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Successful treatment of actinic granuloma with intralesional steroid injection: a case report

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Abstract

Actinic granuloma (AG) is a rare dermatological condition with only a few dozen cases reported worldwide. Initially classified as a variant of granuloma annulare, it is now recognized as a distinct entity characterized by asymptomatic annular plaques in sun-exposed areas of the skin. The exact pathogenesis remains unclear, but it is believed to be an inflammatory response to sun damage, possibly involving injured elastic fibers. Numerous local and systemic therapeutic options exist, but no specific treatment guidelines have been established. We present a case of AG treated with intralesional application of triamcinolone acetonide in a 64-year-old male patient. We also discuss the most important clinical and histological characteristics and various treatment options.

Keywords: case report, dermatology, actinic granuloma, intralesional therapy

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Introduction

Actinic granuloma (AG), also known as O'Brien granuloma, is an uncommon skin disease characterized by asymptomatic annular plaques on sun-exposed sites such as the face, neck, and scalp (1). It predominantly affects fair-skinned, middle-aged women living in sunny climates. Initially considered a variant of granuloma annulare, AG is now recognized as a distinct clinical entity (2).

The exact pathogenesis of AG remains unknown, but it is believed to be an inflammatory response to sun damage. Injured elastic fibers may serve as an antigenic trigger, leading to a CD4+ T-helper cell-mediated granulomatous immune reaction (3). AG is typically diagnosed clinically; however, due to its annular appearance, it is often misdiagnosed as tinea or other scaly rashes such as discoid eczema or psoriasis (3).

Skin biopsy of AG usually shows a granulomatous infiltrate composed of epithelioid mono- and multi-nucleated histiocytes and giant cells in the superficial dermis associated with loss of elastic fibers (elastolysis) (4). Granuloma lymphocytes may be seen at the edges. Although AG is a self-limiting disorder, the lesions may persist for up to 10 years (5).

AG presents a therapeutic challenge with no specific treatment established. Treatments for AG generally include topical corticosteroids, intralesional steroid injection, destruction by cryotherapy or laser ablation, imiquimod cream, and topical calcineurin inhibitors (tacrolimus and pimecrolimus). In cases of widespread AG, systemic therapy should be considered; the use of systemic steroids, methotrexate, hydroxychloroquine, cyclosporine, pentoxifylline, isotretinoin, acitretin, and biologics (particularly tumor necrosis factor-alfa inhibitors such as adalimumab and infliximab) has been reported (6, 7). Recently, a case of refractory AG successfully treated with doxycycline was reported (8). Topical and intralesional steroids have been found to be ineffective in some cases for the treatment of AG (6, 7).

Case report

A 64-year-old man presented with annular erythematous plaques on the skin of the infra-occipital region and especially on the nape of the neck. The lesions first appeared approximately 4 weeks prior to the appointment and were quickly spreading but were otherwise asymptomatic. The patient had been a sailor and had substantial exposure to ultraviolet rays during the summer months, and he had also experienced severe sunburns 8 weeks prior to the appointment.

The patient had no associated chronic diseases or known allergies. Furthermore, he had no family members presenting with similar lesions.

On examination, several annular erythematous plaques ranging in size from 1 to 2.5 cm were seen on the skin of the infra-occipital region and the sun-exposed area of the nape of the neck (Fig. 1). Laboratory parameters were not significantly elevated, and all other routine examinations were within normal ranges.

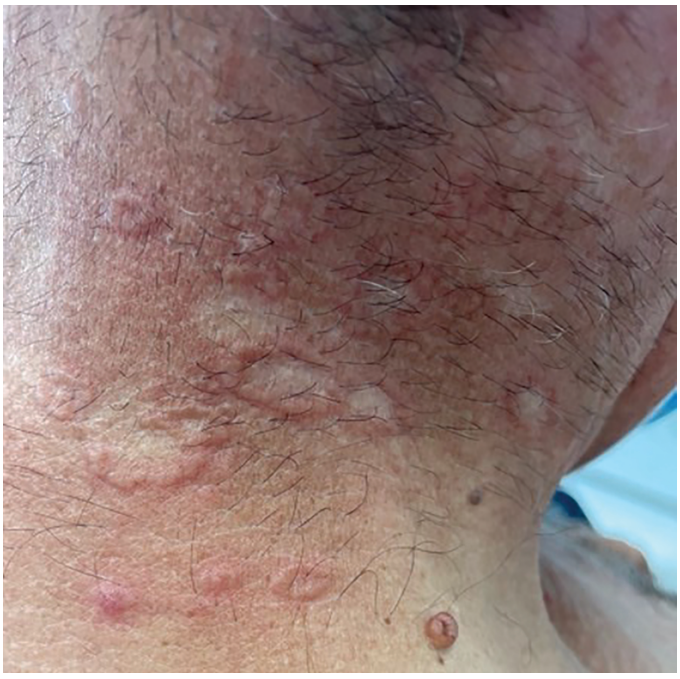

Figure 1 | Pre-treatment image showing annular lesions with erythematous scalloped borders and central atrophy on the nape of the neck.

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Unsure of the diagnosis at first sight, we decided to perform a punch biopsy. The histological examination revealed formation of epithelioid granulomas in the papillary and superficial part of the reticular dermis. Epithelioid granulomas were formed by epithelioid histiocytes, among which were multinucleated (foreign-type) giant cells. Lymphohistiocytic inflammatory infiltrate was seen at the periphery. There was no convincing necrobiosis (Fig. 2).

Initially, the pathologist made a diagnosis of granuloma annulare. However, after taking the clinical picture into consideration and reviewing the specimen for a second time, a revised opinion determined that it was definitely AG. Based on the correlation between clinical presentation and histological examination, the patient was diagnosed with AG.

While waiting for the histological examination results, we initially tried to treat the lesions with topical terbinafin, which did not lead to any improvement. Based on the initial histological findings and given some degree of shared pathobiological factors between granuloma annulare and AG, we then decided to use triamcinolone acetonide (10 mg/ml), which we injected into the edges of the skin lesions. The patient was advised on sun protection, including the use of broad-spectrum sunscreens and sun-protective clothing as well as sun avoidance. He was scheduled for a follow-up in 5 weeks. The examination 5 weeks after the treatment showed transient hypopigmentation, but otherwise the lesions had disappeared completely (Fig. 3). No side effects of the treatment were reported by the patient. No recurrence was observed during the following summer.

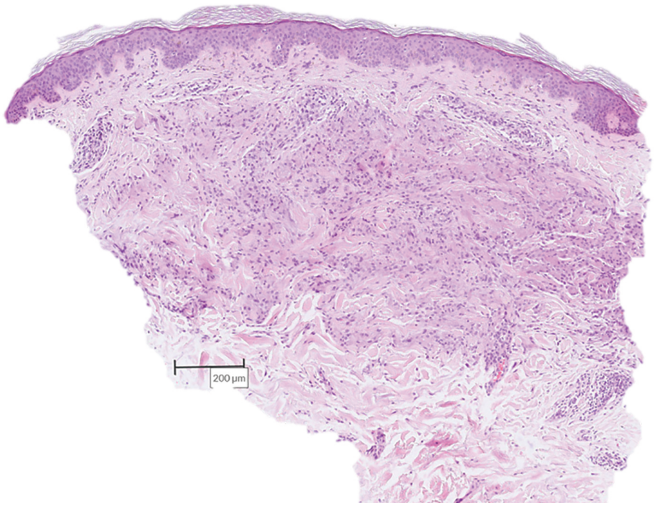

Figure 2 | Histopathology of actinic granuloma displaying epithelioid granulomas composed of epithelioid histiocytes and multinucleated (foreign-body type) giant cells.

Discussion

AG was first described by O'Brien in 1975, and since its initial description it has been documented in several case reports. Initially it was described as a variant of granuloma annulare in sun-exposed areas (2). Today, however, it is documented as a distinct entity due to its characteristic histological findings (9, 10).

AG is a rare skin disorder, and its prevalence remains uncertain. Skin lesions usually occur in middle-aged women, but AG should be considered in any patient presenting with annular plaques in sun-exposed regions of the skin. Its exact pathology remains uncertain. Skin exposure to sunlight is considered the main triggering factor because it causes inflammation and solar damage to elastic fibers (2, 3).

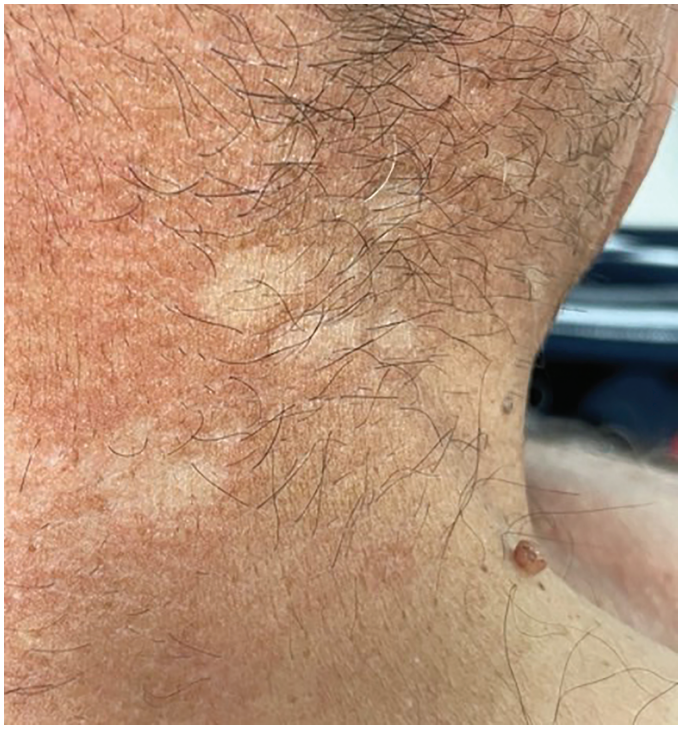

Figure 3 | Post-treatment image demonstrating complete regression of the lesions, with residual hypopigmentation.

The clinical picture mostly includes small erythematous papules, which are asymptomatic. Papules rapidly progress and coalesce into erythematous annular plaques. The lesions measure a few centimeters in size, with central atrophy or depigmentation and pinkish raised edges. The number of lesions may vary (1, 11, 12).

In our case, the lesions first appeared 4 weeks after excessive sun exposure and sunburns. The skin changes had a typical appearance and were in a sun-exposed area. Although the diagnosis is based on the clinical picture, histological examination is crucial for definitive confirmation (2, 3).

The histology of AG is characterized by a granulomatous reaction composed of multinucleated foreign body giant cells and multinuclear histiocytes, almost complete absence of elastic fibers in the central zone, and an increased amount of elastic fibers in the peripheral zone. There is some elastolysis in granuloma annulare, but complete loss of elastic fibers in the central zone of AG separates the two conditions (5). In our case, histological distinction between AG and granuloma annulare was difficult because the pathologist initially assessed the changes as granuloma annulare. However, upon re-examination and taking into account the patient history and the clinical picture, a diagnosis of AG was decided on. This also demonstrates how important it is for the dermatopathologist to have the opportunity for clinicopathological correlation.

The differential diagnosis of AG includes granuloma annulare and annular elastolytic giant cell granuloma. Due to its annular appearance, it could initially be misdiagnosed as tinea, as well as discoid lupus erythematosus, discoid eczema, and even psoriatic plaque (3).

AG is considered a self-limiting disorder, but the lesions may persist for as long as 10 years (1). Many topical and systemic treatment options with mixed results for AG have been described in the literature, including intralesional steroid injection, cryotherapy, ablative laser, hydroxychloroquine, cyclosporine, pentoxifylline, isotretinoin, acitretin, and biologics (adalimumab, infliximab). However, there are currently no specific treatment guidelines, and AG remains a therapeutic challenge (6–8).

In our case, we decided on intralesional application of triamcinolone acetonide 10 mg/ml. Interestingly, the effect of therapy was immediate and complete. At the 5-week follow-up, complete remission was observed in the absence of any skin atrophy. The remaining hypopigmentation disappeared in the following months, and no recurrence was observed during the following summer.

Despite an excellent safety profile of this local therapy with almost no systemic effects, there remains the possibility of pain during administration as well as skin atrophy at the injection site. The size of the affected area is a core limiting factor for the use of intralesional steroid treatment. Although the rapid improvement seen in our patient is certainly encouraging, we cannot rule out spontaneous remission, especially paired with the fact that some authors claim intralesional application of steroid is unsuccessful (6–8) and recommend other types of treatment.

Conclusions

The very few examples of this entity described in the literature means that it is definitely rare, has not been diagnosed, or has been misdiagnosed as ordinary granuloma annulare. Our case adds a piece to the puzzle of treatment, and there is no doubt that intralesional steroid therapy paired with advice on sun protection and avoidance has proven to be successful in this instance.

Although marked and lasting improvement was observed in our patient, it is also important to bear in mind that cases in which treatment did not result in remission are rarely reported in the literature, which can lead to confirmation bias. Therefore, randomized trials will likely be necessary before any creation or modification of treatment guidelines.

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