Updates in Dermatological Research

Review Article

Seborrheic Dermatitis

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Abstract

Seborrheic dermatitis and dandruff are chronic skin diseases of the same category. It is characterized by skin erythema or plaques with varying degrees of itching and scaling, resulting from a response to Malassezia species. The affected areas are those with abundant sebaceous glands, such as at the scalp, face, chest, back, armpits, and groin, where bacteria will break down the skin oil to induce an inflammatory response. Dandruff is a relatively mild form of seborrheic dermatitis that is characterized by mild scaling of the scalp without inflammation. .

Introduction

Seborrheic dermatitis is a common skin disease that mainly affects areas with strong secretion from sebaceous glands, such as the scalp or armpits. Seborrheic dermatitis usually shows as scaly plaques, skin inflammation (redness and swelling) and dandruffs. It may also affect other oily areas of the body, such as face, nose, eyelids and chest. If the symptoms are severe, repeated treatments may be required. The disease in infants and young children may be accompanied by other abnormalities, such as atopic dermatitis. Patients of recurrent seborrheic dermatitis may also have psoriatic dermatitis. This is considered the second most common inflammatory skin disease beside acnes. It can manifest at places like the scalp, cheeks, nose, eyebrows, ears, eyelids, chest, armpits, groin, and lower edge of the breast, all to be covered with snowflake-like dandruffs, scabs or hardened skin [1-3]. The diagnosis is often based on clinical symptoms only, without the need for blood, urine or allergen testing. However, it may be difficult to differentiate chronic dermatitis from chronic eczema, psoriasis, or contact dermatitis, for which skin biopsy and serological examination for autoimmune diseases will help to determine the case (Figure 1) [4].

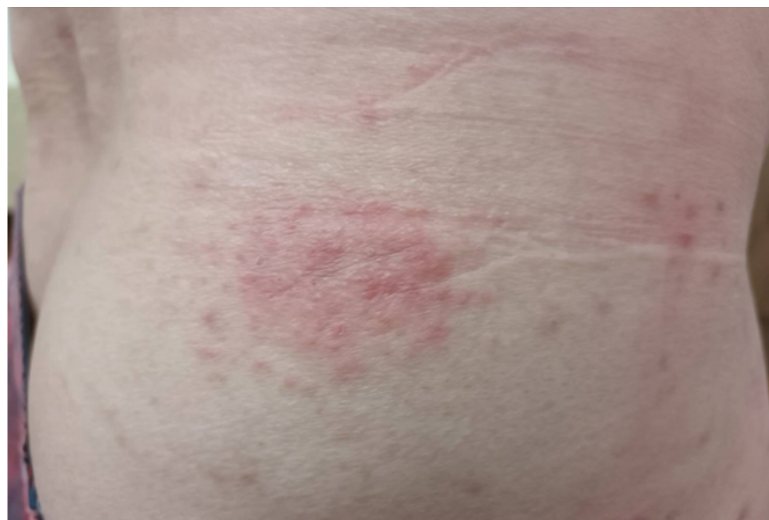

Figure 1. *Seborrheic dermatitis*

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Clinical symptoms and differential diagnosis of seborrheic dermatitis

Seborrheic dermatitis is characterized by a variety of rashes and severe itching that is symmetrical in distribution. The disease is known to recurrences and prone to become chronic, in which it often intensifies in winter or by other factors such as allergy, excessive dryness, friction, etc. Given that the disease involves inflammation of epidermis and superficial dermis caused by various internal and external factors, its symptoms have the characteristics of pleomorphism and symmetry. Recurrences will lead to chronic seborrheic dermatitis. Dryness is the common theme of the disease, to manifest hypertrophic plaque-like or lichen-like skin lesions, capable of showing as papules or nodules, as well [5,6]. When it is acute in nature, it shows as primary and polymorphic rashes, often symmetrical in distribution and more common on the face and behind ears, or on the flexor side of the arm, forearm, and calf. The rashes may also spread throughout the whole body in severe cases. Small sized papule or herpes may be present on the site of erythema; however, it is necessary to differentiate small blisters of severe case from vesicular skin diseases. Also, they may merge into large eczema-like skin lesion with unclear boundaries. Exudates due to scratching or erosion of the lesion tend to develop into secondary infection, resulting in pus and scabs, as well as seeing regional lymph nodes being enlarged. And if severe, the infection may develop systemic symptoms like fever. The histopathological examination will show spongy formation and blisters in the epidermis and superficial telangiectasia, surrounded by lymphocytes, neutrophils and eosinophils. Severe itching and burning sensation are often reported by patients, which are intensified at night, affecting the quality of sleep. The course of the disease is about 2-3 weeks and if poorly treated, it may turn into subacute or chronic eczema. Typically, there are red plaques on the nose and between the eyebrows, even though it is likely to spread to the entire face in severe cases. Yellow flaky desquamation is an important feature for diagnosis. Seborrheic dermatitis is often further aggravated by insomnia and stress. If occasional, external application of weak steroid ointment may be sufficient. But for chronic recurrent cases, long-term use of steroid ointment is recommended, despite that there is the side effect of skin atrophy. Combining with anti-dandruff shampoo, antifungal drugs and moisturizing lotion, these treatment options will help to relieve most symptoms [7,8]. Skin biopsy is usually recommended for differential diagnosis of seborrheic dermatitis to rule out the followings:

Psoriasis

There are signs of dandruffs and skin desquamation, but they are usually silvery white in appearance.

Atopic dermatitis

It is also known as allergic dermatitis or eczema, usually shown as inflammation on the inner side of elbows, knees and neck. Beside itchy sensation, the disease is well known for recurrences. Children are prone to the disease and may continue to develop into recurrent condition after adulthood. This is probably due to presence of some physical factors. There are also some cases of facial eczema being reported. Along with steroid ointment for treatment, moisturizing lotion is often recommended and keeping it under wrapping will further improve the drug effect.

Tinea versicolor

It is officially named as pityriasis discoloration and usually appears on the trunk and face, differing from seborrheic dermatitis. It is also not as scaly. Topical antifungal medication is the first-line treatment for the disease, including zinc pyrithione, ketoconazole, and terbinafine. In cases of severe or recalcitrant pityriasis versicolor, the oral medicines like itraconazole and fluconazole are the more appropriate options.

Rosacea

It is often accompanied by dilation of capillaries. The erythroderma of rosacea dermatitis often includes both “persistent” and “intermittent” appearance of rashes. Intermittent rashes will require one session of medication for more than 10 minutes over the course of three months or more. The condition may be aggravated by factors like cold, heat, alcohol, spicy or hot foods. Despite its rareness, it is still necessary to consider it in diagnosis.

Contact dermatitis

It is classified as allergic or irritative and it is usually induced by facial products of certain allergic ingredients. It is characterized by itchiness and edema. The most common allergic ingredient has been suggested to be the surfactant used in many facial cleansers that the skin will become dry and scaly to give the user a tingling sensation. Unfortunately, the cause is yet to be clarified and thus, steroid ointment will have only short-term effect. The disease is prone to recurrences, rendering the same steroid ointment to vary in strength. It has been suggested for irritant contact dermatitis that repairing epidermis is actually better than using drugs.

Tinea faciei

It refers to the infection of the face by dermatophyte fungus. Typical sign is the circular rash, which can be easily identified. However, the application of steroid ointment will result in atypical form of pimples or red plaques, which makes it difficult to differentiate. The distribution of rashes is asymmetrical. Given it is fungal infection, the source of molds is usually from pets like cat, dog or rabbit. The primary treatment is the external use of antifungal ointment. Although there are cases of using compound ointment of antifungal drug and steroid, it is known to cause relapse once the medication stops [9-11].

Pathophysiology and treatment of seborrheic dermatitis

Recent studies have clearly shown that Malassezia globosa and Malassezia restricta play an important role in the development of seborrheic dermatitis; however, its mechanism is not yet clear. Another important factor is the excessive production of sebum, which is secreted from sebaceous glands to the skin surface through the duct of hair follicle. Since there are triglyceride in sebum and the saturated free fatty acids are the source of nutrient Bacillus bacteria, they will break it down and destroy the epidermis layer to cause a series of inflammatory reactions in the skin[5,9]. Adults with seborrheic dermatitis can use an over-the-counter anti-dandruff shampoo containing the following ingredients: coal tar, ketoconazole, salicylic acid, selenium sulfate, zinc pyrithione, etc. Other treatments include:

1. Moisturizer will allow new keratin to gradually replace and restore the skin to a healthy state.

2. Topical steroids are good against inflammation and itching to alleviate the condition.
3. Immunosuppressants, such as tacrolimus or pimecrolimus, despite their effect, will need to be considered of the primary side effect of skin atrophy after long-term use.
4. Antibiotics and antifungal drugs are for infections, by controlling and preventing the progression of severity; however, they must be used with physician's discretion, especially following through the entire course of treatment to avoid possible rebound or resistance.
5. Antihistamine is to relieve itching. Topical steroid ointment remains basically the standard choice of treatment for atopic dermatitis, especially the mild cases. Physician must consider the strength of ointment prescribed and stop the use of drug after the inflammation is suppressed. There is the suggestion of intermittent use of steroid ointment, which can significantly reduce the adverse effects of long-term use [12].

Conclusion

Seborrheic dermatitis is common in body parts where sebaceous glands are abundantly distributed, including the scalp, face, chest, folds of arms, groin and legs. The inflammation of skin can be observed and is usually caused by bacteria to result in red papules with pustules, which may be indistinguishable from pimples. However, location may provide clue, as they are often present on the chest, back, neck and shoulders. And when broad-spectrum antibiotics fail at treatment, both oral and topical antifungal drugs should then be used. It is also recommended to keep skin dry during treatment. Moreover, when patient exhibits rosy and itchy face, physician will not only need to consider skin allergy but also must examine the skin lesions in detail, along with medical history to differentiate the possibility of other skin diseases and in doubt, must refer the patient to a dermatologist in a timely manner for the patient to receive prompt and proper therapy.

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