Topical halometasone cream combined with fire needle pretreatment for treatment of primary cutaneous amyloidosis: Two case reports

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BACKGROUND
Primary cutaneous amyloidosis (PCA) is a chronic metabolic skin disease that has a detrimental impact on physical and mental health. It appears as mossy papules and severe itching, which is long-term and recurrent. Traditional treatments are unsatisfactory, especially for refractory cases. Fire needle therapy, which is widely used in China, has shown good clinical efficacy, as well as advantages concerning safety and cost. Clinical reports about fire needle treatment of this disease are few at present.

CASE SUMMARY
We report two older men who had developed maculopapules with itchiness on the trunk and arms for more than 10-15 years. Due to the dermatopathological findings, PCA was our primary consideration. They received topical halometasone cream and pretreatment with fire needle for 8-16 wk. Both patients showed significant improvement of lesions. Neither patient had recurrence with a minimum of 2 years of follow-up.

CONCLUSION
Topical halometasone cream and pretreatment with fire needle could be a fast, safe, and economic treatment for PCA.

Key Words: Primary cutaneous amyloidosis; Fire needle; Halometasone cream; Case report
Core Tip: We explored a combination therapy for primary cutaneous amyloidosis, which is fast and noninvasive with low recurrence. The effects of topical drugs could be more pronounced after fire needle intervention. Topical halometasone cream plus fire needle pre-treatment could shorten the course of treatment and reduce recurrence.

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INTRODUCTION

Primary cutaneous amyloidosis (PCA) is a chronic metabolic skin disease that results from deposition of amyloid in the dermal papillary layer with no involvement of other organs, which has a detrimental impact on physical and mental health. Currently, topical corticosteroids are one of the effective methods for treatment of PCA. However, long-term use of corticosteroids can cause adverse reactions such as angiotectasis of the skin. Fire needle is a form of acupuncture therapy. The acupuncture needle pierces the lesion quickly after being burned red on an alcohol lamp. It has been reported that fire needle can be used for treatment of itchy, painful, inflammatory, and pigmented diseases\(^ {1-5}\), and has achieved a good therapeutic effect as an adjuvant therapy. Here, we report two cases of PCA that received fire needle pre-treatment and topical halometasone cream (Bright Future Pharmaceuticals Factory, Hong Kong), who achieved significant improvement.

CASE PRESENTATION

Chief complaints
Case 1: Brown papules with itchiness on the back and limbs for > 10 years.
Case 2: Mossy maculopapules with itchiness on the back and both upper arms for > 15 years.

History of present illness
Case 1: At first, the skin on the patient’s back and limbs developed itching. Numerous brown papules formed after repeated scratching. During this period, although corticosteroid cream and moisturizers were used topically many times, the effect was poor and the lesions increased gradually.
Case 2: The patient had used varieties of topical hormones and the cupping, but the effects were not obvious.

History of past illness
Case 1: The patient had been exposed to sunlight for a long time.
Case 2: The patient reported no notable past illness.

Personal and family history
Cases 1 and 2: No notable personal or family medical history.

Dermatological examination
Case 1: The back and shanks were symmetrically distributed with dense, hard, and rough brown papules. There was almost no normal skin between the papules. Lesions were more pronounced on the shanks. Due to excessive scratching, a small number of gray scales and blood scabs were attached to some of the papules (Figure 1A).
Case 2: Polygonal mossy maculopapules were widely distributed in the dorsal scapular region and on both upper arms, with well-defined boundaries and numerous scratches. Lesions were more pronounced in the middle than in the surrounding area. The skin of the dorsal interscapular area was normal (Figure 2A).

Laboratory examinations
Case 1: The epidermis was hyperkeratinized. There were homogeneous red-stained amorphous substances in the superficial dermis and pigment incontinence in the stratum basale. Lymphocytes were
Figure 1 Close-up view of lesions in case 1. A: Before treatment, the trunk and limbs had symmetrically distributed dense, brown, hard, and rough papules; B: After 4 wk of treatment, the lesions thinned; C: After 8 wk of treatment, the lesions disappeared and left residual pigmentation.

Figure 2 Close-up view of lesions in case 2. A: Before treatment, polygonal mossy maculopapules were widely distributed in the dorsal scapular region and on both upper arms; B: After 4 wk of treatment, the lesions became flat with light brown pigmentation.

scattered around the blood vessels (Figure 3A). Amyloid deposited within the dermal papillary layer was stained orange by Congo red (Figure 3B) and purple by crystal violet (Figure 3C).

Case 2: In the dermal papillary layer, there was a reddish mass of amorphous matter and pigment incontinence in the superficial dermis, as well as a small amount of lymphocyte infiltration around the blood vessels (Figure 4A).

Imaging examinations
Case 1: On dermatoscopy, the lesions were evenly distributed, and the central area was light white or light red without structure. The pigment was radially distributed around them, and the dotted blood
**Figure 3** Dermatoscopic and dermatopathological findings in case 1. A: The epidermis was hyperkeratinized. There were homogeneous red-stained amorphous substances in the dermis. Lymphocytes were scattered around the blood vessels; B: Amorphous substance was dyed orange; C: Amorphous substance was dyed purple; D: Dermatoscopy showed that the lesions were evenly distributed with gray pigmentation radially and dotted blood vessels densely distributed around them, and the central area was light white or light red without structure.

**Figure 4** Dermatoscopic and dermatopathological findings of case 2. A: In the dermal papillary layer, there were a reddish mass of amorphous matter and pigment incontinence in the superficial dermis, and a small amount of lymphocyte infiltration around the blood vessels; B: Central hub had a white or brown structure, surrounded by irregular pigmentation.

In both cases, based on the findings, the final diagnosis was PCA.
TREATMENT

Case 1
Initially, a fire needle was used to scatter the lesions locally. The acupuncture needle was burned red on the alcohol lamp and pierced the targeted lesions. The spacing was 5-10 mm and the depth of penetration was approximately 5 mm. This treatment was performed every 2 wk for four times. Topical halometasone cream was applied to the surface of the lesions and the lesions were covered with clean plastic wrap for 20-30 min. This was performed twice daily for 4 wk.

Case 2
The treatment method was the same as that for case 1, except that halometasone cream was applied for 4 wk.

OUTCOME AND FOLLOW-UP

Case 1
After 1 wk of the treatments, itching was significantly reduced. After 4 wk, the lesions were thinner and the surface was smoother (Figure 1B). After 8 wk, the lesions gradually disappeared, and left some pigmentation (Figure 1C). Itching was completely relieved. After telephone follow-up at 2 years, there was no recurrence.

Case 2
After 4 wk of the treatments, the original lesions became flat with light brown pigmentation, and the itching sensation disappeared (Figure 2B). At the 3-year telephone follow-up visit, the lesions had not subsided completely, but the itching had not recurred.

DISCUSSION

We report two older male patients with a long-term and stubborn history of scratching. The average course of disease was 12.5 years. Patient 1 had a history of UV exposure, which is consistent with the description of the disease. Both patients took multiple hormones topically, and patient 2 also had cupping therapy. Their effects were not obvious.

PCA is a chronic metabolic disease mainly involving the skin, with a predilection for the shins, calves, ankles, and dorsa of the feet and thighs[1]. Typical lesions are mossy papules forming brown patches, accompanied by stubborn itching and obvious pigmentation. The characteristic pathological feature is amyloid deposition in the dermal papillary layer. Common dermatoscopic findings are the presence of a white or brown structure, or scarring in the central area, with a variety of pigmented structures and bright white streaks[2]. PCA is related to scratching, UV exposure, genetic susceptibility, race, and environment. There is no difference between men and women. It has been reported that all eight patients with PCA in a Pakistani family were female[3]. It has also been reported that the disease mostly occurs in housewives, but the gender difference is not significant[4].

The common treatment methods for PCA mainly include topical and systemic drugs such as retinoids, phototherapy, laser therapy, and surgical interventions, but the results are often not satisfactory[1]. Fire needle has the advantages of both conventional acupuncture and moxibustion, due to needle and thermal stimulation. It can promote microcirculation, accelerate metabolism, and restore damaged tissues in the lesional area through the regulation of cutaneous nerves, which in turn can eliminate or attenuate pathological features such as edema, hyperemia, exudation, adhesion, calcification, contractures, and ischemia[5]. Fire needle also can stimulate vascular dilatation and local edema of the lesion, which promotes transdermal absorption and maximizes the efficacy of the topical agents[6].

The adverse effects of fire needle, such as mild burning, stinging, and itching, and slight redness and swelling of the skin, are temporary and not regarded as severe, because these effects disappear within 30-60 min[7]. Therefore, fire needle is a viable treatment option for PCA, and packet therapy can increase drug hydration, promoting the transdermal absorption of halometasone cream and maximizing its efficacy. Therefore, it is believed that the effect of halometasone cream is more significant after fire needle and packet therapy.

CONCLUSION

We report two patients with PCA treated with topical halometasone cream and pretreatment with fire needle.
needle. The lesions in patient 1 improved significantly after 8 wk, and the lesions in patient 2 were basically flattened after 4 wk. Neither patient had recurrence after 2-3 years of follow-up. This method reduced severe itching significantly and removed lesions more effectively. It is believed that this combination therapy could be an effective, safe, and economic alternative therapy for PCA. The number of reported cases of this method is small, and there was no blank control, so further exploration is needed.

**FOOTNOTES**

**Author contributions:** Su YQ was the patient’s dermatologist, reviewed the literature, and contributed to manuscript drafting; Liu ZY reviewed the literature and contributed to manuscript drafting; Zhang CM and Wei G was responsible for the revision of the manuscript for important intellectual content; all authors issued final approval for the version to be submitted.

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