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Chapter

Introductory Chapter: Psoriasis as a Whole

Shahin Aghaei

1. Introduction

Psoriasis is a common, disfiguring, inflammatory, and chronic skin disorder with a worldwide distribution, but is more common in the Caucasians of the western world [1]. The incidence of psoriasis has been estimated by census studies. The general impression is that the highest incidence is in Europeans, and the lowest in Asians from the East [2].

The cause of psoriasis is unknown, although, environmental and genetic factors appear to play a major role in it. There is undoubtedly a genetic component to the progress of disease; many environmental factors have been linked to psoriasis, and have been involved in induction of the disease process and getting worse of pre-existing disease. These factors include physical trauma [3], infections [4], stress [5], certain drugs (such as beta-blockers, lithium, antimalarials, and systemic steroids) [6], hypocalcemia [7], alcohol consumption, smoking [8], and climate [9].

There is enormous evidence that psoriasis has an important genetic factor, as it was noted that the disease tended to run in families. Perhaps, the most robust data supporting a genetic basis to psoriasis come from studies examining concordance for the disease in twins. Initial studies of the class I human leukocyte antigens (HLA) disclosed an association of psoriasis with B13, B17, and B37. Not long ago, B57 has also been found to be related with psoriasis. Nevertheless, the extreme connection of the class I HLA is with Cw6 [10, 11].

The diagnosis of psoriasis is mainly clinical (skin rash, nail changes, and joint involvement). There are different clinical types of psoriasis; the most common of which is chronic plaque psoriasis, affecting most of patients [12].

Although congenital psoriasis is very rare, the first manifestation of psoriasis may occur at any age, but it is rare under the age of 10 years. Most forms of psoriasis are present before the age of 30 (**Figure 1**) [15]. Chronicity, inflammation, and hyperproliferation are the cardinal features of psoriasis in childhood [16].

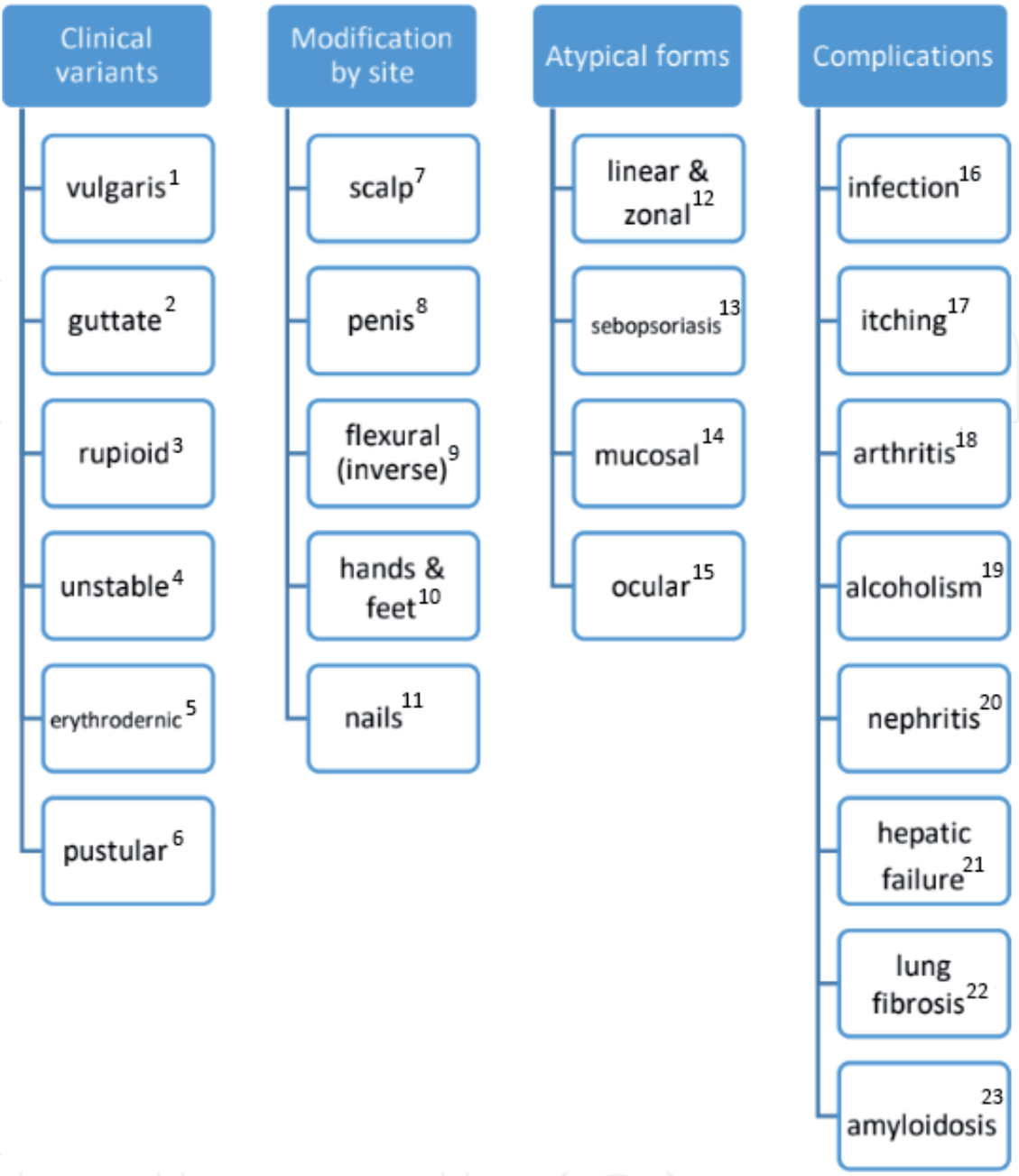

Figure 1.
Summary of clinical presentations [13, 14].

1. Well circumscribed, red, scaly plaques, either as single lesions or as generalized disease.

2. Lots of small lesions, appearing more or less generally over the body, particularly over the trunk and proximal extremities, predominantly induced in children and young adults, and after acute streptococcal infections [17].

3. Plaques associated with gross hyperkeratosis.

4. May be usefully used to describe phases of the disease, in which activity is marked and the course of disease is unforeseeable. The border of lesions in unstable phase is not well-demarcated [13].

5. Two forms exist [18]. In the first form, chronic lesions may evolve gradually into an exfoliative phase, and can be regarded as extensive plaque psoriasis involving all, or

almost all, the cutaneous surface. The second form is part of the spectrum of "unstable" psoriasis [19].

6. Pustular psoriasis: *I. Generalized* (von Zumbusch)—frequently seen in young individuals; develop independently or as a complication of plaque type, such as secondary to abrupt withdrawal of systemic steroid therapy, mediating triggering factors, hypocalcemia; sudden onsets on an erythematous background associated with general symptoms (fever, lethargy, and arthralgia); high sedimentation rate; leukocytosis; lymphopenia, and negative nitrogen balance; during pregnancy known as *Impetigo herpetiformis* [20]. *II. Localized*—incidence low as compared with psoriasis vulgaris; chronic relapsing eruption limited to palms and soles; numerous sterile, yellow, and deep-seated pustules that evolve into dusky-red crusts; considered by some as localized pustular psoriasis (*Barber-type*) and by others a separate entity [21].

7. Very thick plaques develop, especially at the occiput, not a frequent cause of alopecia.

8. Solitary patch on the glans without scales, but its color and well-defined edge is characteristic.

9. Involving the groins, vulva, axillae, submammary folds, gluteal cleft, and other body folds in older adults.

10. Typical scaly patches; less well-defined plaques resembling lichen simplex or hyperkeratotic eczema; or as a pustulosis.

11. Can present without concomitant skin plaques; pitting, distal onycholysis, subungual hyperkeratosis, oil drop sign, splinter hemorrhages, leukonychia, crumbling, red lunula; a predictor of psoriatic arthritis.

12. May occur in the presence of other typical lesions, as part of the Koebner phenomenon, or a Koebner reaction at a site of herpes zoster, respectively.

13. Involving the scalp, eyebrows, and the region of the ears.

14. True mucosal involvement by psoriasis appears to be rare, but has been associated with cutaneous involvement by pustular, erythrodermic, and plaque forms [22].

15. Blepharitis, conjunctivitis, keratitis, xerosis, symblepharon, and trichiasis have been recorded. Chronic uveitis particularly in patients with psoriatic arthritis [23].

16. Rarely skin infection.

17. Very variable in psoriasis, ranging from complete absence to severe pruritus; more common in unstable forms.

18. Affects approximately 30% of patients with psoriasis [24]; variable presentation; common feature is dactylitis, in which the entire digit becomes swollen, often called a *sausage digit*; can affect small joints and large joints; either oligoarticular or polyarticular; can also affect the axial skeleton, presenting as inflammatory back pain [25].

19. More commonly in male patients with severe psoriasis.

20. Rare, post-streptococcal guttate psoriasis to be associated with glomerulonephritis [26].

21. Severe abnormalities of liver function may occur in erythrodermic or pustular psoriasis, and are likely to be related to drugs, alcohol intake [27].

22. Apical pulmonary fibrosis [28].

23. Amyloidosis [29].

The differential diagnosis will depend on the type of psoriasis and the site involved (**Table 1**).

Treatment goals include improvement of skin, nail, and joint lesions, and enhancement of the quality of life. Moderate to severe psoriasis is distinguished from mild disease, that is refractory to topical monotherapy (**Table 2**) [12].

Type	**Differential diagnosis**
Guttate psoriasis	Maculopapular drug eruption, secondary syphilis, pityriasis rosea
Small plaques	Seborrheic dermatitis; Lichen simplex chronicus (LSC); *Tinea corporis*; cutaneous T-cell lymphoma (CTCL); Psoriasiform drug eruptions
Large plaques	Dermatophytosis; CTCL
Scalp	Dermatophytosis; Seborrheic dermatitis
Inverse	Intertrigo; dermatophytosis; candidiasis; Extramammary Paget's Disease (EMPD); Glucagonoma syndrome; Hand-Schüller-Christian disease (histiocytosis), familial benign pemphigus (Hailey-Hailey disease).
Nail involvement	Nail fungal infections
Erythrodermic type	Generalized eczema; CTCL
Generalized pustular psoriasis	Subcorneal pustular dermatosis, Pemphigus foliaceus, Impetigo, Migratory necrolytic erythema, widespread candidal infection
Localized pustular psoriasis	Infected eczema, fungal infection on the soles
Acral involvement	Herpes simplex, streptococcal and candidal infections
Seborrheic psoriasis	Seborrheic dermatitis
Childhood psoriasis	Dermatitis; candidal infection
Inverse	Seborrheic dermatitis; fungal infections; erythrasma

Adopted from [20].

Table 1.
Differential diagnosis.

Term	**Definition**
Mild plaque psoriasis	Minimal impact on the patient's quality of life (QoL); acceptable symptomatic control by topical monotherapy
Moderate plaque psoriasis	No acceptable symptomatic control by standard topical therapy **and/or** significant impact on the patient's QoL
Severe plaque psoriasis	No acceptable symptomatic control by standard topical therapy **and** that causes severe degradation of the patient's QoL

Adopted from [12].

Table 2.
Criteria for assessing the severity of plaque psoriasis.

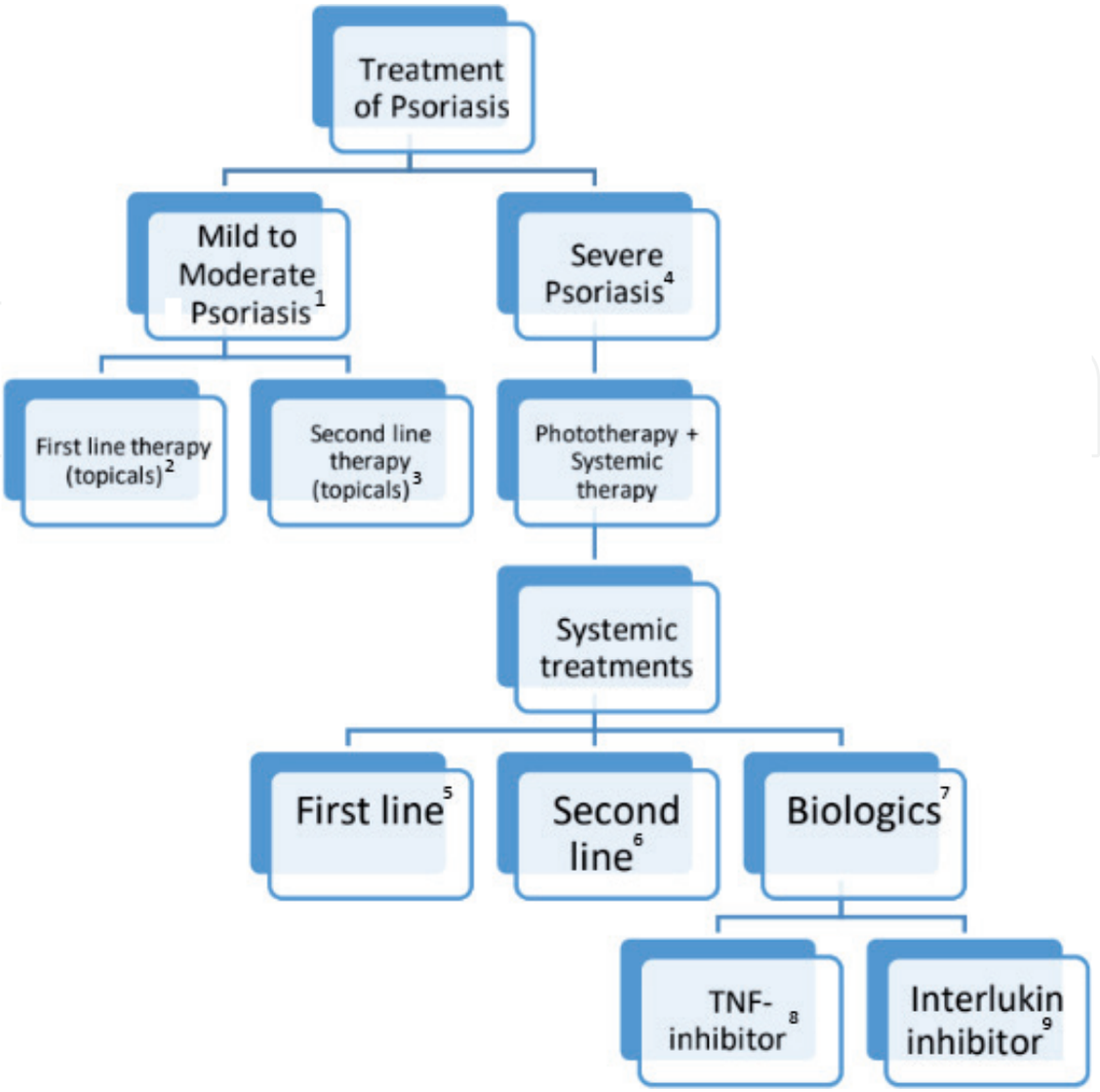

Figure 2.
Summary of treatment.

1. **Mild to moderate disease** (most of the patients, affecting less than 5% of the body surface area and sparing the genitals, hands, feet, and face) (**Figure 2**) [21].

2. **First-line**: [30–33]

   - Topical corticosteroids.

   - Topical vitamin D analogs—calcipotriene (Dovonex) and calcitriol (Vectical); as monotherapy or in combination with phototherapy to treat psoriasis in patients who have 5–20% body surface involvement.

   - Tazarotene—teratogenic topical retinoid; as effective as topical corticosteroids in alleviating symptoms of psoriasis, but it is associated with a longer disease-free interval.

   - Calcineurin inhibitors—tacrolimus (Protopic) and pimecrolimus (Elidel); first-line treatments for **facial** and **flexural** psoriasis; uncommon adverse events (skin malignancy and lymphoma).

3. **Second line**: [32]

   - Salicylic acid

- Coal tar
- Anthralin

4. **Severe psoriasis** (more than 5% of the body surface area or *involving hands, feet, face, or genitals*) [35].

5. **First line systemic therapy**: methotrexate, cyclosporine, acitretin, and biologic therapies.

6. **Second line systemic therapy:** azathioprine, hydroxyurea, sulfasalazine, leflunomide, tacrolimus, and thioguanine.

7. **Biologic therapy** (treatment of moderate to severe psoriasis and in psoriatic arthritis).

8. **Tumor necrosis factor (TNF) inhibitors** (risk of serious infection, including tuberculosis):

   - Adalimumab
   - Etanercept: often used in conjunction with methotrexate
   - Infliximab: the most rapid clinical response; sustained response and improvements in quality of life.

9. **Interleukin inhibitors**: Ustekinumab (Stelara)—new and well tolerated in clinical trials [34].

Although psoriasis is usually benign, it is a lifelong illness with remissions and exacerbations. About 10% of cases progresses to arthritis. Men and women with severe psoriasis died 3.5 and 4.4 years earlier, compared with men and women without the disease, respectively [36].

In a population-based cross-sectional study of psoriasis patients and matched controls without psoriasis, those with more extensive psoriasis were at greater risk for major medical comorbidities, such as cardiovascular disease, chronic lung disease, diabetes mellitus, kidney disease, Crohn's disease, bullous pemphigoid, vitiligo, and joint problems [37, 38].

Author details

Shahin Aghaei
Dermatology and Dermatologic Surgery, Iran University of Medical Sciences, Tehran, Iran

*Address all correspondence to: shahinaghaei@yahoo.com

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