells are also compromised in psoriasis. These result in skin cell growth and inflammation, which gives rise to the typical clinical characteristics of redness and scaling.^[12] Psoriasis is believed to be aggravated by a number of circumstances. These include smoking, drinking too much alcohol, and experiencing stress. People who have psoriasis may experience sadness and low self-esteem. As a result, when assessing the severity of the condition, quality of life is crucial.^[13] Psoriasis is caused by a combination of constipation, indigestion, and stress, as per Ayurveda, along with a shift in lifestyle.^[14] Antimalarial medications, beta-blockers, and lithium are among the medications that might cause psoriasis.^[15]

SYMPTOMS:

Common signs and symptoms of psoriasis include:-

1. Scaling.
2. Dry, cracked skin that may bleed.
3. Itching, burning or soreness.
4. Small ceiling pots(commonly seen in children).^[16]

The symptoms vary depending on the type of psoriasis. Plaque psoriasis is the most prevalent kind of psoriasis, characterized by the appearance of red plaques that are frequently covered with silver-coloured scales.^[17] The plaques are unpleasant and irritating, and they occasionally crack and bleed. In severe situations, plaques form and mix to cover huge areas of the body. The main characteristics of toenail and fingernail diseases include discolouration and pitting. Nails may also break off or separate from the nail bed. On the surface of the head, plaques and crusts have been observed.^[18] People with psoriasis may develop psoriatic arthritis, a particular kind of arthritis. It results in edema and joint pain. 10% to 30% of people with psoriasis also have psoriatic arthritis, according to the National Psoriasis Foundation.^[19]

COMPLICATIONS :

- 1) Secondary Infection.
- 2) Poor cosmesis.
- 3) Psoriatic arthritis.
- 4) Risk of lymphoma.
- 5) Increased risk of adverse cardiac events.
- 6) Obesity.
- 7) Type2 diabetes.
- 8) Cardiovascular disease.
- 9) Mental health conditions, such as low self-esteem and depression.^{[20][21]}

TYPES OF PSORIASIS:

These are the following types of psoriasis:

1. Plaque Psoriasis
2. Nail Psoriasis
3. Guttate Psoriasis
4. Inverse Psoriasis
5. Pustular Psoriasis
6. Erythrodermic Psoriasis
7. Scalp Psoriasis
8. Psoriatic Arthritis Psoriasis^[22]

Table: 1 Types, Location and Characteristic features of psoriasis.^[22]

Types	Location	Characteristic Featuers
Plaque	Elbows, knee, scalp	Well defined, raised, red plaques topped with silvery scales.
Guttate	Trunk, limbs, chest	Multiple, small red papules.
Inverse	Skin folds underarms, breasts, buttocks or groin	Smooth, dry, red inflamed areas that lack scales.
Erythrodermic	Entire body	Widespread erythema followed by exfoliation
Pustular	Hands and feet	Pustules on reddened plaques

- **Plaque Psoriasis:**

Psoriasis vulgaris, which accounts for 85–90% of cases of psoriasis, is the most prevalent type. It is sometimes referred to as chronic stationary psoriasis or plaque-like psoriasis.^[23] The classic presentation of plaque psoriasis is elevated, inflammatory skin patches covered with silvery-white, scaly skin.^[24] These regions, known as plaques, are most frequently seen on the back, scalp, elbows, and knees.^[25]



Figure 02: Plaque Psoriasis.

- **Nail Psoriasis:**

Psoriasis can cause a range of changes in the look of fingers and toenails, including damage to the nails. In individuals with psoriasis affecting the skin, 40–45% of cases develop nail psoriasis, but in those with psoriatic arthritis, the lifetime prevalence is 80–90%.^[26] These alterations include the following: dryness; thickening of the skin under the nail (subungual hyperkeratosis); loosening and separation of the nail (onycholysis); small areas of bleeding from capillaries under the nail; pitting of the nails (pinhead-sized depressions in the nail is seen in 70% with nail psoriasis); and crumbling of the nail.^[26]



Figure 03: Nail Psoriasis

- **Guttate Psoriasis:**

Guttate psoriasis is an inflammatory disorder marked by numerous tiny, scaly, red or pink droplet-like lesions (papules). Large portions of the body, especially the trunk, limbs, and scalp, are covered in these many papules; the palms and soles are usually spared. The onset of guttate psoriasis usually happens 1-3 weeks after a streptococcal infection, either oropharyngeal or perianal. The diagnosis of

guttate psoriasis is usually based on the history and results of a clinical examination, and it is more common in children and young people.^[27] A skin biopsy can also be carried out, and this usually reveals a psoriasiform response pattern with rete ridge elongation and epidermal hyperplasia. Although there isn't enough data to determine the optimal course of treatment for guttate psoriasis, first-line treatment for mild cases usually consists of topical corticosteroids.^[28] Although up to 40% of people with guttate psoriasis eventually convert to plaque psoriasis, guttate psoriasis usually cures within 1-3 weeks and has a better prognosis than plaque psoriasis.^{[27][29]}



Figure 04: Guttate Psoriasis.

• **Inverse Psoriasis:**

Inverse psoriasis, sometimes referred to as flexural psoriasis, manifests as smooth, inflammatory skin areas. Skin folds are commonly affected by the patches, especially those around the genitals (between the thigh and groin), the armpits, the panniculus, the intergluteal cleft, the skin folds under the breasts, and between the buttocks. This unusual type of psoriasis is believed to be caused by heat, trauma, and infection.^[29]



Figure 05: Inverse Psoriasis.

• **Pustular Psoriasis:**

Pustular Psoriasis manifests as raised bumps with noninfectious pus (pustules).^[30] Red and sensitive skin surrounds and beneath the pustules.^[31] There are two types of pustular psoriasis: localized and widespread. Psoriasis pustulosa palmoplantaris and acrodermatitis continua of Hallopeau are two types of localized pustular psoriasis that are limited to the hands and foot.^[32]



Figure 06: Pustular Psoriasis.

- **Erythrodermic Psoriasis:**

Psoriatic erythroderma, also known as erythrodermic psoriasis, is characterized by extensive skin inflammation and exfoliation throughout the majority of the body's surface, frequently encompassing over 90% of the total surface area.^[32] Severe dryness, itching, swelling, and pain are possible side effects. It could arise from any kind of psoriasis.^[32] It frequently happens when unstable plaque psoriasis flares up, especially after systemic glucocorticoid withdrawal occurs suddenly.^[33] Because severe inflammation and exfoliation impair the body's capacity to regulate temperature and carry out barrier functions, this type of psoriasis can be lethal.^[34]

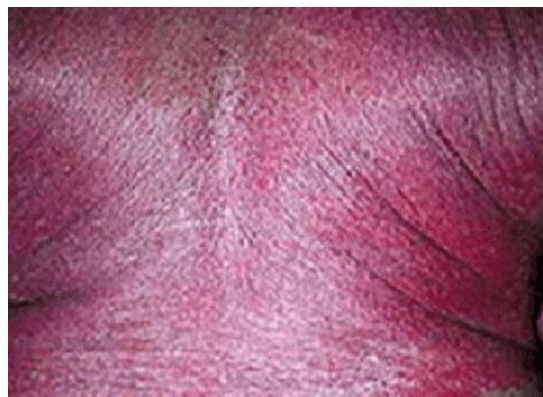


Figure 07: Erythrodermic Psoriasis.

- **Scalp Psoriasis:**

Scalp psoriasis is a frequent type of psoriasis that has clinical characteristics with seborrheic dermatitis. Distinguishing between the two conditions could be difficult. In regions where sebum production is higher, such as the scalp, forehead, skin folds adjacent to the nose, the skin around the mouth, the skin on the chest above the sternum, and in skin folds, this type of psoriasis usually appears as red plaques with greasy scales.^[35] Sometimes, scalp psoriasis makes maintaining good hair hygiene more difficult. Hair loss and scalp infections can result from excessive scratching. Social stress may also be brought on by the illness. It may also extend to the inside of your ears, the back of your neck, your forehead, or your hindquarters. It might give some people really bad dandruff.^[36]



Figure 08: Scalp Psoriasis.

- **Psoriatic Arthritis:**

A type of chronic inflammatory arthritis known as psoriatic arthritis usually exists with skin and nail psoriasis and presents with a very different clinical appearance.^{[37][38]} It can develop with any joint, but most usually affects the joints in the fingers and toes. Usually, it involves excruciating inflammation of the joints and surrounding connective tissue. Dactylitis, a swelling of the fingers and toes like a sausage, may ensue from this.^[37] In addition to the hips, knees, and spine (spondylitis), psoriatic arthritis can also cause sacroiliac joint pain (sacroiliitis).^[39] Psoriatic arthritis affects about 30% of people with psoriasis.^[23] In over 75% of instances, psoriasis skin symptoms appear before arthritis symptoms.^[38]



Figure 09: Psoriatic Arthritis.

TREATMENTS:

The main objective of psoriasis treatment is to relieve symptoms, control inflammation and improve patients' quality of life. Treatment options vary depending on the severity of the disease, the extent of the lesions, and the patient's response.^[39]

- **Topical treatments:**

Topical therapies are frequently utilized in mild to severe forms of psoriasis and are administered directly to skin lesions. One of the most popular and successful forms of treatment is topical corticosteroids, which slow down both inflammation and cell growth. Additional topical treatments include vitamin A analogues (topical retinoids), which lessen inflammation and scaling, and vitamin D analogues, including calcipotriol, which helps balance the proliferation of skin cells.^[40]

• **Phototherapeutic therapy:**

In order to treat psoriasis, phototherapeutic therapy, also referred to as phototherapy, includes carefully regulated exposure to ultraviolet (UV) radiation. It is common practice to combine UVA and UVB narrowband radiation with photosensitizers (PUVA therapy). In the afflicted skin, these treatments lessen inflammation and inhibit cell division.^[41]

• **Systemic therapy:**

Systemic therapy may be used when topical medications are insufficient or the psoriasis is more severe. These drugs work systemically to lower inflammation and decrease the immune response. They can be injected or taken orally. Options for systemic therapy include:^[42]

Methotrexate is an immunosuppressive medication that lowers cell division and inflammation.

Acitretin is an oral retinoid that minimizes peeling and restores normal skin cell renewal.

Cyclosporine is an immunosuppressive drug that reduces inflammation and the immune system.

• **Biological therapy:**

Biological medicines that are quite effective have been developed recently to treat moderate to severe cases of psoriasis. These biological treatments specifically target chemicals and cells that play a role in psoriasis-related inflammation and cell proliferation. Biological therapy for psoriasis includes interleukin inhibitors (IL) and tumour necrosis factor-alpha (TNF- α) inhibitors. These drugs work incredibly well to reduce symptoms and enhance patients' quality of life.^[43]

• **Alternative and Herbal treatments:**

When compared to synthetic pharmaceuticals, herbal medicines do not have additional adverse effects. The herbal remedy is simple to apply and readily accessible for medical usage. Herbal remedies are becoming increasingly essential in the treatment of inflammatory and skin conditions. A change in food and lifestyle may help alleviate the symptoms of psoriasis, according to certain research. The symptoms of psoriasis have improved with the use of vegetarianism, low-energy diets, and fasting periods. Because fish oil supplements contain omega-3 fatty acids and vitamin E, they can be advantageous to certain treatments. Because cannabis contains cannabinoids that have anti-inflammatory qualities and regulate the immune system, it is also recommended as a treatment for psoriasis.^[45-44]

Table: 2 Different Herbs that are used in the treatment of psoriasis.

No.	Botanical name	Family	Active constituents	Mechanism of action
1	<i>Curcuma longa</i> (Turmeric)	Zingiberaceae	Cucuminoids, curcumin, volatile oil.	Curcumin suppresses nuclear factor kappa B, a protein complex that promotes inflammation in psoriasis. Additionally, it promotes skin regeneration and speeds up skin healing. Interleukin and tumour necrosis factor-alpha are crucial proteins during psoriasis inflammation. Curcumin successfully prevents these proteins from acting and also prevents the opening of additional biochemical channels that can cause the illness to worsen. ^[46]
2	<i>Aloe barbadensis</i> Miller (Aloe vera)	Liliaceae	Lignin	Psoriasis can be cured with lignin, which primarily works by enabling AV to enter the inner layers of the skin. ^[47]
3	<i>Azadiracta indica</i> (Neem)	Meliaceae	Azadirachtin	Azadirachtin treats the illness by penetrating the skin's deep layers. On the other hand, the moisturizing properties of vitamin E and the omega 6 and 9 fatty acids found in neem oil aid in the decrease of dryness and scaling of the skin. ^[48]
4	<i>Syzygium aromaticum</i> (Cloves)	Myrtaceae	Eugenol, acetyl eugenol, flavonoids, tannins, gallic acid.	Due to their well-known anti-inflammatory, antioxidant, and immunomodulating qualities, cloves may be useful in the treatment of some psoriasis symptoms. ^[49]

• **Recent drugs available in the market:**

It takes long-term therapy to treat psoriasis, a chronic recurring condition. Therapy is based on comorbidity and severity. The degree of medical severity of the lesions determines whether the portion of the enlarged body surface area is classified as mild or moderate psoriasis. While acute to severe psoriasis frequently necessitates systemic medication, mild to moderate psoriasis is handled topically.^[50]

Some herbal formulations that are available on the market are Vasu Cutisora Lotion and Oil (containing Neem, Karanj, Haridra, Kali mirch, Shwet Kutaj, Vasa, Kantakari, Guduchi; Vasu Healthcare); 4G green powder (containing Cestrum Diurnum; Ayushavedam); Sornip Cream (containing herbal oil containing 3-O-Acetyl-11-Keto β -Boswellic acid; Cipla); and Soricure Cream (containing Wrightia Tinctori; Indian Herbs Specialities).

Table:3 List of some recent drugs available in the market.^[51]

Drugs	Mechanism of action	Marketed preparation
Methotrexate	thymidine and purine synthesis are blocked, which inhibits the synthesis of DNA.	Methocip® Tablet (Cipla) Methorex® Tablet (Zydus) Folitrax® Tablet (Ipca Lab)
Cyclosporine	T cell-inhibitor.	Imusporin® Capsule (Cipla) Cyclophil® ME 25 Tablet (Biocon) Psorid® Capsule (Biocon)
Acitretin (retinoids)	Nuclear receptor through the transcriptional pathway, which	A Treat Capsule (Kaizen Pharma.)
	restores normal keratinocyte division and proliferation.	Acipsor Capsules (Kivi Labs) Acetroin (Nidus Pharma)
Adalimumab	Human monoclonal antibody against TNF- α .	Plamumab Injection (Cipla) Adalirel 40 mg Injection (Reliance Life Sci) Adalimac 40 mg injection (Macleod)
Dapsone	It involves inhibition of bacterial growth and suppression of the inflammatory response of the skin	Dapsone 6% Topical gel (Bayview Pharmacy)

CONCLUSION:

Psoriasis is a complex, multifaceted inflammatory disease that significantly impacts the lives of millions worldwide. This systematic review has highlighted the various types of psoriasis. The diverse symptoms, range from physical discomfort and skin lesions to psychosocial issues. Treatment options for psoriasis have evolved considerably, encompassing topical therapies, phototherapy, systemic medications, and biologics. This also involves Alternative and Herbal treatment. The choice of treatment should be individualized, taking into account the severity of the disease, patient preferences, and potential side effects. Furthermore, ongoing research continues to identify new therapies and better understand the underlying mechanisms of psoriasis. Ultimately, addressing psoriasis requires a holistic approach that not only targets the physical symptoms but also considers the emotional and mental health aspects of living with a chronic condition. Improved awareness and access to care, alongside advances in treatment strategies, are essential for enhancing the quality of life for individuals affected by psoriasis.

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