Lichen Simplex Chronicus (Neurodermatitis) — Causes and Symptoms

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Lichen simplex chronicus (LSC), also known as localized neurodermatitis, is a skin disorder characterized by the thickening of the skin (lichenification) due to excessive scratching. This is frequently due to an itch-scratch cycle that can develop due to various skin or psychogenic causes. The common sites are the ends of extremities, genitals, and neck, and the symptoms can vary in severity. Stopping the scratching is crucial, and treatment (often with topical steroid cream/ointment) can be lifelong if the disease is recurrent.

Definition and Epidemiology of Lichenification

Lichenification is the process of the skin becoming thickened and leathery, with exaggeration of the normal skin markings over the lesion.

The term secondary lichenification is used to indicate lichenification initiated by a primary dermatosis.

Epidemiology of Lichenification

The actual incidence of LSC remains unknown. It is seen in adults aged between 30 – 50 years; children are rarely affected. It is estimated that up to 12% of the people with aging
skin develop some form of lichenification. Although seen in both sexes, it is more frequent in women than in men. **Lichen nuchae** are almost exclusively observed in women. There are no racial differences. There seems to be an association with psychiatric conditions, including **anxiety**, **obsessive-compulsive disorder**, and **depression**.

### Etiology of Lichen Simplex Chronicus

LSC can begin with any condition that can cause itching, as well as some psychogenic conditions.

- Acne keloidalis nuchae
- Asteatotic eczema
- Atopic dermatitis
- Contact dermatitis from various irritants
- Insect bites
- Long-term exposure to street traffic exhaust
- Psychiatric conditions
- Scars (traumatic, postherpetic/zoster)
- Sensitivities to objects such as jewelry, etc.
- Sleep disturbance may also play a role
- Venous insufficiency
- Xerosis
- However, it should be noted that the original cause of itching may not be apparent during evaluation.

### Pathology and Pathophysiology of Lichen Simplex Chronicus

The exact pathophysiology remains unknown. However, the lesions are distributed in areas accessible to scratching and an underlying cause of pruritus is usually present. **Chronic rubbing and scratching** in the specific itchy area (regardless of whether the original cause was identified) leads to **lichenification** of the area, i.e., thickening of the skin (**plaque**) due to thickening of the epidermis and **fibrosis** of the dermis, along with the **formation of grayish scales** on the plaque. Eventually, an **itch-scratch cycle** results, which aggravates the problem further.

Underlying histopathological changes in LSC include epidermal **hyperplasia**,
**orthokeratosis, hypergranulosis** with a regular elongation of the rete ridges, perivascular lymphocyte (or occasionally macrophage) infiltrate.

**Symptoms of Lichen Simplex Chronicus**

The most prominent symptom is the itch (pruritus), often as a paroxystic event, especially at night. This leads to a strong desire to scratch, which can be very satisfactory. The scratching can be continued for a while, leading to minor abrasions and sores, and eventually lichenification of the area. This itch-scratch cycle can worsen in times of psychological stress; indeed, many studies have identified an association with LSC and psychiatric conditions.

The lesion of LSC is a somewhat circumscribed, oval, and thickened plaque. It is very itchy. Other local features include dry, scaly or leathery surface, scratch marks, pigmentation, and exaggerated skin markings.

Usually, there is one solitary plaque, especially on the patient’s dominant side. However, multiple plaques, with symmetric or asymmetric distribution, may also occur. The most common sites are genitals, back or side of the neck, wrists, and forearms, and dorsum of the foot/lower legs.

**Diagnosis of Lichen Simplex Chronicus**

The diagnosis is usually established by clinical examination. A biopsy is required only if clinical examination alone is insufficient to establish the diagnosis.

**Underlying causes** must be identified. Among the stimuli that may trigger LSC, sensitization must be kept in mind, especially in chronic cases, and a patch test can be accordingly administered.

**Differential diagnoses**
Lichen sclerosis
- Lichen planus
- Contact dermatitis
- Herpes simplex
- Seborrheic/atopic dermatitis
- Psoriasis
- Mycosis fungoides
- Lichen amyloidosis

Therapy of Lichen Simplex Chronicus

The goal of treatment is to stop the itch-scratch cycle and heal the affected skin. To achieve this, the following approaches need to be taken: elimination of all skin irritants, stopping the itch-scratch cycle, treating any underlying disease and/or coexisting infections, decreasing inflammation, and correcting the skin’s barrier function.

Avoidance of scratching is necessary. The mainstay of LSC treatment is topical steroid application usually applied under plastic occlusion. A low- or mid-potency ointment (e.g., desonide 0.05% or mometasone 0.1%) should be used when the symptoms are not too severe. Mid- or high-potency steroids are not recommended for thin skin such as the scrotum and axilla.

In very severe cases, intramuscular triamcinolone (60 – 80 mg) can be useful for immediate symptom relief. Older-generation antihistamines can be administered at night to obtain a sedative effect and avoid scratching.

Intralesional triamcinolone can also be used for plaques that are too thick or when the patient is unable to use topical medications. Topical tacrolimus has been reported to be an effective, long-lasting treatment for LSC, especially in sensitive skin areas such as the face.

Signs of bacterial skin infection should be looked for (e.g., excoriation); if present, a culture should be obtained and appropriate antibiotic treatment be initiated.

In some cases, nerve endings are exposed, which aggravates the itching and causes discomfort. Such cases could benefit from the “soak and seal”
treatment: a lukewarm wet washcloth is applied on the lesion for 5 - 10 minutes, dried, and the moisture is sealed in by application of petroleum jelly. The moisture reduces nerve signaling and the petroleum jelly seals in the moisture. This therapy can be discontinued as symptoms improve.

The symptom of LSC is, at least, in part psychogenic, and psychosomatic interventions can be beneficial in stopping the urge to succumb to scratching. Involvement of a psychodermatologist or psychotherapist is helpful. Cognitive-behavioral therapies have been shown to be effective in LSC, especially given the chronicity of the disease.

Progression and Prognosis of Lichen Simplex Chronicus

The prognosis is often good. Adherence to treatment often leads to a complete resolution of the symptoms; however, improvement can take time and there can be recurrences. LSC is not a progressive disease, and regular follow-ups are not needed if the patient is asymptomatic.

References


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