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### Authors

Orleans, Rachel A  
Magro, Cynthia M  
Varghese, George I

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# A case of granuloma annulare mimicking tinea cruris

Rachel A Orleans<sup>1</sup> MPH, Cynthia M Magro<sup>1,2</sup> MD, George I Varghese<sup>1,2</sup> MD

Affiliations: <sup>1</sup>Department of Dermatology, Weill Cornell Medicine, New York, New York, USA, <sup>2</sup> New York Presbyterian Hospital, Cornell, New York, New York

Corresponding Author: Rachel A Orleans, MPH, Department of Dermatology, Weill Cornell Medicine, 1305 York Avenue, New York, NY 10021, Tel: 918-497-6341, E-mail: [rao2003@med.cornell.edu](mailto:rao2003@med.cornell.edu)

## Abstract

Granuloma annulare (GA) is a benign, self-limited skin disease of unknown etiology characterized by annular, flesh-colored to erythematous grouped papules or plaques. Lesions of GA are typically located on the lateral or dorsal surfaces of the hands and feet, arms, thighs, and trunk. We present the case of a patient with GA who presented with erythematous, annular plaques localized to the bilateral inguinal folds, mimicking tinea cruris. On clinical examination, the lesions were thought to be tinea cruris. A subsequent punch biopsy revealed the lesions to be granuloma annulare. This case highlights an unusual location where GA can first present in a patient. It also suggests that GA should be considered among the differential diagnoses along with tinea cruris, when evaluating localized annular lesions of the groin.

*Keywords: granuloma annulare, necrobiotic disorders, tinea cruris*

## Introduction

Granuloma annulare (GA) is a benign, asymptomatic, self-limited dermal skin disease characterized by annular, flesh-colored to erythematous grouped papules or plaques that abruptly appear and spontaneously resolve over time [1, 2]. Granuloma annulare lesions are typically located on the lateral or dorsal surfaces of the hands and feet, arms, thighs, and trunk [1-3]. Although cases of GA presenting in unusual sites have been documented in the literature, reports of GA initially presenting as lesions

isolated to the bilateral inguinal folds have not been well documented [2, 4-6]. We present a case of a patient with GA, localized to the inguinal folds, mimicking tinea cruris.

## Case Synopsis

The patient is an 86-year-old woman with a two-month history of a rash located in the bilateral inguinal folds and proximal medial thighs. With the exception of a mild burning sensation, the rash was relatively asymptomatic. One month prior to visiting our clinic, the patient presented to a different dermatologist for the same eruption. A shave biopsy was performed. Histology showed a superficial



Figure 1. Erythematous, annular plaques in the bilateral inguinal fold.



Figure 2. Central clearing is noted on the right medial thigh.

perivascular dermatitis consistent with an urticarial hypersensitivity reaction. She was subsequently treated with betamethasone ointment without improvement. She then self-treated with clotrimazole 1% cream, which also failed to improve the rash.

On our exam, she had annular plaques with minimal scaling in the bilateral inguinal folds (Figures 1, 2). A KOH preparation of the rash was negative, but given the annular appearance, she was empirically treated with ciclopirox 0.77% gel. She returned two weeks later with minimal improvement and worsening of her plaques, which had now spread to the posterior thighs and the bilateral wrists. At this time, a punch biopsy was performed.

The biopsy showed superficial and deep foci of interstitial histiocytes, permeating through collagen and elastic fibers (Figure 3). An angiocentric lymphocytic infiltrate was present in the superficial dermis. A few of the collagen bundles appeared sclerotic and surrounded by histiocytes (Figure 4). Based on these findings, a diagnosis of interstitial granulomatous dermatitis with features of granuloma annulare was made.

## Case Discussion

The diagnosis of granuloma annulare is typically clinical. Although lesions may appear anywhere on the body, they tend to manifest on the arms, legs, and trunk [1, 2]. Granuloma annulare is commonly mistaken for tinea corporis given its appearance and usual locations; these two conditions are frequently considered together among the differential for annular lesions on the trunk [3]. Because it is unusual for GA to initially present in the inguinal folds, GA is generally not considered in the differential diagnosis of inguinal rashes. To our knowledge, this case is the first to document localized GA initially appearing in the inguinal region and suggests that GA be considered among the differential when evaluating localized annular lesions of the groin.

A biopsy may help confirm the diagnosis of GA when lesions present atypically or clinical uncertainty exists. Our patient had a shave biopsy early in the disease course that was interpreted as an urticarial-type reaction and treated with a topical corticosteroid. However, because of the superficial nature of the biopsy, the pathologist was unable to recognize the histological changes that define GA; the subsequent punch biopsy highlighted the characteristic dermal changes of GA. This further illustrates the importance of expanding the differential diagnosis of annular lesions in the groin

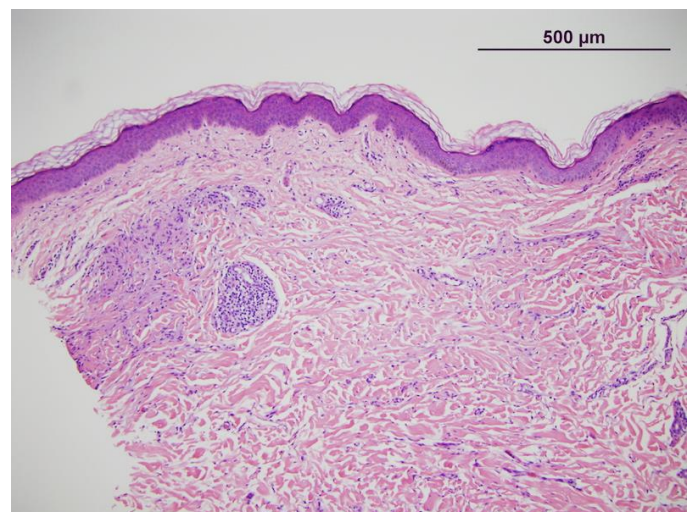


Figure 3. The biopsy shows discontinuous nodular foci of interstitial histiocytic infiltration typical for granuloma annulare. H&E, 10 $\times$ .



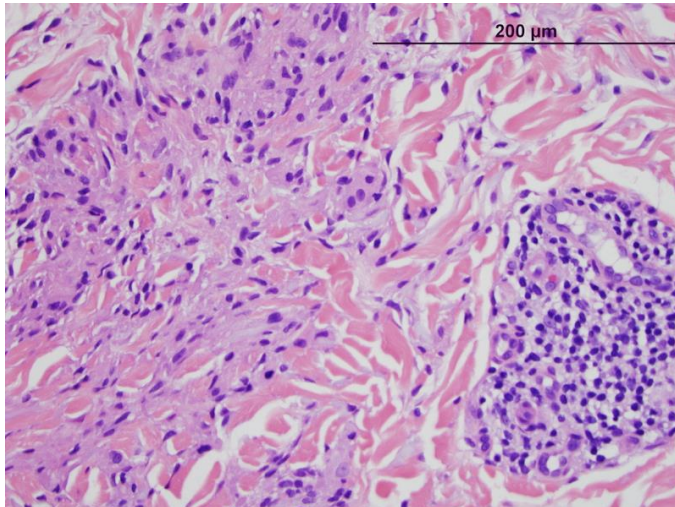


Figure 4. Higher magnification demonstrates scaffolding of histiocytes including multinucleated form along collagen and elastic fibers defining the essence of the interstitial granulomatous pattern encountered in the early evolutionary phase of granuloma annulare. A conspicuous perivascular infiltrate predominated by lymphocytes is noted and may be a clue regarding an etiology in terms of a viral or drug trigger, or one reflective of autoimmune disease. H&E, 40 $\times$ .

and selecting the appropriate diagnostic method for determining the diagnosis.

Granuloma annulare most often presents with a localized or generalized distribution pattern. Although not consistent, some studies have shown an association between generalized GA and systemic diseases including diabetes mellitus, dyslipidemia, and thyroid disease [2, 7-9]. Subsequent laboratory testing in our patient revealed a mild hypercholesterolemia. Chronic immune vasculitis, mononuclear perivascular inflammation, tissue trauma, and a cell-mediated delayed hypersensitivity reaction have been proposed as mechanisms for development of GA, yet the true pathogenesis remains unclear [10-13].

An important consideration raised pathologically is the interstitial granulomatous drug reaction, which can manifest in an intertriginous groin eruption, as noted here. Histomorphologically, the biopsy can exhibit features that resemble early interstitial granuloma annulare [14]. The more commonly implicated drugs are statins, angiotensin converting enzyme inhibitors, and calcium channel blockers.

This is unlikely in our patient given that she was not taking any of these medications. Granulomatous slack skin as a unique variant of mycosis fungoides can also demonstrate groin localization and interstitial granulomatous infiltrates on biopsy. Differentiating points include supervening lymphoid atypia with variable epidermotropism of atypical lymphocytes on histology and laxity of the skin on clinical exam, which were not observed in this patient [15].

Almost half of GA cases resolve without treatment within two years of onset [16]. If treatment is pursued, options include high-potency topical steroids, intralesional corticosteroid injections, and cryosurgery for localized disease. Phototherapy, oral antibiotics, immune modulators (e.g., dapsone or tacrolimus), and niacinamide are used for generalized disease [1-3]. The response rate to topical steroids, especially in generalized disease, is **poor and may explain this patient's lack of improvement** when treated with a topical corticosteroid [2].

Given the worsening of the disease to a generalized pattern and the new diagnosis of hyperlipidemia, oral niacinamide, 1500mg daily was prescribed. However, our patient declined treatment and preferred to allow the lesions to resolve on their own. At follow-up three and a half months later, the rash was still present but had faded in color and continued to be asymptomatic. The patient also reported an intentional weight loss of 10 pounds in efforts to improve her dyslipidemia.

## Conclusion

Granuloma annulare may present as lesions isolated to the bilateral inguinal region, mimicking tinea cruris. Therefore, clinicians should expand their differential diagnosis for localized annular eruptions in the groin to include GA. When clinical uncertainty exists, a full thickness biopsy may help confirm the diagnosis of granuloma annulare and differentiate it from similar-appearing lesions.

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