# The co-occurrence of lichen sclerosus et atrophicus and celiac disease

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## ABSTRACT

A 53-year-old female patient was admitted to our clinic for generalized hypo/hyper-pigmented, partially firm and sclerotic plaques with undefined borders. As the skin biopsy taken from the lesion was compatible with lichen sclerosus et atrophicus (LSA), the patient was treated with ultraviolet A1 (UVA1) treatment. Upon follow-up, she developed abdominal pain and diarrhea. Further investigation (including endoscopic and laboratory tests) showed signs consistent with celiac disease. After 30 sessions of UVA1 treatment, the skin lesions partially regressed. We present this case because the co-occurrence of LSA and celiac disease is very rare.

**Key words:** Celiac disease, lichen sclerosus et atrophicus, ultraviolet A1

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## INTRODUCTION

Lichen sclerosus et atrophicus (LSA), is a chronic skin disease that is common in women. It is most frequently located in the anogenital region, but it can also affect any part of the skin or mucosal surface.[1] The generalized form is very rare, and although the etiopathogenesis is unclear, primary suspects include autoimmune factors.[2] Primary lesions are usually papules that are uniform in shape and ivory colored, with defined borders and a depression in the middle.[1]

Celiac disease is an autoimmune disease of the small intestine that occurs in genetically predisposed people. It causes permanent intolerance to the gluten proteins in wheat, barley and rye. Patients with celiac disease can present with skin diseases such as linear immunoglobulin A (IgA) dermatosis, urticaria, cutaneous vasculitis, psoriasis, erythema nodosum, vitiligo, alopecia areata and, most commonly, dermatitis herpetiformis.[3] The co-occurrence of LSA and celiac disease has yet not been reported in the literature. Herein we present a rare case of co-occurrence of LSA and celiac disease.

## CASE REPORT

A 53-year-old female presented to our clinic with hipopigmented, discrete lesions on both her upper and lower extremities, and the front and back of her body. The lesions first began in the thoracic area, 4 months previously followed by spread throughout the whole body. The family history was unremarkable, and a dermatological examination revealed generalized hypo- and hyperpigmented, scattered sclerotic plaque lesions with irregular borders, which were hard in certain areas [Figure 1a-c]. The oral mucosa and external genitalia were normal upon examination. Laboratory tests, including a complete blood count, biochemical tests, antinuclear antibody, *Borrelia*, hepatitis B, and hepatitis C viral serology, were all within the normal limits. The histopathological examination of the plaques showed basket-weave keratosis, atrophy of the epidermis, focal basal vacuolar degeneration, eosinophilic homogenization, macrophages, and rare lymphocytes in the papillary dermis [Figure 2a]. In addition, an elastic Von Gieson stain revealed a loss of elastic fibers in the papillary dermis [Figure 2b]. Based on clinical and pathological findings, she was diagnosed with LSA. Upon follow-up, she developed abdominal pain and diarrhea. Endoscopic duodenal biopsy was performed by gastroenterology clinic. In duodenal biopsy: Villous atrophy, mild crypt hyperplasia, increased lymphocyte accumulation in the epithelium and plasma cell infiltration in the lamina propria (Marsh Grade 3b) [Figure 3]. In laboratory studies of the patient antiendomysial and anti-gliadin antibodies were positive. Based

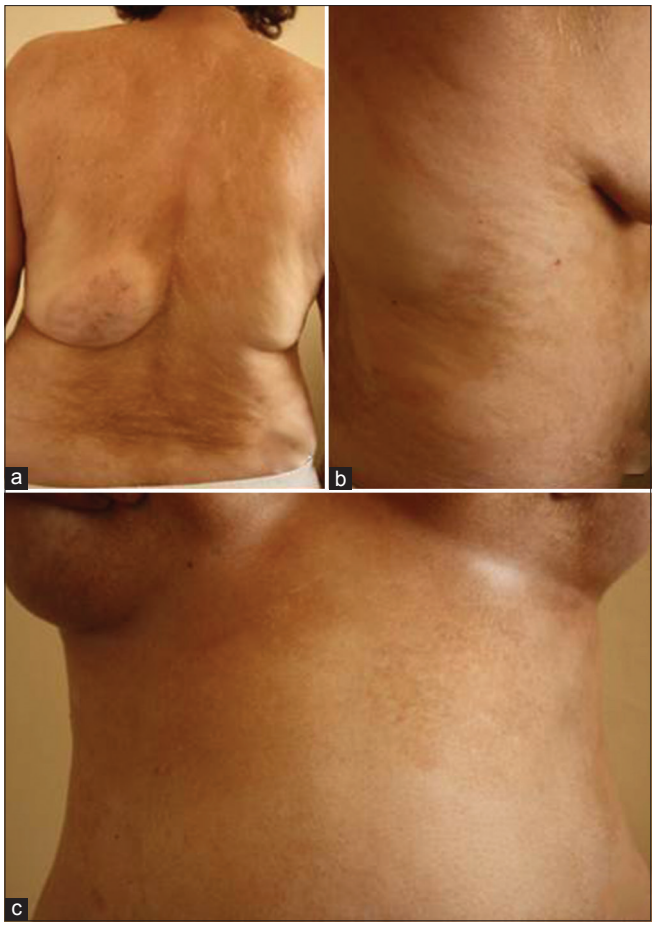


**Figure 1:** (a-c) Generalized hypo- and hyperpigmented, scattered sclerotic plaque lesions with irregular borders, on both the upper and lower extremities, and the front and back of the body

on clinical, laboratory and histopathological findings, she was diagnosed with celiac disease.

The patient was started on ultraviolet A1 (UVA1) treatment, in a dosage of 30 J/cm². She was advised a gluten free diet, and her gastrointestinal symptoms regressed within a short period of time. After 30 sessions of UVA1 treatment, the skin lesions did not regress; therefore, the dosage was increased to 60 J/cm². After a total 60 sessions, her lesions partially regressed, and treatment was stopped. She is presently only on topical treatment (mometasone furoate pomade and emolients).

## DISCUSSION

Lichen sclerosus et atrophicus is a rare, chronic inflammatory dermatitis that affects both the dermis and epidermis. Although the etiopathogenesis is not exactly known, *Borrelia* infections, hepatitis C infections, genetic factors, and androgen level irregularities are thought to be related.[1]

Lichen sclerosus et atrophicus is more frequently seen in females, and it can occur at any age. The prevalence peaks

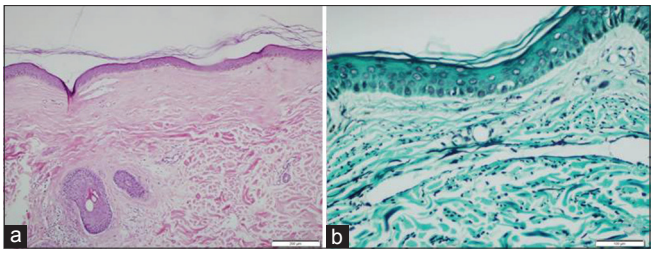


**Figure 2:** (a) Histologically basket-weave keratosis, epidermal atrophy, eosinophilic homogenization in superficial dermis (H and E, ×100), (b) loss of elastic fibers in superficial dermis (Elastic von Gieson, ×200)

in the fifth and sixth decades of life, and between the ages of 8 and 13.[4] Although it is commonly seen in the anogenital area (83-98%), it can be seen in extragenital areas in 15-20% of patients.[3,5] Extragenital LSA is most commonly located on the neck, upper arms, and flexor surfaces of the wrist;[6] however, generalized LSA has not been commonly reported in the literature.[4] In our case, the plaque lesions started over the thoracic region and spread to the body and extremities in <4 months.

According to the literature, there is a 5-34% co-occurrence rate of LSA with other autoimmune diseases, and 79% with an autoantibody positive rate.[5] In Kreuter *et al*.'s study, it was shown that there is a strong co-occurrence of LSA with other autoimmune diseases, especially autoimmune thyroid diseases in female patients, whereas no such relationship was detected in male patients with LSA.[7] In a serial, retrospective, extensive case study on LSA, it was shown that 15% of the patients had at least one autoimmune disease. In that study, several autoantibodies and accompanied autoimmune diseases, including thyroid diseases, autoimmune skin diseases (vitiligo, alopecia areata, localized scleroderma [LS], systemic sclerosis, cutaneous and systemic lupus erythematosus, dermatomyositis, pemphigus, bullous pemphigoid and psoriasis), inflammatory bowel diseases, and autoimmune rheumatic diseases were investigated.[7] In three other studies, the rate of autoimmune diseases accompanying LSA was found to be 21.5-34%.[7-9] Autoantibodies of celiac disease and the co-occurrence of celiac disease were not evaluated in these studies.

Celiac disease is an intestinal disease that occurs in patients who are genetically predisposed and is a permanent intolerance toward gluten and other gluten-like grain proteins. In the pathogenesis of celiac disease, genetic, and environmental factors play an important role. Celiac disease manifests with gastrointestinal symptoms such as diarrhea, abdominal pain, and loss of appetite. In patients with celiac disease, varying levels of positive gliadin antibodies IgA, IgG, antireticulin antibodies, anti-endomysial antibodies, and anti-tissue transglutaminase antibodies can be seen. Celiac disease can be accompanied by skin diseases such as cutaneous vasculitis, linear IgA bullous dermatosis, urticaria, psoriasis, erythema

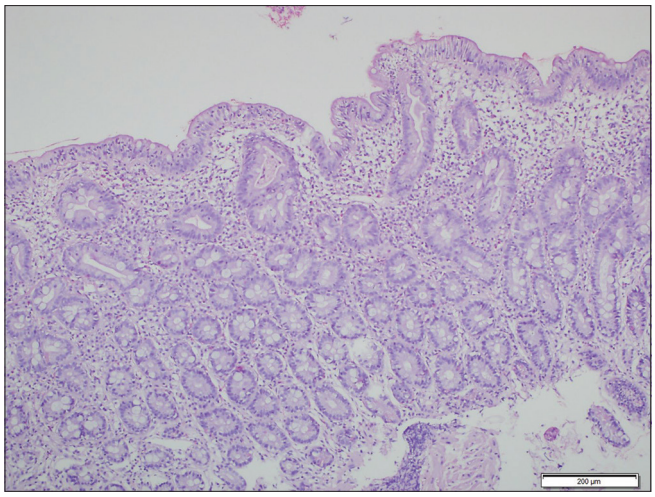

**Figure 3:** In duodenal biopsy: Villous atrophy, mild crypt hyperplasia, increased lymphocyte accumulation in epithelium and plasma cell infiltration in lamina propria (H and E, ×100)

nodosum, alopecia areata and vitiligo, but most commonly with dermatitis herpetiformis.[3] In the literature, celiac disease was reportedly accompanied by morphea that resembled LSA, and celiac disease was more commonly reported in cases with scleroderma.[7]

The underlying cause is unknown in LSA; however, there is a strong association with autoimmune disorders, and immunogenetic studies demonstrated a link with HLA DQ7, B40.8, B44, AW31.[1,5] Celiac disease is common immune mediated illness and strongly genetically determined, requires specific HLA haplotypes. In celiac disease, HLA testing can exclude diagnosis, but has low specificity. Important feature of celiac disease is its strong dependence on the presence of susceptibility genes encoding for HLA DQ2.5, DQ8 seen in approximately 99.6% of all patients with celiac disease.[10]

Lichen sclerosus et atrophicus and celiac disease rarely occur together. Although in the literature, it is reported that the risk of gastrointestinal diseases, such as ulcerative colitis, Crohn's disease, chronic constipation and irritable bowel syndrome, increases in patients with LSA,[11] a co-occurrence of LSA and celiac disease has yet not been reported. In patients with LSA, positive autoantibodies, such as the anti-nuclear antibody, extractable nuclear antigen, anti-ds DNA, anti-thyroid antibodies, complement 3-4, and rheumatoid factor can be detected.[2] A study showed that in most cases with LSA, autoantibodies against the glycoprotein, extracellular matrix protein-1 were detected.[2,4] As far as we know, there are no autoantibodies that can explain the co-occurrence of LSA and celiac disease.

There is no definite cure for LSA, but several therapy options, including topical corticosteroids, ointments with estrogen or androgen, retinoids, antimalarial drugs, phototherapy (UVA1, PUVA), surgery and topical tacrolimus are available for treatment. Generalized LS treatments include phototherapy (PUVA, UVA1), hydroxychloroquine, pulsated systemic corticosteroids, and methotrexate combinations.[4,12] Therefore, we treated our patient with topical corticosteroids and 60 sessions of UVA1 therapy (with a dose of 30 J/cm$^2$ due to the widespread lesions), but there was very little improvement in her lesions.

Finally, many case reports and studies in the literature on the co-occurrence of LSA and autoimmune diseases have been reported, but no co-occurrence of celiac disease and LSA. Clinicians should always keep in mind that autoimmune diseases can accompany LSA, especially in females. Further studies, including a larger number of patients, should be conducted on the correlation between the treatment of celiac disease and the clinical improvement of LSA.

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