

## Seborrheic Dermatitis

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Seborrheic dermatitis is a common condition that usually appears as simple dandruff. It may affect the scalp, the central part of the face and the anterior portion of the chest, as well as flexural creases of the arms, legs and groin. It occurs most often in infants and in adults between 30 and 60 years of age. Patients with acquired immunodeficiency syndrome may have particularly resistant cases of seborrheic dermatitis. Diagnosis of this condition is generally straightforward, but the differential diagnosis includes a variety of conditions, such as psoriasis vulgaris (sebopsoriasis), atopic dermatitis, tinea capitis and candidiasis, as well as other, more rare conditions. Seborrheic dermatitis may be associated with or caused by a variety of underlying disorders. Treatment is generally topical. Steroid creams, selenium, salicylic acid and coal tar preparations, and pyrithione zinc are frequently used to treat this condition.

Seborrheic dermatitis is one of the most common disorders, affecting persons of all ages.<sup>1-6</sup> It occurs more frequently in infants within the first three months of life and in adults 30 to 60 years of age. In the latter group, it tends to affect men more often than women. In adolescents and adults, seborrheic dermatitis commonly is manifested as "dandruff" or as an erythema of the nasolabial fold, ranging in intensity from barely perceptible to marked. Interest has increased in seborrheic dermatitis in its generalized form in infants with immune deficits<sup>7-10</sup> and in a more recent association with acquired immunodeficiency syndrome.<sup>11-13</sup>

### Clinical Description

In adolescents and adults, seborrheic dermatitis typically presents as mild,



FIGURE 1. Seborrheic dermatitis of the scalp.

greasy scaling of the scalp (*Figure 1*), with erythema and scaling of the nasolabial folds and retroauricular skin. Seborrheic dermatitis appears in areas of increased sebaceous gland activity, often in association with an oily complexion. It may involve the auricles, beard area, eyebrows, flexures and trunk. Associated blepharitis may be present, sometimes with meibomian gland occlusion and abscess formation. Otitis externa may also occur.

Two forms of seborrheic dermatitis may be seen on the chest: a common "petaloid" type and a rare "pityriasiform" type.<sup>2</sup> The first form begins as small, reddish-brown follicular and perifollicular papules with a greasy scale. The papules may enlarge to form patches resembling the shape of petals on a flower or similar to a medallion in shape ("medallion" seborrheic dermatitis). The pityriasiform type presents as generalized macules and patches resembling extensive pityriasis rosea but rarely produces an erythroderma.

In infants, a greasy, thick scaling of the

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vertex of the scalp is common. It is popularly known by the descriptive term "cradle cap"<sup>1-6</sup> (Figure 2). Cradle cap presents as a dry patch of scaling, overlying, mildly erythematous skin that has become so thickened it forms a cap.

Patients with seborrheic dermatitis typically show no evidence of acute dermatitis, such as oozing or weeping. Instead, diffuse fine scaling may be white, off-white or yellowish in color. (Drier, larger scales are sometimes termed "psoriasiform" seborrheic dermatitis.<sup>5</sup>) Scaling is often the only manifestation of seborrheic dermatitis in infants, and usually appears in the third or fourth week after birth. The central part of the face, forehead and ears may also be involved. On occasion, the process becomes generalized in otherwise normal, healthy infants. A widespread erythema, often with a cheesy exudate, may also be evident, principally in the flexural folds. Flexural involvement is manifested as diaper dermatitis in infants and as intertriginous and genital eruption in adults. It may also become generalized.

The generalized form of seborrheic dermatitis usually occurs in healthy, normal children; rarely, it may be associated with a variety of immune deficiencies in children, and these children usually also have diarrhea and failure to thrive.<sup>6-9</sup> Some physicians consider generalized infantile seborrheic dermatitis in children who have immune deficiencies to be the same condition as one that occurred in an epidemic infantile eruption reported under the name "erythroderma desquamativum" in 1908 (Leiner's disease).

Infants with generalized seborrheic dermatitis, diarrhea and failure to thrive should be evaluated for possible immune deficits, particularly a functional defect in the fifth component of complement.<sup>6</sup> This familial disorder is associated with recurrent infections caused by gram-negative organisms. However, other defects have also been described.<sup>6-10</sup> In both children and adults, persistent generalized seborrheic dermatitis may be associated with

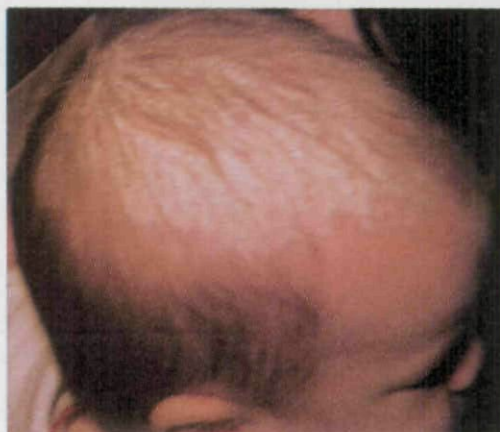


FIGURE 2. Two infants with seborrheic dermatitis on the scalp (cradle cap).

human immunodeficiency virus (HIV) infection.<sup>11-13</sup> Severe seborrheic dermatitis is quite common in infants who develop HIV-related immune suppression in the first year of life.<sup>14</sup>

An unusually recalcitrant eruption resembling seborrheic dermatitis has been reported in a high percentage of patients with AIDS,<sup>11,12</sup> with an incidence of up to 83 percent reported in one study<sup>13</sup> (Figure 3).



FIGURE 3. Severe, persistent seborrheic dermatitis in a patient with acquired immunodeficiency syndrome.

Seborrheic dermatitis in AIDS patients usually shows a predominance of inflammatory and hyperkeratotic lesions, with involvement of the trunk, groin and extremities. It occasionally progresses to erythroderma, a cradle cap of scales sometimes associated with non-scarring alopecia, and postinflammatory skin changes of either hyperpigmentation or hypopigmentation.

### Diagnosis

The diagnosis of seborrheic dermatitis is often obvious. However, if the patient fails to respond to therapy, the diagnosis should be reconsidered, unless the patient has AIDS. At times the diagnosis is complicated by the coexistence of other disorders, especially in patients with AIDS, who may also have psoriasis or deep fungal infections such as histoplasmosis.<sup>15</sup>

#### DIFFERENTIAL DIAGNOSIS

Psoriasis vulgaris of the scalp, which is common in adults, may be difficult to distinguish from seborrheic dermatitis. The term "sebopsoriasis" is sometimes used to describe sharply demarcated scalp plaques that are difficult to distinguish from pure seborrheic dermatitis or psoriasis. Other evidence of psoriasis, such as psoriasiform lesions elsewhere on the body or pitting of the nails, may also facilitate this distinction.

Seborrheic dermatitis must also be distinguished from atopic dermatitis, tinea capitis and, rarely, histiocytosis X. Atopic dermatitis in adults tends to affect the antecubital and popliteal fossae. Tinea can be diagnosed by the presence of hyphae on cytologic examination with potassium hydroxide, and candidiasis can be demonstrated by pseudohyphae.<sup>16</sup> In tinea versicolor, shorter hyphae are seen, together with spores (the so-called "spaghetti and meatball" pattern).<sup>17</sup>

Seborrheic dermatitis of the groin may resemble dermatophytosis, psoriasis and candidiasis. Seborrheic dermatitis tends to be bilaterally symmetric, with reddish-brown, fine scaling patches that respond promptly to therapy.

At times, rosacea may also require distinction.<sup>18</sup> Patients with rosacea usually display central facial erythema, but at times they may show involvement of the forehead only. Another condition that might be mistaken for seborrheic dermatitis of the face is systemic lupus erythematosus.

In infants, atopic dermatitis has the same sites of predilection as seborrheic dermatitis: the scalp, face, diaper areas and extensor limb surfaces. Axillary involvement favors the diagnosis of seborrheic dermatitis, as do lack of scratching and absence of oozing and weeping. The distinction is made on clinical grounds, since an elevated IgE level is a nonspecific finding in patients with atopic dermatitis.<sup>3</sup> In infants, a form of atopic dermatitis and seborrheic dermatitis with cradle cap may be combined. Infants with this condition may exhibit an increased incidence of atopy that falls between that of normal control subjects and that of typical atopic patients.<sup>4,5</sup>

Similarly, infants with psoriasiform infantile seborrheic dermatitis have the same incidence of psoriasis vulgaris as those with classic infantile seborrheic dermatitis.<sup>5</sup> However, infants with psoriasiform infantile seborrheic dermatitis have a much lower incidence of atopic dermatitis.

Finally, a rare condition to consider in the differential diagnosis of seborrhea in infants is histiocytosis X. Affected infants have a scaling, seborrheic, dermatitis-like eruption on the scalp that occurs in association with fever and other systemic signs of Letterer-Siwe disease (acute disseminated histiocytosis X).<sup>19</sup> The differential diagnosis of seborrheic dermatitis is summarized in *Table 1*.

### Possible Underlying Disorders

Deficiencies of riboflavin, biotin or pyridoxine are said to be associated with seborrheic dermatitis-like eruptions.<sup>20-23</sup> As noted, seborrheic dermatitis may also be a sign of AIDS. Seborrheic dermatitis may have an increased association with a variety of neurologic disorders, including parkin-

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TABLE 1

Differential Diagnosis  
of Seborrheic Dermatitis

Atopic dermatitis	Systemic lupus
Candidiasis	erythematosus
Dermatophytosis	Tinea capitis
Histiocytosis X	Tinea versicolor
Psoriasis vulgaris	Vitamin deficiency
Rosacea	

sonism, postcerebrovascular accidents, epilepsy, central nervous system trauma, facial nerve palsy and syringomyelia.<sup>11</sup>

## Etiology

The etiology of seborrheic dermatitis remains an enigma. It may be hormonally dependent, which would explain why it appears in infancy and often disappears spontaneously before puberty. It may not even be the same disorder in infants as it is in adults. The seborrheic dermatitis of AIDS may also be a different disease than adult and infantile seborrheic dermatitis.<sup>11-13</sup> Seborrheic dermatitis of AIDS probably represents proliferation of the resident fungus *Pityrosporum ovale*, caused by a wide variety of factors.<sup>23-34</sup> Culture results from

patients with seborrheic dermatitis, as well as therapeutic responses, imply this conclusion.<sup>29,34</sup> The same conclusion was drawn from culture results in patients with AIDS-associated seborrheic dermatitis.<sup>28</sup>

Studies in which culture of seborrheic dermatitis was performed in infants four to 16 weeks of age showed that *P. ovale* was a dominant organism.<sup>23-28</sup> *P. ovale* was found with significantly more frequency in infants with seborrheic dermatitis than in infants with atopic dermatitis or other infantile dermatoses, or in healthy infants.<sup>23</sup>

A neurogenic theory has been proposed for the development of seborrheic dermatitis that would account for its association with parkinsonism and other neurologic disorders, and its induction by neuroleptic drugs that produce parkinsonian symptoms.<sup>35</sup> The extent of involvement may be impressive when confined to the area affected by syringomyelia or to the paralyzed side in a hemiplegic patient. However, no neurotransmitter chemicals have been identified that account for this phenomenon. It has been postulated that increased pooled sebum in affected areas may be the cause.<sup>36</sup>

It has also been postulated that seborrheic dermatitis may reflect a nutritional deficiency. A deficiency of certain vitamins may result in seborrheic dermatitis-like eruptions.<sup>19-22</sup> However, no clear linkage has been identified. A recent study<sup>24</sup> of the serum essential fatty-acid patterns from 30 subjects with infantile seborrheic dermatitis suggested a transient impaired function of the enzyme delta 6-desaturase.

## Therapy

Treatment options for seborrheic dermatitis are listed in Table 2. Conventional therapy for adult seborrheic dermatitis of the scalp is a shampoo containing one of the four following compounds: salicylic acid (X-Seb T, Sebulex), selenium sulfide (Selsun, Exsel), coal tar (DHS Tar, Neutrogena T-Gel, Polytar) or pyrithione zinc (DHS Zinc, Danex, Sebulon).<sup>2,25,37</sup> Each of these shampoos can be used two

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TABLE 2

## Treatment Options for Seborrheic Dermatitis

Preparations	Container cost*	Usage
<b>Shampoos</b>		
Coal tar		Use two to three times in first week, then once weekly as needed; leave on for 5 minutes before rinsing away
DHS Tar (0.5%)	\$ 7.00 (8 oz)	
Neutrogena T/Gel (2%)	6.00 (8 oz)†	
Polytar (2.5%)	7.00 (6 oz)	
Denorex (9%)	43.00 (4 oz gel)	
Extra Strength Denorex (12.5%)	42.00 (4 oz liquid)	
Chloroxine		Use twice weekly; leave on for 3 minutes before rinsing away
Capitol (2%)‡	16.00 (4 oz)	
Ketoconazole		Use two times weekly
Nizoral (2%)‡	15.00 (4 oz)	
Selenium sulfide		Use two to three times weekly; leave on for 2 to 3 minutes before rinsing away
Selsun Blue (1%)	3.00 (4 oz)	
Exsel (2.5%)‡	13.00 (4 oz)	
Selsun (2.5%)‡	12.00 (4 oz)	
Pyrithione zinc		Use twice weekly
DHS Zinc (2%)	6.00 (6 oz)	
Danex (1%)	6.00 (4 oz)	
Sebulon (2%)	6.00 (4 oz)	
Shampoo combinations		Use twice weekly
X-Seb T (10% coal tar, 4% salicylic acid)	6.00 (4 oz)	
Sebulex (2% sulfur, 2% salicylic acid)	6.00 (4 oz)	
<b>Topical preparations</b>		
Combination products		Use twice weekly
Sal-Oil-T (10% coal tar, 6% salicylic acid)‡	6.00 (2 oz hair dressing)	
Sulfacetamide sodium		Apply once or twice daily; allow bedtime application to remain on overnight
Sebizon (10%)‡	17.00 (2.5 oz lotion)	
Corticosteroids		Apply once or twice daily
Hytone (2.5% hydrocortisone)‡	15.00 (30 g cream)	
Lidex (0.05% fluocinonide)‡	17.00 (15 g cream)	
Synalar (0.01% fluocinolone)‡	9.00 (15 g cream)	
Valisone (0.1% betamethasone)‡	15.00 (15 g cream)	
Ketoconazole		Apply twice daily
Nizoral (2%)‡	12.00 (15 g cream)	

\*—Estimated cost to the pharmacist based on average wholesale prices, rounded to nearest dollar amount, in Red book. Montvale, N.J.: Medical Economics Data, 1995. Cost to the patient will be higher, depending on prescription filling fee.

†—Estimated price based on pharmacy cost in Kansas City, Mo., 1995.

‡—Available by prescription only.

to three times a week. After application, shampoos should be left on the hair and scalp for at least five minutes, to ensure that the medication reaches the scalp skin. Adults who have more severe cases may use topical steroid lotions once or

twice daily, often in addition to a medicated shampoo.

The usual approach to infantile seborrheic dermatitis of the scalp is conservative.<sup>1</sup> A mild, nonmedicated shampoo should be used at the start. If the mild

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shampoo is not helpful, a shampoo containing coal tar or a shampoo containing 2 percent ketoconazole (Nizoral) or fluconazole can be used to attack the presumed etiologic fungus *P. ovale*.<sup>22-33,38</sup>

In one series,<sup>11</sup> a medicated shampoo was found to be helpful in 25 percent of patients with the often difficult-to-treat HIV-related seborrheic dermatitis. An infant's scalp can be painted with the common dye eosin to achieve results as good as those achieved with use of topical steroids, but without the potential side effects.<sup>39</sup>

Topical steroids are usually not necessary in infants and should be used with care, since they may be associated with significant percutaneous absorption, local adverse effects and, rarely, suppressed adrenocortical function.<sup>40</sup> However, low-potency topical steroids are more likely to be required for infantile or adult seborrheic dermatitis of the flexural areas or for persistent recalcitrant adult seborrheic dermatitis. In older children and adults, higher potency steroids may be used in lotion form on the scalp.

A new therapy is borage oil, a topical form of gamma-linoleic acid, which has been described as effective in infantile seborrheic dermatitis.<sup>41</sup> In adolescents, the potential of emotional distress brought on by severe seborrheic dermatitis, as well as the danger of home remedies, must be kept in mind. In one case,<sup>42</sup> a teenager apparently used an organic solvent as self-medication, resulting in a fatal intoxication.

*A patient information handout on seborrheic dermatitis is provided on page 159.*

Figure 2 (lower photograph) reprinted with permission from *Cutis* 1993;51:233-5.

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