

Seborrheic Dermatitis and Psoriasis in Children — Symptoms and Treatment

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Psoriasis in children is a chronic inflammatory condition of the skin that is characterized by silvery skin lesions over the extensor surfaces of the elbows and knees in children. On the other hand, seborrheic dermatitis is a chronic skin condition that is characterized by acute exacerbations and is believed to be related to an abnormal immune response to the fungus *Malassezia*. It is marked by patchy scales formed in sebum rich areas of the scalp, face and trunk in a pattern. Patients with seborrheic dermatitis usually present with dandruff or facial greasy skin lesions. Both conditions are diagnosed based on clinical features in children without any sophisticated laboratory evaluation. Both conditions respond to topical corticosteroids. Topical antifungal therapy has been found to be successful in the management of seborrheic dermatitis in children.



Overview

Psoriasis can be defined as a **chronic inflammatory skin disorder** that is characterized by scaly skin lesions that usually occur after minor skin injury and can start during

infancy, early childhood or adolescent years in children.

On the other hand, seborrheic dermatitis is defined as a **papulosquamous disorder** that is linked to *Malassezia* and is characterized by the presence of dandruff, skin lesions over the scalp, face, and trunk or exfoliative erythroderma.

Epidemiology of Psoriasis and Seborrheic Dermatitis in Children

The estimated prevalence of psoriasis in the general population is around 1%. A peak of incidence of psoriasis is seen in young women at the age of 16 years, while another peak of incidence is observed in men in their twenties.

Most children who develop psoriasis are **aged between 8 and 11 years**. The most recent epidemiological study of pediatric psoriasis has put an annual incidence of 40 per 100,000 in children younger than 18 years. Other studies have addressed the epidemiological question of the percentage of psoriatic patients who have a childhood onset of their disease. Approximately, 35% of adults who are diagnosed with psoriasis have reported an onset before their twenties, while 8% have reported an onset during early childhood.

The most important risk factor for early-onset psoriasis is a family history of the disease. Children who develop psoriasis can **present with mainly cutaneous manifestations**, but juvenile psoriatic arthritis has also been reported in the pediatric population. Children with other systemic inflammatory conditions such as diabetes, asthma or arthritis are more likely to develop psoriasis. Psoriasis is slightly more common in girls than boys.



Image : "Acute condition of Seborrheic Dermatitis on a shaved Scalp." by NetRoY. License: [CC BY-SA 3.0](#)

On the other hand, seborrheic dermatitis is way more common in children compared to psoriasis. The estimated prevalence of seborrheic dermatitis regardless of the disease's severity is around 20% of the general population. The peak of incidence of seborrheic dermatitis is usually seen in **young children who have just reached puberty**. The

condition has an equal incidence in both sexes, but is usually more severe in boys.

Infants who develop seborrheic dermatitis can **present with cradle cap, flexural eruption or erythroderma**. These severe presentations are rarely seen in older children and adults.

Pathophysiology of Psoriasis and Seborrheic Dermatitis

Psoriasis is a complex multifactorial chronic inflammatory condition that is **triggered by environmental factors, infections, injury to the skin and stressful life events**. In many cases, no relevant cause is marked. Patients usually have an exaggerated immune response, and genetic susceptibility has been suggested.

Patients with psoriasis have **T-cell hyperactivity, an increase in the release of tumor necrosis factor alpha, and elevated levels of the pro-inflammatory interleukins 17 and 23**. Interferon-gamma release is also increased in patients with psoriasis. These abnormal immune responses are believed to be responsible for the stimulation of keratinocyte proliferation by activated T cells and vascular endothelial proliferation due to superficial blood vessel dilation and epidermal hyperplasia which are commonly seen in the skin lesions that characterize the disease.

Many susceptibility genes have been identified to be associated with an increased risk of psoriasis in children. The most common genes belong to the human leukocyte antigens family and include **HLA-Cw6 and HLA-Cw*0602**. Other genes that are involved with the innate immune system, or the epidermal skin barrier, have also been implicated in an increased susceptibility to develop psoriasis once the child is exposed to a known environmental trigger such as **TNFAIP3**, receptors for different interleukins, and mutations in interleukin-36 receptor antagonist gene.

Additional HLA antigens that show association with psoriasis are HLA-B27, HLA-B13, HLA-B17 and HLA-DR7. The offending triggers for psoriasis could be an infection, smoking, physical stress, skin trauma due to injury, rubbing or friction and emotional stress.

On the other hand, seborrheic dermatitis has been **consistently linked to an infectious agent that belongs to the Malassezia species**. It appears that patients who develop seborrheic dermatitis do not have an abnormal level of Malassezia, but have an abnormal immune response to the pathogen. The exact pathogenesis of seborrheic dermatitis is poorly understood, but it has been found that helper T-cells show an impaired response to the fungus, Malassezia.

Clinical Presentation of Psoriasis and Seborrheic Dermatitis in Children



Image: "Psoriasis of the back." by James Heilman, MD. License: [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/)

Children with psoriasis can present with **plaque psoriasis which is considered the most common type** of pediatric psoriasis. Children usually present with well-demarcated inflammatory plaques that have red raised **silvery scaly surfaces**.

The lesions are usually found on the extensor surfaces of the large joints, such as the elbows and knees. The scalp and face can be also involved in children with plaque psoriasis. Children with isolated scalp plaque psoriasis can present with a scaly and greasy scalp with some degree of alopecia without any other specific findings.

Psoriasis is a self-limited disease of infancy with early onset. Infants are predisposed to recurrent infections and friction trauma to the diaper regions which explains why the red raised skin lesions of infantile psoriasis are more commonly seen in that area. Infantile psoriasis can present with psoriatic diaper dermatitis. This psoriatic rash is characterized by being **well-demarcated, erythematous with a glazed appearance**.

Another common presentation of psoriasis in children that is rare in adults is guttate psoriasis. **Children with guttate psoriasis present with numerous small scaly inflamed papules** all over the body, especially on the trunk. It appears suddenly 2-3 weeks after a streptococcal respiratory infection such as streptococcal pharyngitis.

Pustular psoriasis is another common presentation that is seen in children in their palms and soles and is characterized by **fever, joint pain, and numerous sterile pustules**. Nail pitting, followed by onycholysis, nail oily spots and finally, subungual hyperkeratosis is the most common nail abnormalities seen in children with psoriasis.

Children with seborrheic dermatitis usually present with **dandruff, especially in winter and spring seasons**. Children usually describe a **burning and itching sensation in the scalp** and other commonly involved areas such as the face and trunk. It is marked by patchy white scales with thick adherent crusts. Infants who develop napkin dermatitis might have candida dermatitis, seborrheic dermatitis or psoriasis.

In contrast to psoriasis, plaques are rarely seen with seborrheic dermatitis. Instead, **patchy scaling with possible adherent crusts** are the common presentations of seborrheic dermatitis. The most common involved regions are the scalp,

posterior aspect of the neck and the forehead. The involved skin is usually red, inflamed and greasy. Skin hypopigmentation is common in dark-colored patients such as African Americans.

Diagnostic Workup for Psoriasis and Seborrheic Dermatitis in Children

The diagnosis of psoriasis in children is based on **clinical examination and history taking**. When in doubt, a **skin biopsy** can be obtained to confirm the diagnosis. The most common findings on a skin biopsy include edema of the papillary dermis, perivascular lymphocyte infiltration, parakeratosis and the aggregation of neutrophils within the epidermis.

Likewise, **no specific laboratory investigations** are needed to make the diagnosis of seborrheic dermatitis in a child. A fungal culture of skin lesions can be done to rule out tinea capitis. If a biopsy is obtained of a skin lesion, one can see perivascular leukocytic infiltrations. Spongiosis and parakeratosis are also common histologic findings.

Note: The main histological differences between psoriasis and seborrheic dermatitis are the presence of thinned rete ridges and the absence of spongiosis in psoriasis. Epidermal neutrophilic infiltrates are commonly seen in both conditions.

Treatment of Psoriasis and Seborrheic Dermatitis in Children

The management of psoriasis in children is highly dependent on the prevention of the formation of new skin by prompt education about the possible triggers.

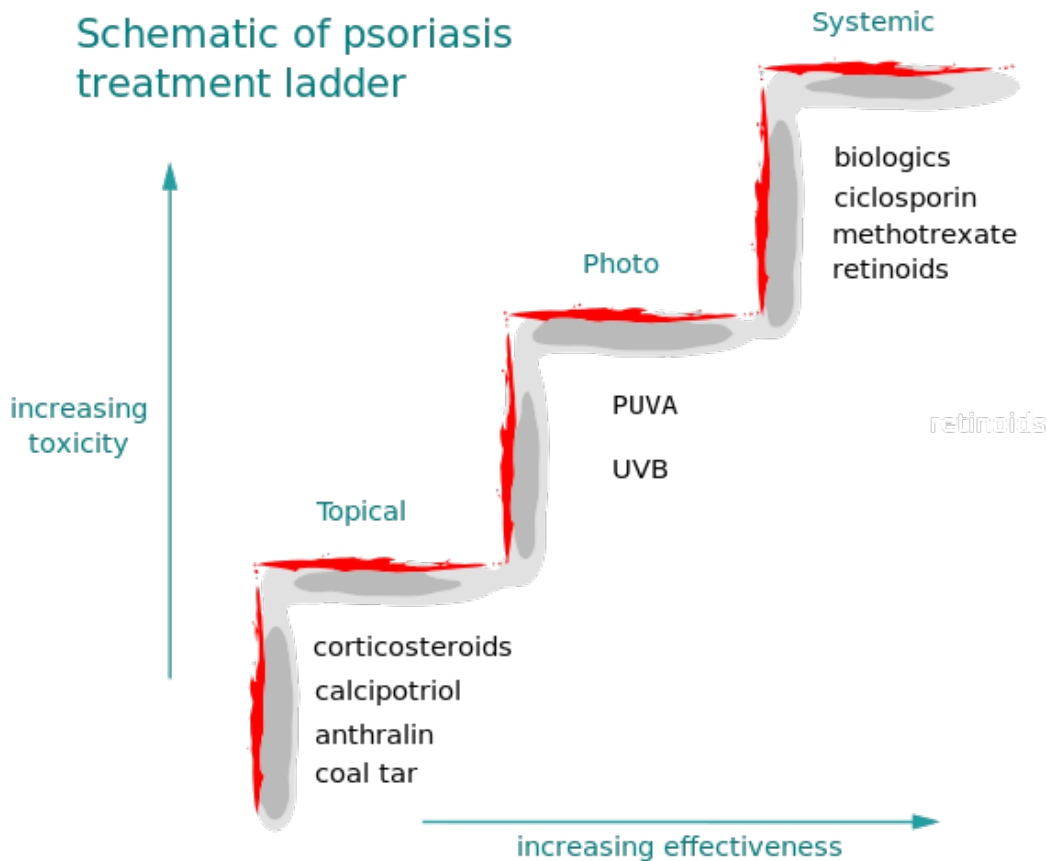
The simplest treatment of psoriasis is daily sun exposure, sea bathing, topical moisturizers and relaxation. Moisturizers, such as petroleum jelly, are applied just after a bath to minimize pruritus and tenderness. When the child has plaque psoriasis with less than 5% body surface area involved, emollients, **topical steroids with or without topical vitamin d analog** are the first-line therapies. When more than 5% of the body surface area is involved, the use of topical steroids with topical vitamin D analog or topical retinoid is recommended.

Children with guttate psoriasis should receive topical steroids with topical vitamin D analog. **Ultraviolet light phototherapy** might also be beneficial in children with guttate psoriasis preferred in older children with moderate to serious disease.

Children with isolated scalp psoriasis usually respond to topical steroids plus a medicated shampoo. The most common examples of medicated shampoos are zinc pyrithione, tar, ketoconazole, or salicylic acid containing shampoo.

The use of immunomodulators should be preserved for children with pustular psoriasis. The most commonly used immune-suppressors in this group of children are cyclosporine, methotrexate and systemic retinoid.

Schematic of psoriasis treatment ladder



Treatment ladder for Psoriasis

The management of seborrheic dermatitis in children is usually less intensive compared to that of psoriasis. **Low-potency topical corticosteroids such as desonide, hydrocortisone, and mometasonefuroate** showed efficacy when used with facial skin lesions. The use of antifungals in the management of seborrheic dermatitis has been associated with an excellent response. The most commonly used antifungals are ketoconazole, naftifine or ciclopirox creams and gels.

Dandruff usually responds to medicated shampoos containing salicylic acid, tar, selenium, sulfur or zinc by frequent use. Children with severe seborrheic dermatitis might benefit from oral systemic low-dose isotretinoin.

References

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