



SUCCESSFUL COMBINED CHEMICAL PEEL AND TOPICAL THERAPY FOR THE TREATMENT OF LICHEN AMYLOIDOSIS : A CASE REPORT

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Abstract

Introduction: Lichen amyloidosis is a chronic skin condition characterized by the appearance of lichenoid papules accompanied by itching. Treatment of lichen amyloidosis can be topical such as; corticosteroids and tacrolimus, as well as systemic such as; administration of cyclosporine or retinoids, dermabrasion, and chemical peels.

Case: A 68-year-old man of Batak ethnicity came to the Dermatology and Venereology Polyclinic at the Universitas Sumatera Utara Hospital complaining of hard brown nodules accompanied by itching on the right lower leg since \pm 3 years ago. Physical examination was within normal limits; dermatological examination found brownish, miliary-lenticular, multiple hyperkeratotic papules in the right cruris region—complete blood laboratory examination within normal limits. Histopathological examination supports the diagnosis of lichen amyloidosis. Therapy was given in the form of 0.05% clobetasol propionate and 10% salicylic acid applied in the morning and evening, cetirizine tablets 10 mg once a day for four weeks. Then proceed with chemical peeling with 15% trichloroacetic acid (TCA), which is done every two weeks. Good clinical improvement was seen after four sessions of chemical peels.

Discussion: Topical corticosteroids are effective and safe for various dermatotic conditions, but their use is not recommended for the long term because they can cause unwanted side effects. Application of 15% to 30% TCA peels in lichen amyloidosis patients can significantly reduce itching and improve clinical outcomes.

Conclusion: Combining topical therapy with chemical peels for lichen amyloidosis provides significant clinical improvement.

Keywords: lichen amyloidosis, trichloroacetic acid peels, salicylic acid, Congo Red staining, amyloid fibrils, apple-green birefringence, cutaneous amyloidosis.

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1. Introduction

Cutaneous amyloidosis is the most common cause of primary localized amyloidosis.¹ This disease dramatically affects patients' quality of life because of persistent itching and skin lesions that can be cosmetically disturbing.^{2,3} There are reports of successful treatment with laser administration CO₂, Nd: YAG laser, dermabrasion, topical corticosteroids, phototherapy, scraping, and chemical peels.^{3,4} In this case, a significant clinical improvement was reported in a lichen amyloidosis patient with a combination of topical corticosteroids, 10% salicylic acid, and 15% trichloroacetic acid (TCA) application.

Case

A 68-year-old man of Batak ethnicity came to the Dermatology and Venereology Polyclinic at the University of North Sumatra Hospital complaining of hard, brown nodules accompanied by itching on the right lower leg since \pm 3 years ago (Figure 1 A, B). Initially, the complaint was in the form of a nodule accompanied by itching, only appearing a little on the lower right leg, and over time, it increased in number but did not spread to other parts of the body. Initially, the itching was intermittent both in the morning and at night and got worse for about two months. Patients also often scratch the nodule. The patient had seen a doctor and was given treatment in ointments and oral medication, but he did not remember his name. Complaints of itching had decreased a little but reappeared and itchy more. There was no history of family members having a history of the same disease, and a history of previous disease in the patient was not found. On physical examination, the general condition was good, with awareness of compost

mentis and good nutritional status. On examination, vital signs were within normal limits. Dermatologic examination revealed brownish, miliary-lenticular, multiple hyperkeratotic papules in the right crural region (Fig. 1A, B)—complete blood laboratory examination within normal limits. Our patient has a differential diagnosis with lichen amyloidosis, lichen simplex chronic, and lichen planus. Then a biopsy and histopathological examination were performed with Haematoxylin and Eosin (H&E) staining followed by Congo Red (CR) staining, and the results of lichen amyloidosis were obtained (Figure 2). Based on the history, physical examination, and histopathology, the diagnosis of lichen amyloidosis was established.

Patients were given therapy with cetirizine tablets 10 mg once a day and topical corticosteroids clobetasol propionate 0.05% mixed with 10% salicylic acid applied twice a day for four weeks. After five weeks of treatment, complaints of itching were never felt by the patient, and on dermatological examination, hyperpigmented macules and hyperkeratotic papules in the right cruris region had thinned (Fig. 1C, D).

After that, topical therapy was discontinued, and chemical peels were performed with 15% TCA on the lesions every two weeks (Fig. 1E, F, G). Patients are also given topical glyceryl stearate, urea, and caprylyl glycol in the form of lotions in the morning and at night. Cetirizine 10 mg tablet once daily to drink at night if the patient feels itchy. Good clinical improvement was obtained after four sessions of chemical peels (Fig. 1H, I). Prognosis in patients quo ad vitam: bonam, quo ad functionam: bonam, quo ad sanactionam: dubia ad bonam.

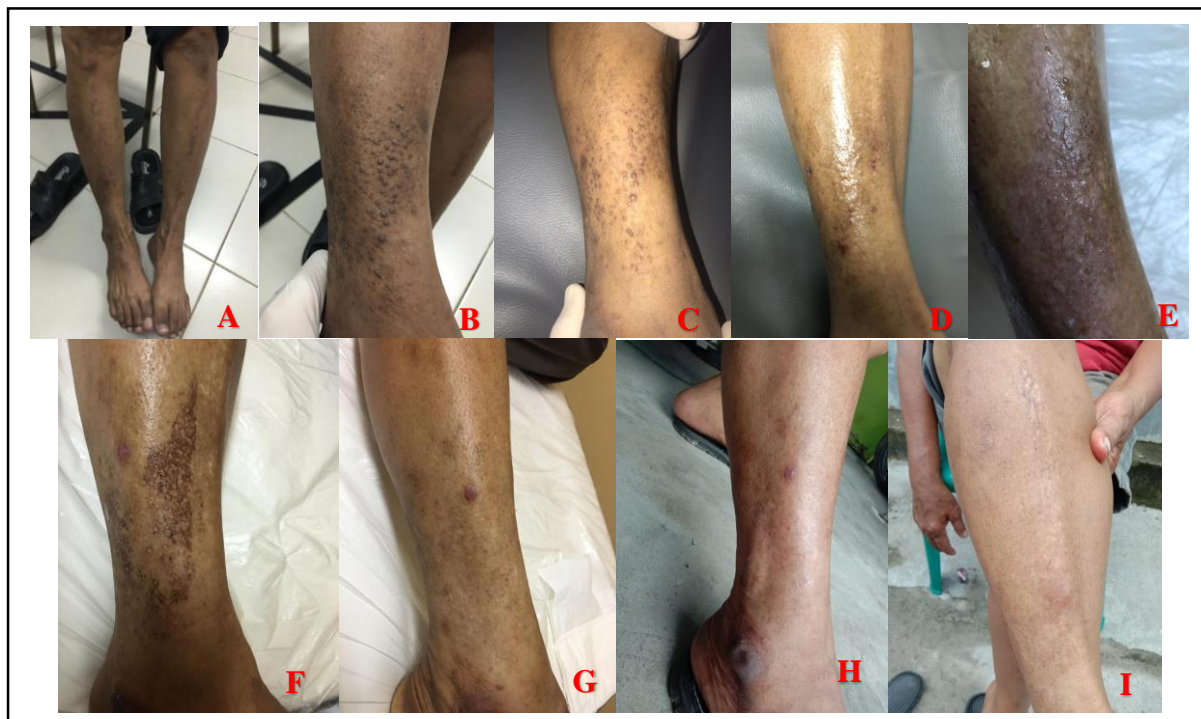


Figure 1. Before treatment (A, B). One week after topical treatment (C). Five weeks after topical treatment (D). Frosting when applying TCA (E). Two weeks after the first TCA application (F). Two weeks after the third TCA application (G). Two weeks after the fourth TCA application (H). Four weeks after the fourth TCA application (I).

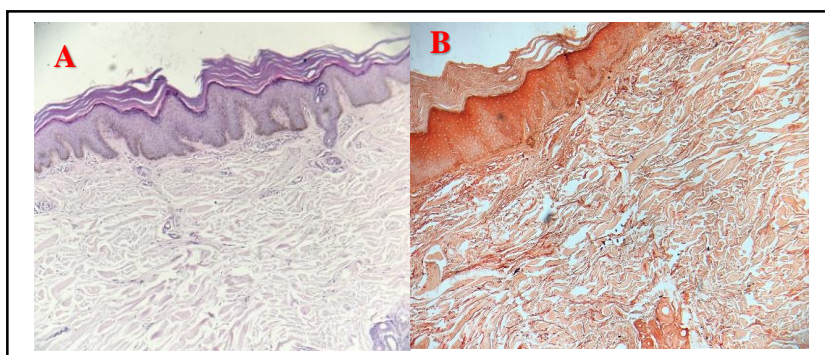


Figure 2. H&E staining of the subepidermal layer shows that the stroma consists of eosinophilic amorphous fibers lightly infiltrated with inflammatory lymphocyte cells. The blood vessels are dilated. No signs of malignancy were found in this preparation (A). CR staining shows positive eosinophilic material in the papillary dermis, supporting clinical lichen amyloidosis (B).

2. Discussion

Lichen amyloidosis is a skin condition characterized by the appearance of lichenoid papules accompanied by itching. It is chronic and is usually located on the lower extremities, although it can also be found on the extensor extremities of the arms, back, and thighs.⁵ Lichen amyloidosis most often affects Asians, including Indonesia, and affects adults aged 50 years, and the incidence in males is more

dominant than in females. This disease is also often found in individuals with Fitzpatrick skin types III and IV.^{3,4}

The diagnosis is established from the history, physical examination, and supporting examinations. The disease is usually idiopathic and is often associated with friction and scratching of the affected area, according to Behr et al. The scratching phenomenon is suspected as a factor influencing the

development of the lesions of lichen amyloidosis.⁶ The scratching process triggers the keratin peptides and fibroblasts to become amyloid fibrils. The primary protein precursor in cutaneous amyloidosis is keratin, which originates from keratinocytes. However, several studies have also reported that this disease is related to loose connective tissue disease and accompanying systemic diseases to the possibility of malignancy in patients.^{2,5,7} Investigations in blood and urine are usually performed to see the involvement of systemic disorders in patients suspected of having primary and secondary systemic amyloidosis.^{1,2}

Based on the literature, macular amyloidosis and lichen amyloidosis are variants of a single pathological condition characterized by the deposition of amyloid fibrils derived from galectin-7, which causes damage to the epidermis and apoptosis of keratinocytes.^{7,8} Amyloid deposits are usually confined to the papillary dermis and do not involve blood vessels or adnexal structures. Cutaneous amyloidosis gives a histopathological picture of the epidermal layer through hyperkeratosis, acanthosis accompanied by degeneration of the basal cells, and elongation of the rete ridges. Amyloid accumulation is identified by CR staining and viewed under polarized light, known as “apple-green birefringence.”^{8,9}

Treatment for these patients was given potent topical corticosteroids, which are effective and safe for various dermatotic conditions. However, its use is not recommended for the long term because it can cause unwanted side effects.⁹ In this case, the keratolytic agent was given in the form of 10% salicylic acid. Salicylic acid has been used in concentrations ranging from 0.5% to 60%. At 3-6% concentrations, it can cause scaling by softening the stratum corneum, breaking the intracellular matrix, and stretching the connections between corneocytes. At concentrations greater than 6%, salicylic acid is destructive to tissues.⁸ In this patient, treatment was then combined with 15% TCA application. Robinson *et al.* performed TCA application to lichen amyloidosis patients with concentrations increased in 15% to 30% increments and found that chemical peels reduced itching, clinically significant improvement, and scratching frequency in patients.⁴ Nandini *et al.*, in their

study, stated that 25 patients who had cutaneous amyloidosis, as many as 25% experienced clinical improvements after the first session of TCA application, and 50% of patients experienced a better improvement in the third and fourth sessions.^{9,10} Significant clinical improvement was obtained after the TCA application at the fourth session in this case.

3. Conclusion

Amyloidosis is a variety of conditions in which there is a buildup of amyloid protein in organs or tissues, including the heart, kidneys, gastrointestinal tract, nervous system, and skin. In this case, it has been reported that a combination of potent topical corticosteroid therapy and 10% salicylic acid followed by 15% TCA chemical peeling on lichen amyloidosis provides significant clinical improvement.

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Ethical approval

There is no ethical issue.

Conflict of interest

No potential conflict of interest was reported by the author(s).

Author contributions

D.A.D.:Conceptualization, methodology, validation, conducted research, provided research materials, and collected and organized data; M.R., D.A.D.:Initial and final draft of article, and provided logistic support. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

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