



**LICHEN AMYLOIDOSIS RESEMBLES A PICTURE CHRONIC LICHEN SIMPLEX
IN A WOMAN WITH HYPERPIGMENTED SKIN LESIONS AREA LOWER LEGS**

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ABSTRACT

Lichen Amyloidosis (LA) and Lichen Simplex Chronicus (LSC) are two skin conditions that are often confused in clinical diagnosis because of their similar clinical manifestations. Objective: This study aims to determine the picture of Lichen Amyloidosis Resembling Lichen Simplex Chronicus in Women with Hyperpigmented Skin Lesions in the Lower Leg Area. This study used a qualitative method with a case study approach on participants who met the inclusion and exclusion criteria in women with hyperpigmented skin lesions in the lower leg area. The population and samples used were patients who met the inclusion and exclusion criteria as many as 3 people. patients were interviewed, observed and given medical treatment then evaluated for changes that occurred. The results of this study found a case of a 37-year-old woman with hyperpigmented skin lesions on both lower legs, diagnosed as LSC. Further examination showed results in accordance with LA. The main symptoms experienced by the patient were severe itching that interfered with daily activities, especially when the patient was emotional or stressed. The patient was treated using a combination of dermatotherapy and psychotherapy to reduce itching and prevent recurrence. Diagnostic challenges are often encountered in the management of patients with complex skin conditions, as is the importance of accurate histopathology in establishing a correct diagnosis.

Keywords: histopathological examination; hyperpigmentation lesions; lichen amyloidosis; lichen simplex chronicus; skin lesions

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INTRODUCTION

Lichen Amyloidosis (LA) and Lichen Simplex Chronicus (LSC) are two skin conditions that often pose challenges in clinical diagnosis and management. Both can present similar clinical manifestations, including intense itching and the appearance of hyperpigmented skin lesions.(Kandhari et al., 2013). Despite having similar signs and symptoms, fundamental differences in the pathogenesis and histopathological characteristics of these two conditions require different diagnostic and therapeutic approaches (Juarez & Kwatra, 2021; Ladizinski & Lee, 2014; Milewska et al., 2023).

In this discussion, it is important to understand how LA can mimic or have similarities with LSC, and how histopathological analysis plays a crucial role in differentiating the two. We report the case of a 37-year-old woman with hyperpigmented lesions on the lower leg that were initially diagnosed as LSC, but upon further histopathological examination, were diagnosed as LA. This case report discusses the diagnostic challenges often encountered in the management of patients with complex skin conditions, and emphasizes the importance of accurate histopathological examination in establishing a correct diagnosis and planning appropriate management. This study aims to determine the picture of Lichen Amyloidosis Resembling Lichen Simplex Chronicus in Women with Hyperpigmented Skin Lesions in the Lower Leg Area

METHOD

This study used a qualitative method with a case study approach on participants who met the inclusion and exclusion criteria in women with hyperpigmented skin lesions in the lower leg area. The population and samples used were patients who met the inclusion and exclusion criteria as many as 3 people. patients were interviewed, observed and given medical treatment then evaluated for changes that occurred.

RESULT

A 37-year-old woman, of Asian ethnicity, experienced blackish brown spots and spots that appeared on both lower legs. The patient felt that the spots and spots were getting thicker and more numerous since 11 years ago. The patient initially felt a very disturbing itch, especially at night before going to bed, so he scratched both legs. Then, spots and patches initially appeared on the right lower leg and slowly spread and thickened to the upper part. Similar complaints then appeared on the left leg. The very disturbing itching sensation often hampers daily activities, especially when the patient is emotional or stressed.

The patient was diagnosed with post traumatic stress disorder (PTSD) in 2022. There was no family history of illness related to the patient's complaints. Treatment history since 2013, the patient went to a general practitioner diagnosed with eczema, and was given betamethasone cream therapy but there was no significant change. In 2019, the patient consulted a general practitioner again because her complaints were getting worse and the lesions were spreading. The diagnosis was still the same, namely eczema, and was given therapy using mometasone cream. Furthermore, the patient was given topical therapy in the form of a mixed cream (contents unknown), but her complaints still did not improve so the therapy was then replaced with a mixed cream of betamethasone dipropionate and salicylic acid.

From physical examination, the general condition was good, vital signs were within normal limits, and general status was within normal limits. Dermatological status: Location on cruris dextra et sinistra. Efflorescence in the form of macules to multiple hyperpigmented papules, firm boundaries, round to oval shapes, varying in size, from 1 mm to 0.5 mm x 1 mm in diameter, scattered discretely, some confluent into plaques. Palpation feels hard.



Picture1. Clinical Manifestations of Lichen Amyloidosis
(1A. Lesion appears anteriorly, 1B. Lesion appears lateral right, 1C. Lesion appears lateral left, 1D. Lesion appears posteriorly, 1E. Lesion appears enlarged)

On September 23, 2019, a biopsy and histopathological examination of the lower leg were performed. Microscopic results showed a layer of stratified keratinized squamous epithelium, indicating hyperkeratosis. Several clusters of amorphous eosinophilic material appeared in the papillary dermis, accompanied by perivascular round-core inflammatory infiltration in the superficial dermis. No infiltration was seen in the papillary dermis, nor was lichenoid inflammation detected. Additional staining with Congo red was partially positive, while PAS and PAS-D staining showed a weak increase in amorphous material. Amyloid P staining was positive. From the anamnesis, physical examination and histopathological examination, the patient was diagnosed with lichen amyloidosis. Management of the patient was given a mixture of betametasone dipropionate cream and salicylic acid applied twice a day for 6 weeks. In addition, regarding PTSD, the patient has also been consulted with a psychiatrist and the therapy given is in the form of counseling. Prognosis in patients, *quo ad vitam: ad bonam, quo ad functionam: dubia ad night, quo ad sanationam: dubia ad night.*

DISCUSSION

A 37-year-old woman, of Asian ethnicity, experienced itchy blackish brown spots and spots on both lower legs for 11 years. The patient's initial diagnosis was Lichen Simplex Chronic (LSC), then further histopathological examination was carried out until finally the diagnosis of lichen amyloidosis (LA) was confirmed. LA and LSC do have some similarities in their clinical manifestations, especially related to the intense itching sensation and the appearance of hyperpigmented skin lesions (Kandhari et al., 2013). LA usually appears between the 5th and 6th decades of life, is more common in men with darker skin phototypes, and may be associated with multiple endocrine neoplasia syndrome. LA is rare in Europe and North America, but is more common in Asia, Central and South America, and the Middle East (Carolin & Saraswati, 2023; Milewska et al., 2023). The prevalence of LA ranges from 0.2-0.3% and is more common in Southeast Asia (Hasibah, 2023).

The pathogenesis of Lichen Amyloidosis (LA) and Lichen Simplex Chronicus (LSC) differ significantly in their triggering factors and underlying mechanisms. In LA, the formation of hyperkeratotic papular lesions is associated with amyloid deposition in the dermis. Factors such as chronic friction, apoptosis, and viral infection can trigger this process. Chronic friction, for example due to chronic itching, promotes keratinocyte activation and amyloid production and deposition. On the other hand, apoptosis of skin cells and possibly inflammatory responses also play a role in amyloid formation. Whereas LSC is mainly triggered by emotional factors and physical trauma. Emotional factors such as stress cause an inflammatory reaction in the skin, which triggers the skin lesions to thicken and lichenify. In addition, physical trauma, such as repeated friction, can damage the skin and trigger the lichenification process. These differences in pathogenesis emphasize the importance of identifying the triggering factors of each condition in order to plan appropriate and effective treatment (Chu et al., 2017; Maouni et al., 2020; Muramatsu et al., 1995; Oh et al., 2023; Panicker et al., 2017; Smogorzewski et al., 2019). As in the initial symptoms of this case patient, intense itching may worsen during periods of stress. Hyperpigmentation lesions are thought to be secondary to scratching (Gorevic & Phelps, 2019).

It is important to understand the differences and unique characteristics of LA and LSC. LA is typically characterized by the appearance of clustered hyperkeratotic papules, often localized to the back, tibia, femur, and antibrachium. These lesions may become denser and more diffuse over time. A very bothersome itching sensation is a common symptom of LA, especially at night or when the patient is under stress. The skin lesions are usually blackish brown or hyperpigmented (Ladizinski & Lee, 2014; Milewska et al., 2023). According to this patient's complaint, the lesion appeared on the right lower leg (*cruris*). slowly spreading and

thickening to the upper and lower legs (cruris) left. The itching is very disturbing often inhibiting daily activities, especially when the patient is in an emotional or stressed state.

LSC is characterized by the presence of thickened, convoluted skin plaques, often with a rough, scaly texture. These plaques usually appear on areas of the body that are easily accessible to scratching, such as the neck, head, arms, or legs. Intense itching is also a characteristic feature of LSC, and repeated scratching can cause the skin lesions to become thicker and hyperpigmented over time. These differences in the characteristics of the clinical manifestations are important to note in the diagnosis and management of these two conditions. Although itching and hyperpigmented skin lesions may be similar, significant differences lie in the histopathological analysis and pathogenesis of both (Juarez & Kwatra, 2021).

Histopathological analysis is an important step in differentiating Lichen Amyloidosis (LA) from Lichen Simplex Chronicus (LSC). At the same time, localized LA lesions can resemble lichen simplex chronicus. The diagnosis of LA is established by detecting amyloid deposits in the papillary dermis through histopathological examination. The formation of amyloid deposits is thought to be related to the degenerative and apoptotic processes in basal keratinocytes due to repeated skin friction and scratching due to pruritus. This apoptotic process causes the formation of fibrillar masses containing cytokeratin, galectin-7, and F-actin, which eventually transform into amyloid (Kubanov et al., 2018). In LA, histopathological examination will reveal the typical amyloid deposition in the papillary dermis, which is the main characteristic of this condition. In addition, hyperkeratosis and acanthosis of the epidermis are also found, which reflect the skin's reaction to amyloid deposition. On the other hand, LSC shows a different histopathological pattern, with extensive epidermal hyperplasia, which is a sign of chronic inflammation and excessive skin cell regeneration. The lesions also show significant hyperkeratosis, characterized by excessive accumulation of dead skin cells, and lichenification, which describes structural changes in the skin that become rougher and more convoluted. Therefore, the correct diagnosis between these two conditions depends on accurate histopathological analysis (Clement & Truong, 2014; Hamie et al., 2021; Shimoda et al., 2017; Sufiawati et al., 2022; Tiengo et al., 2012; Weidner et al., 2017).

The histopathological results of this patient, through a skin biopsy, showed a layer of squamous epithelium that had undergone stratified keratinization, indicating hyperkeratosis. Several groups of amorphous eosinophilic material appeared in the papillary dermis, accompanied by perivascular round-core inflammatory infiltration in the superficial dermis. Additional staining with Congo red was partially positive, while PAS and PAS-D staining showed a weak increase in amorphous material, as well as positive amyloid P staining. Histological detection of amyloid requires the use of special staining, such as methyl violet, PAS method, Congo red dye, Sirius red, or thioflavin T. Amyloid fibrils in LA will bind to Congo red dye (Congophilia) and show green birefringence when examined under polarized light. (Carolin & Saraswati, 2023).

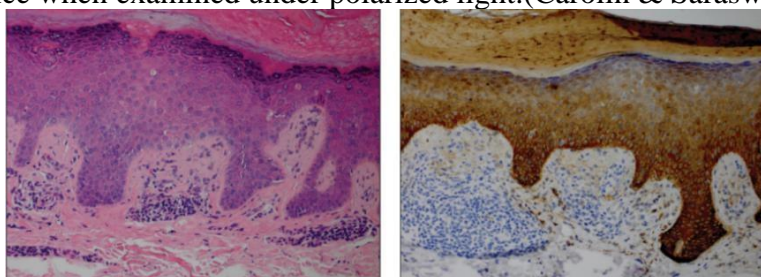


Figure 3. Histopathological Picture of Lichen Amyloidosis (Smogorzewski et al., 2019)

Lichen Amyloidosis (LA) and *Lichen Simplex Chronicus* (LSC) are distinct entities although both involve chronic skin conditions. LA is a primary cutaneous amyloidosis characterized by amyloid deposition in the dermis, leading to intense pruritus and skin lesions. In contrast, LSC is a form of lichenifying eczema that results from persistent scratching and rubbing of the skin, leading to thickened, rough patches. LA typically presents with itchy, hyperpigmented macules that coalesce into plaques, whereas LSC manifests as thickened, lichenified skin due to repeated scratching. Treatment approaches also differ, with LA often requiring targeted therapy such as Janus kinase inhibitors or dupilumab, while management of LSC focuses on addressing the underlying cause of chronic itching and inflammation. (Milewska et al., 2023; Ouïam, 2018; Rousseau et al., 2023; Solimani et al., 2023).

Risk factors such as stress can worsen symptoms in LA and LSC, a holistic therapeutic approach often involves a combination of skin care with psychotherapy (Maouni et al., 2020). This case patient was given topical therapy with two active ingredients betamethasone dipropionate and salicylic acid applied twice a day for 6 weeks. In addition, the patient was also consulted with a psychiatrist. This combination of therapies aims to reduce the intense itching sensation and prevent recurrence of the condition. Psychotherapy is used to help patients manage stress and improve coping with symptoms, which can help reduce inflammatory activation that can worsen the skin condition. In addition, therapeutic management involves the use of oral and topical retinoids for both conditions. Oral retinoids, such as isotretinoin, can help reduce skin cell proliferation and inflammation, while topical retinoids, such as tretinoin, can increase skin cell renewal. However, patient responses to these treatments can vary, so adjustments need to be made based on individual conditions (Juarez & Kwatra, 2021; Ladizinski & Lee, 2014; Milewska et al., 2023).

In the case of LA, emphasis on histopathological examination is essential to differentiate it from LSC. Careful histopathological examination can provide a clear picture of the characteristics of amyloid deposition in the dermis, thus ensuring an accurate diagnosis and appropriate treatment for the patient. With a comprehensive and appropriate approach, patients can experience symptomatic improvement and prevent recurrence of the condition more effectively.

CONCLUSION

A 37-year-old female patient with hyperpigmented skin lesions on both lower legs was diagnosed with *Lichen amyloidosis* (LA), showing similarities to cases of *Lichen Simplex Chronicus* (LSC). The main symptom experienced was intense itching sensation, disrupting daily activities, especially when the patient was in an emotional or stressful state. Although the clinical manifestations of both conditions were similar, histopathological examination confirmed the diagnosis of LA through identification of amyloid deposition in the papillary dermis. The patient's management involved a combination of skin care with psychotherapy to reduce itching sensation and prevent recurrence. Thus, it is important to emphasize holistic assessment and histopathological examination in differentiating LA from LSC, as well as a comprehensive therapeutic approach for effective management of this condition. With a comprehensive therapeutic approach, it is hoped that patients can experience symptom improvement and prevent recurrence of the condition more effectively.

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