Lichen Simplex Chronicus Secondary to Scald Injury and Skin Flap Transplantation

Jia Li Xu*, Guo Xin Song1,*; Zhi Qiang Yin2

Abstract
A 50-year-old woman had suffered from chronic pruritic plaque located on right retroauricular area for around 16 years, which was diagnosed as lichen simplex chronicus. Seventeen years ago, patient had multiple scalded areas distributed throughout the body and underwent autologous skin flap transplantation for the right retroauricular wound. After the wound healed, patient started experiencing paresthesia continuously on the skin grafted area and could not resist scratching. To our knowledge, this is the first reported case of lichen simplex chronicus secondary to scald injury and skin flap transplantation. We successfully treated this patient with dyclonine hydrochloride cream 1% and desonide cream 0.05%.

Key Words: Lichen simplex chronicus, neurodermatitis, pruritus, scald, skin transplantation

Introduction
Lichen simplex chronicus (LSC), also known as neurodermatitis, is a very common chronic pruritic skin disease characterized by distinct skin lichenification due to chronic itching and scratching.[1] The lesions generally occur in normal skin, and the most common sites of onset are the scalp, upper eyelid, neck, retroauricular skin, elbow, and sacrococcygeal region.

Herein, we present a rare encountered case who suffered from LSC secondary to scald injury and skin flap transplantation on the right retroauricular skin.

Case Report
A 50-year-old woman presented to our department with chronic pruritic plaque located on right retroauricular area for around 16 years [Figure 1]. Seventeen years ago, patient had multiple scalded areas distributed throughout the body and underwent autologous skin flap transplantation for the right retroauricular wound. After the wound healed, patient started experiencing paresthesia that was a complex feeling including itching and other inenarrable symptoms as per the patient’s description, which continuously existed on the skin grafted area and the patient could not resist scratching.

Over the years, patient visited several hospitals and was prescribed various medications including topical corticosteroids. Later on, the rash disappeared; however, the paresthesia still persisted with frequent temptation to scratch. Other scalded areas that did not undergo skin flap transplantation healed autogenously without any obvious discomfort. The skin flap was obtained from the extensor aspect of the patient’s right thigh. The patient had no history of allergic and psychogenic diseases and the family history was unremarkable.

Clinical examination revealed an irregular red plaque with significant lichenification, minimal scaling, and fissuring localized on the right retroauricular skin [Figure 1]. On the extensor aspect of the right thigh, an irregular depigmented macule with mild epidermal atrophy can be seen [Figure 2].

No superficial lymphadenopathy was noted. Blood routine examination, hepatic, and renal functions were noted to be within normal range. Chest radiograph and B-mode ultrasonography did not reveal any obvious abnormality.

This patient was diagnosed as LSC, and to our knowledge, this is the first reported case of lichen simplex chronicus secondary to scald injury and skin flap transplantation.
secondary to scald injury and skin flap transplantation. The patient gave written informed consent according to the Declaration of Helsinki and the record of patient was anonymized and de-identified.

**Discussion**

Various factors, including local stimulation and psychological factors, are related to the development of LSC. Psychological factors, such as anxiety, depression, and sleep disturbances, were found to contribute to both the development and persistence of LSC. On the other hand, LSC moderately affects the patient's quality of life, by causing a certain degree of psychosocial burden, sleep disturbance, and even sexual dysfunction. In this case, the woman had no prior history of any psychogenic disease and did not suffer from LSC or other dermatitis before scald injury and skin grafting. The important chief complaint was local paresthesia in the grafted area.

Pruritus is a common and severe problem among burn patients, and higher intensity of itching is thought to be associated with depth of the wounds and specific body locations. Kuipers et al. studied 226 patients with burn and followed them for 18 months and found that there was no difference in the overall itch intensity between the grafted patients and the nongrafted patients. Choinière et al. investigated 104 burn patients during a 7-year period and found that 82% reported paresthetic sensations such as tingling, stiffness, cold sensations, and numbness; and the prevalence of these sensations was associated with the burn size and skin grafting.

This patient had previously been hospitalized for multiple areas of scalding but not burn injury. According to the patient's description, her situation was not that severe but the surgeon worried about the indolence of right retroauricular wound, treated her with skin flap transplantation. However, she experienced paresthetic sensations in the grafted area and had no discomfort in the nongrafted areas. We presume that the cause of paresthesia might be related to probable deeper wound on the right retroauricular skin, specific body location, improper reinnervation of the autograft, or the injury of cutaneous sensory nerve during skin grafting procedure. Because of persistent paresthesia and uncontrollable scratching, LSC had tormented this woman for 16 years.

Based on the specific condition of this patient, desonide cream 0.05% was prescribed for treating skin inflammation and dyclonine hydrochloride cream 1% for controlling local paresthesia. Desonide 0.05% is a safe and effective low-potency corticosteroid for the treatment of mild-to-moderate dermatoses, including atopic dermatitis, seborrheic dermatitis, eczema, lichen simplex chronicus, and so on. Dyclonine hydrochloride 1% is a commonly used topical anesthetic that could alleviate the pain, itch, or paresthesia. In this case, desonide was applied on the lesion first, after 30 minutes, dyclonine hydrochloride was applied, twice a day. After 2 weeks, the patient did not come back for return visit due to busy work and then was followed up by phone. She gave feedback that the rash and paresthesia had almost disappeared and scratching was no longer out-of-control.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.
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Conflicts of interest
There are no conflicts of interest.

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