Dermatoscopy of Granulomatous Disorders

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KEYWORDS

• Dermatoscopy • Dermoscopy • Differential diagnosis • Granulomatous disorders • Inflammoscopy

KEY POINTS

- The main dermatoscopic clue of granulomatous dermatoses is the presence of focal or diffused structureless orangish or yellowish-orange areas histologically corresponding to dermal granulomas.
- Vessels and whitish areas are also frequently seen in granulomatous dermatoses, with the former being more common in early or active phases and the latter being more typical of more long-standing lesions.
- Although most granulomatous dermatoses share several dermatoscopic features, their accurate analysis, along with the detection of peculiar additional dermatoscopic features, may be helpful for distinguishing between the various forms.

INTRODUCTION

Cutaneous granulomatous disorders (CGDs) encompass a heterogeneous group of diseases sharing the common histologic denominator of granuloma formation, namely a focal compact collection of histiocytes with or without other inflammatory cells (eg, plasma cells, eosinophils, neutrophils), necrosis, vasculitis, fibrosis, calcification, or foreign bodies.[1,2] They may be divided into 2 main categories: infectious and noninfectious, with the former mainly including leishmaniasis, mycobacterioses, and fungal infections; and the latter mainly encompassing sarcoidosis, necrobiotic granulomas (ie, granuloma annulare, necrobiosis lipoidica, and rheumatoid nodules), and foreign body granulomas.[1,2]

Diagnosis of CGDs is usually suspected based on morphologic findings, localization, and anamnestic data, though clinical differentiation from each other and from similar dermatoses is often troublesome.[1,2]

Over the last few years, dermatoscopy has been shown to aid in assisting the recognition of several CGDs, including sarcoidosis, necrobiosis lipoidica, granuloma annulare, rheumatoid nodules, cutaneous leishmaniasis, and lupus vulgaris.[3,4]

This article provides an up-to-date overview of the dermatoscopic features of the main noninfectious and infectious CGDs, with a brief mention of other less common CGDs.

The dermatoscopic hallmark of all CGDs is represented by the presence of structureless orangish or yellowish-orange areas, which may be distributed in a focal or diffuse pattern.[3,4] This finding is strictly related to the presence of the dense and compact granulomatous infiltrate in the dermis (mass effect) and is better visualized by applying slight pressure on the skin (because of the reduction of erythema).[3,4]

Of note, orangish or yellowish-orange structureless areas are not absolutely specific for CGDs because they may be also appreciated in other dermatoses characterized by dense or compact

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dermal cellular infiltration (eg, Rosai-Dorfman disease, xanthogranuloma, pseudolymphomas)[3–6] or in skin diseases featuring dermal hemosiderin deposition (eg, pityriasis lichenoides chronica, Zoon balanitis, papular syphiloderm).[7–10] Additionally, the absence of such areas does not rule out the diagnosis of CGDs because they may be difficult to see in early stages (because the inflammatory infiltrate may be initially less compact or organized), when granulomas are located too deep, or there are remarkable epidermal changes (eg, hyperkeratosis, ulceration).[3,4]

Vessels and whitish areas are also frequently seen in CGDs, with the former being more common in early or active phases (when vascular dilation is more marked) and the latter being more typical of long-standing lesions (often characterized by dermal fibrosis).[3,4]

Even though all the aforementioned features are commonly visible in most CGDs, an accurate analysis (eg, shape, color, arrangement) of such findings may be often helpful in assisting their distinction.[3,4] Moreover, CGDs may also display additional dermatoscopic features that may further facilitate the differential diagnosis.[3,4] **Table 1** displays the main dermatoscopic clues of each granulomatous dermatosis.

CUTANEOUS SARCOIDOSIS

The main dermatoscopic clue of the various forms of cutaneous sarcoidosis is the presence of focally distributed or diffuse structureless orange or yellowish-orange areas, with a prevalence rate ranging from 84.2% to 100.0% (**Fig. 1**).[3,4,11–14] As previously mentioned, such areas are less commonly seen in early phases, or when granulomatous infiltrate is deeply located (subcutaneous sarcoidosis) or is associated with significant epidermal changes (eg, ulcerative or hyperkeratotic sarcoidosis).[3,4,11–14]

Vascular structures are another relevant dermatoscopic feature of cutaneous sarcoidosis; they have been reported to be present in 73.7% to 100.0% of patients.[3,4,11–14] Notably, vessels in such a condition may display different morphologies (with linear

Table 1
Main dermatoscopic clues of granulomatous dermatoses

Cutaneous sarcoidosis	• Diffuse or localized, structureless, orangish areas • Well-focused linear or branching vessels
Necrobiosis lipoidica	• Diffuse or localized, structureless, yellowish-orange areas • Well-focused vessels with variable shape (according to the disease phase): dotted, globular, comma-shaped (incipient lesions); network-shaped or hairpin-like (more developed lesions); or branching or serpentine (advanced lesions)
Granuloma annulare	• Unfocused vessels having a variable morphology over a more or less evident pinkish-reddish background • Focal or diffuse yellowish-orange (only palisading granuloma histologic variant) and whitish areas
Rheumatoid nodules	• Pink or mixed (pink and white) homogeneous background, with no or dull orangish areas
Cutaneous leishmaniasis	• Polymorphic vascularization and erythema • Whitish or yellowish follicular plugs having a roundish, oval, or tear-drop shape • White starburst-like pattern (peripheral white halo or radiating striae) • Epidermal changes (hyperkeratosis, yellow or white scaling, central erosion or ulceration and crusts)
Lupus vulgaris	• Diffuse or localized, structureless, orangish areas • Well-focused linear-branching vessels
Granulomatous rosacea	• Diffuse or localized, structureless, orangish areas • Linear reddish or purple vessels arranged in a polygonal network (vascular polygons)
Acne agminata	• Discrete (nonconfluent) focal orangish structureless around follicular openings filled with whitish or yellowish keratotic plugs
Borderline tuberculoid leprosy	• White areas • Decreased density of hairs • Yellowish or orangish globules (facial lesions)