

Review Article

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An overview on seborrheic dermatitis and its treatment (allopathy and homeopathy)

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ABSTRACT

Seborrheic dermatitis is a common, chronic inflammation of the skin, characterized by the appearance of red, flaking, greasy areas of skin, most commonly on the scalp, nasolabial folds, ears, eyebrows and chest. The incidence of the disease has two peaks: one in newborn infants up to three months of age, and the other in adults of around 30-60 years of age. The exact causes of seborrheic dermatitis are not completely understood, multiple factors appear to be involved in the pathophysiology of the disease. The principle three factors involved are: sebum secreted from sebaceous gland, presence of *Malassezia* yeast, and the immune response of the host. Currently allopathic treatment and prophylaxis regimens usually include antifungal agents, most often azoles, mild topical steroids, immunomodulatory activity of topical calcineurin inhibitors such as tacrolimus and pimecrolimus and other agents such as selenium sulfide, sulfur, metronidazole and coal tar. Homeopathy offers an excellent treatment for seborrheic dermatitis during all stages. Various homeopathic medicine used to treat seborrheic dermatitis are kali sulphuricum, thuja occidentalis, natrum muriaticum and more. The objective of this review is to discuss and provide information about seborrheic dermatitis and its epidemiology, etiology, pathogenesis, symptoms, diagnosis and its treatment in allopathy and homeopathy.

Keywords: Seborrheic dermatitis, Scalp, Sebum secretions, *Malassezia* yeast, Scaling, Steroids, Antifungals, Homeopathy

INTRODUCTION

Seborrheic dermatitis (SD) is a common chronic-recurrent inflammatory dermatologic disorder that most commonly affects adults; however, a more transient infantile form also occurs.¹

It presents as red, flaking, greasy-looking patches in areas of the body where glands in the skin called sebaceous glands (oil producing glands) are most abundant. The commonly affected sites include scalp, anterior hairline, eyebrows, glabella region of the forehead, nasal alar creases, melolabial folds, ears (including the external canals, anterior auricular region, retroauricular region), central chest (sternum area), and genital region.²

SD has two incidence peaks i.e., infantile and adult. The first in the first 3 months of life and second beginning at puberty, reaching its apex at 30-40 years of age.³

Infantile seborrheic dermatitis

New-borns have high sebum production from active sebaceous glands due to their stimulation by circulating maternal androgens. Infantile seborrheic dermatitis (ISD) clears spontaneously within 3 to 4 weeks after birth.⁴

Cradle cap is its most frequently noted feature. Initially it appears on the scalp and can spread to the face, behind the ears, trunk and flexural areas of the axillae and groin.

A build-up of scale and exudate form the thick crusting of cradle cap.⁵

Adult seborrheic dermatitis

Adult seborrheic dermatitis (ASD) develops after puberty and can be divided into seborrheic dandruff, classic and widespread types.

Seborrheic dandruff is SD affecting, or confined to, the scalp and is regarded as mild non inflammatory form of SD.

Classic SD affects the scalp, brows and nasolabial folds, spreading to cheeks, central chest, behind the ears and the external auditory canal.

Widespread types include that involving the large flexural areas of the body (axillae, groin, sub-mammary) and rarely, erythrodermic SD.⁶

EPIDEMIOLOGY

Sex: Men are more frequently affected than women.

Bimodal distribution: Infants are first 3 months of life and adults are at puberty.

Prevalence: Approximately 5 to 10% of general population world-wide. It affects all ethnic groups in all regions globally.⁷



Figure 1: Infantile and adult scalp SD.

ETIOLOGY

Although the etiology of adult SD is not definitely known, there are three principal factors that appear to play a role: sebaceous gland secretions, alteration in colonization and metabolism of cutaneous microflora (*Malassezia* spp), and individual susceptibility and host response.⁸

It can also be associated with human immunodeficiency virus infection and neurologic disease (e.g., cerebrovascular event, Parkinson disease)

RISK FACTORS

Risk factors for the development of SD include age; male sex; increased sebaceous gland activity, immunodeficiency; HIV-VIRUS, lymphoma and renal transplantation; neurological and psychiatric disease, includes parkinson's disease, stroke, Alzheimer dementia, major depression, autonomic dysfunction; exposure to drug treatment, including: dopamine antagonists, immune-suppressants and low ambient humidity and/or low ambient temperature.⁹

PATHOGENESIS OF SEBORRHEIC DERMATITIS

Various intrinsic and environmental factors, and interactions between these factors, all contribute to the pathogenesis of seborrheic dermatitis.

The proposed mechanisms for the pathogenesis of SD include sebaceous gland secretions, skin surface fungal colonization (*Malassezia* spp), individual susceptibility and host immune response.

The interaction of these factors leads to disruption of the skin's microbiota. An impaired immune reaction to *Malassezia* spp. associated with a diminished T- cell response and activation of complement. Increased presence of unsaturated fatty acids on the skin surface. Disruption of cutaneous neurotransmitters. Abnormal shedding of keratinocytes. Epidermal barrier disturbances associated with genetic factors.¹⁰

Sebaceous gland secretions

Sebaceous glands are small oil-producing glands present all over the body except the palms and soles. They are found in abundance on the face and scalp. The sebaceous glands are attached to the hair follicles and release natural oils called sebum.

Composition of sebum: Glycerides (30-50%), free fatty acids (15-30%), wax esters (26-30%), squalene (12-20%), cholesterol esters (3.0-6.0%), cholesterol (1.5-2.5%).

The function of human sebum has been and remains controversial, but recent advances in analytical technology have made some progress possible.

Sebum is involved in epidermal development and barrier maintenance, transporting antioxidants, protection, body odor, and generation of pheromones. Sebum is directly involved in hormonal signalling, epidermal differentiation, and protection from ultraviolet (UV) radiation.

When secreted, sebum consists of triglycerides and esters which are broken down by microbes into diglycerides, monoglycerides, and free fatty acids. The free fatty acids

play a key role in initiation of the irritant response, which is involved in scalp hyper-proliferation.

The role of sebaceous secretion also underlies the impact of stress and hormones on seborrheic dermatitis. It is well known that these are affecters of human sebum secretion and therefore impact seborrheic dermatitis.¹¹⁻¹³

Fungal colonization (*Malassezia* spp)

The role of *Malassezia* spp in the pathogenesis of SD remains controversial. The proliferation of *Malassezia* spp has been associated with exacerbation of SD.

The *Malassezia* spp that have been most commonly associated with SD are *M. globosa* and *M. restricta*, both of which are commensal yeasts that require an exogenous source of lipids.

Malassezia is a normal component of skin flora, but in persons with seborrheic dermatitis, the yeast invades the stratum corneum, releasing lipases that result in free fatty acid formation and cause the inflammatory process to begin.

The inflammation causes stratum corneum hyperproliferation (scaling) and incomplete corneocyte differentiation, which alters the stratum corneum barrier and impairs its function.

Malassezia thrive in high-lipid environments, so the presence of free fatty acids enhances the growth of the yeast. It has been suggested that *M. globosa* and *M. restricta* are capable of degrading lipids in sebum with production of free fatty acids and triglycerides, followed by consumption of certain saturated fatty acids. The remaining modified unsaturated short-chain fatty acids are more capable of penetrating skin and inducing inflammation.¹⁴⁻¹⁶

Individual susceptibility / host immune response

It is assumed that inappropriate immune response may contribute to the pathogenesis of seborrheic dermatitis.

Although the immuno-pathogenetic mechanism involved in the development of SD is not clearly understood, several studies indicate that there is immune dysfunction in SD patients.

The strongest evidence for immunodeficiency as an etiologic factor comes from findings that SD prevalence is significantly higher (34%-83%) among HIV positive and AIDS patients compared to general population.¹⁷

Faergemann et al, investigated the role of an inflammatory response in SD and found that there is an increase in NK1+ and CD16+ cells, activation of complement and an increase in the production of

inflammatory interleukins in lesional compared to normal skin in SD patients and controls.¹⁸

Considering the fact that *Malassezia* may be present on the skin commensally, without provoking any immune reaction or inflammation, it could be concluded that in SD patients an abnormal immune reaction to the yeasts occurs, which is influenced by the interplay of other pathogenetic factors that may govern and modulate an individual immune response.¹⁹

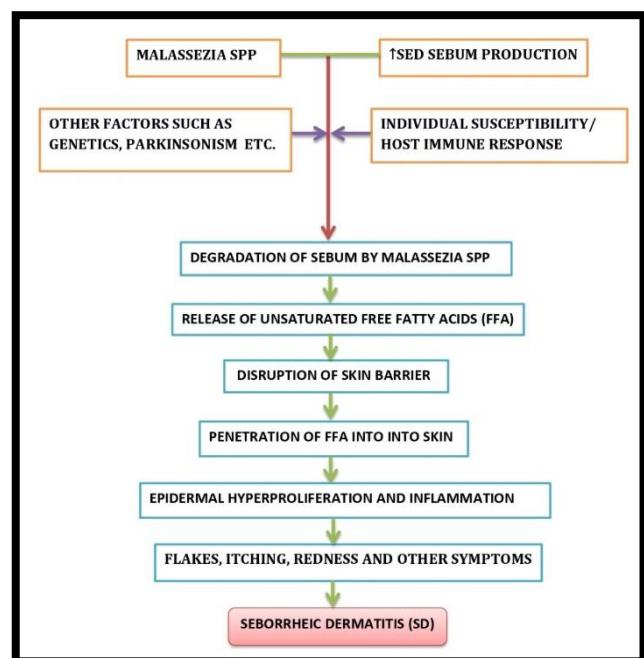


Figure 2: Pathogenesis of SD.

CLINICAL MANIFESTATIONS

The characteristic symptoms of SD include redness, greasy, swollen skin, white or yellowish crusty flakes, itch and burning, pink-coloured patches, dryness, blepharitis (scaly redness on the edges of your eyelids), hair loss.²⁰

These symptoms can occur on skin around the nose, behind the ears, in the beard, in the eyebrows, on the scalp, also known as dandruff, on the upper chest.^{21,22}

DIAGNOSIS

The diagnosis is generally a clinical one, with a strong emphasis on the patient's history and clinical examination findings. SD is a clinical diagnosis based on the location and appearance of lesions.

The differential diagnosis is lengthy, but the correct diagnosis can usually be made clinically by the characteristic distribution of lesions and varying course of the disease.

Differential diagnosis

The patient's age, gender, affected sites, presence of concomitant conditions and diseases (especially immunocompromising), family history as well as everyday habits must be taken in consideration on differential diagnosis i.e. tinea capitis, erythrasma, Langerhans cell histiocytosis, Wiskott–Aldrich cutaneous lupus, psoriasis, dermatomyositis, atopic dermatitis, vitamin B deficiency, contact dermatitis, zinc deficiency, rosacea.^{10,17,20}

Psoriasis and seborrheic dermatitis

Psoriasis and SD can mimic each other. In psoriasis, the scales are thicker, silvery-white and drier and tend to occur on more than just one body part. On the other hand, in seborrheic dermatitis, scales are thinner and greasy white/yellowish, usually present on scalp and hairline. In psoriasis, scales may be present on different body parts like elbows, palms, foot soles, groin, scalp, and face, whereas in seborrheic dermatitis, affected area is often just hairline, and in severe conditions, upper chest and back too. Psoriasis is always itchy but SD may itch sometimes.²²



Figure 3: Scalp psoriasis and SD.

ALLOPATHIC TREATMENT FOR SD

Several modalities may be effective in the treatment of seborrheic dermatitis. The mechanism of action of the most common treatments includes inhibition of skin yeast colonization, reduction of itching and redness, loosening of the crusts and scales, and reduction of inflammation.²³

The main goals of therapy for SD are to clear the visible signs of the disease and to promote normalization of skin structure and function.

Many of the current treatments for SD have multiple effects (antifungal, anti-inflammatory, regulation of stratum corneum production), thereby combatting the skin changes on multiple levels.²⁴

ISD

SD management in infants involves advising simple measures, such as regular washing of the scalp with baby shampoo and gentle brushing to loosen scales.

The daily use of white petrolatum may help to soften scales. If these measures are not effective, ketoconazole 2% shampoo could be used until the condition resolves.^{25,26}

ASD

Treatment of SD in adolescents is identical to that in adults. Treatment includes over-the-counter shampoos and topical antifungals, calcineurin inhibitors, and corticosteroids. Because SD is a chronic condition, ongoing maintenance therapy is often necessary.²⁷

TOPICAL THERAPY

Antifungals

Examples of antifungals are ketoconazole, bifonazole, ciclopirox.

Antifungal agents are the mainstay of antiseborrheic therapy, mostly in the azole form. These agents work by inhibiting ergosterol, an important component of the fungal cell wall, via interference with the fungal cytochrome P-450 (CYP 450) system.

This causes an increase in the production of sterol precursors, a fungistatic process that does not allow the fungus to grow or reproduce. Many of the azoles also have anti-inflammatory properties; they inhibit 5-lipoxygenase production, which then blocks leukotriene B4 synthesis in the skin.²⁸⁻³¹

Corticosteroids

Examples of corticosteroids are betamethasone, hydrocortisone, flucinolone.

For severe seborrheic dermatitis, low- or medium-potency topical corticosteroids can be used when beginning treatment, either alone or in combination with an antifungal agent, to limit inflammation.

Prolonged and/or frequent use should be avoided due to their well known associated risks (e.g., atrophy, telangiectasias, hypertrichosis, and perioral dermatitis).³²⁻³⁶

Calcineurin inhibitors

Examples of calcineurin inhibitors are pimecrolimus, tacrolimus.

These agents decrease cutaneous inflammation by inhibiting T lymphocyte cytokine production. Due to their anti-inflammatory effects, and the absence of side effects that are associated with more prolonged application especially on the face, they have been studied for the treatment of facial seborrheic dermatitis.^{35,37}

Others

Zinc pyrithione: Zinc pyrithione has both a non-specific keratolytic and an antifungal activity. Zinc pyrithione may be effective as a 2% shampoo, 1% shampoo 161 and in a cream formulation.^{38,39}

Coal tar shampoo: Tar has historically been the treatment of choice for many dermatological diseases. As early as 1895, Kaposi showed its usefulness for seborrheic dermatitis. Its method of action likely involves its inherent antifungal properties as well as the ability to decrease the inflammatory response. Studies have also shown the ability of tar to reduce sebum production. Tar has been found to be equivalent to ketoconazole in its fungistatic properties.⁴⁰

Selenium sulphide/sulphur preparations: Sulphur has a keratolytic action due to its interaction with keratinocytes and subsequent formation of hydrogen sulphide. Perhaps the most common sulphur-based treatment for SD is selenium sulphide shampoo, which is available over the counter.²³

Metronidazole: Metronidazole is a nitro-imidazole antibiotic, act primarily on anaerobic cells. It has also got anti-inflammatory effect through neutrophil chemotaxis and reduction in oxidative stress. Its exact mechanism of action in SD is not known but found to be effective in topical form.⁴¹

SYSTEMIC THERAPY

Oral antifungals

Examples of oral antifungals are itraconazole, terbinafine.

Itraconazole is a highly keratinophilic and lipophilic triazole. Itraconazole is anti-inflammatory primarily because of its inhibitory effect on the synthesis of 5-hydroxygenase metabolites, which are involved in several inflammatory diseases such as SD. The anti-inflammatory activity of oral itraconazole and its efficacy on Malassezia yeast suggest that itraconazole may be one of the safe and effective treatments of SD.^{42,43}

HOMEOPATHIC TREATMENT FOR SEBORRHEIC DERMATITIS

Homeopathy may provide a cheap and effective means of treating seborrheic dermatitis. Homeopathy has a holistic approach in treating seborrheic dermatitis. Significant reduction in the severity of SD is seen with homeopathic medicines. Patients are able to reduce and gradually stop conventional medicines when they started with homeopathic medicines.

Homeopathic medicines are natural medicines which help to reduce the itch, dandruff, intensity, frequency and duration of the complaints.

Various homeopathic medicines are available for the treatment of seborrheic dermatitis, but selection of medicine depends upon causes and occurrence of disease symptoms, sensations and susceptibility of patient.⁴⁴

Kali sulphuricum

It is the top reviewed homeopathic medication for treating SD with yellow scales. It works wonders in SD cases with conspicuous yellow drops on the scalp. The scales are sticky in nature, with a soggy scalp. It is accompanied by itching and tingling. Warmth irritates the scalp sometimes and increases itching.

Thuja occidentalis

It is a well-known homeopathic prescription for SD with white drops on the scalp. The hair might be dry in such cases. In a couple of cases, split ends and falling of hair might be noted. However, this medicine cures all the aforementioned problems.

Graphites naturalis

Graphites Naturalis is an excellent homeopathic prescription for seborrheic dermatitis, where the scales on the scalp are followed by serious itching. The scales decrease right after washing, yet return later. A foul smell on the scalp may likewise be seen. The scalp may stay soggy and moist.

Natrum muriaticum

Homeopathic prescription Natrum Muriaticum most adequately treats SD with an oily, slick scalp with redness and flakiness.

Phosphorus

It is an excellent homeopathic medicine for SD with flakiness and unnecessary hair fall. For SD situations where flakiness on the scalp is accompanied by over-the-top hair fall, homeopathic solution Phosphorus is a fantastic remedy.

Psorinum

In SD cases where the scalp gives off foul smell, Homeopathic medicine Psorinum will work best. The hair, in this case, may be rough and tangled. The scalp would be itchy and attended with scratching.

Arsenic album

Arsenic Album is one of the most significant Homeopathic medicines for SD cases where the scalp is itchy and burns. The itching and burning worsen markedly at night. The scalp may be sensitive to the touch. The scalp is dry, rough, dirty looking and covered with dry scales.

Sanicula

Sanicula offer relief in SD when scaly dandruff occurs over the scalp, eye-brows and other hairy parts.^{45,46,47}

Homeopathic oral preparation

Study proved that homeopathic oral preparation containing potassium bromide, sodium bromide, nickel sulfate and sodium chloride help in the treatment of seborrheic dermatitis.

Homeopathic oral preparation improves clinical severity of seborrheic dermatitis. The efficacy of formulation attributed to facts that; nickel dependent enzyme system boosts by the preparation which correct error of nickel-dependent metabolic process associated with SD while bromide acts as an effective antipruritic agent.⁴⁸

PREVENTIVE MEASURES FOR SEBORRHEIC DERMATITIS

- Wash your skin and hair regularly.
- Rinse the soap completely off your body and scalp.
- Avoid harsh soaps/shampoos and use a moisturizer.
- Avoid products that contain alcohol. These can cause dandruff to flare up.
- Avoid scratching. Scratching can increase irritation and your risk of infection. Manage your stress well. Stress weakens the body's natural defenses making it more difficult to deal with dandruff and scalp irritation. So, manage your stress well by breathing exercises, and yoga. Soften and remove scales from your hair. Apply mineral oil or olive oil to your scalp. Leave it in for an hour or so. Then comb or brush your hair and wash it.
- Avoid styling products. Stop using hair sprays, gels and other styling products while you're treating the condition. Wear smooth-textured cotton clothing. This helps keep air circulating around your skin and reduces irritation.

CONCLUSION

In this review we summarize the current knowledge on seborrheic dermatitis, its etio-pathogenesis, symptoms, diagnosis and several therapies for infantile and adult SD in allopathy and homeopathy. SD is a chronic inflammatory dermatologic condition that usually appears on areas of the body with a large density of sebaceous glands, such as the scalp, face, chest, back, axilla, and groin. The pathogenesis of SD is not completely understood, but there seems to be a strong association with skin colonization with yeasts of the genus *Malassezia* and host immune response. Symptoms may range from dry flakes to yellow, greasy scales with reddened skin. Several modalities may be effective in the treatment of seborrheic dermatitis. Allopathic therapies include topical and systemic, consist of antifungal agents, corticosteroids, immunomodulators, and keratolytics.

However, some of these modalities have multiple characteristics, such as the anti inflammatory properties inherent in many of the antifungal agents as well as the keratolytic properties of selenium, zinc, and tar preparations. Homeopathy has a holistic approach and works well in treating seborrheic dermatitis. The ideal Homeopathic medicine for SD is selected based on symptom presentation. Some well indicated homeopathic medicines for SD are natrum mur, kali sulph, phosphorus, psorinum, graphites naturalis and arsenic album. Regular washing of affected areas, with or without an emollient as a soap, depending on underlying irritation and greasiness of skin, can help to prevent the build up of scale and other symptoms.

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