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RESEARCH ARTICLE

A CASE REPORT OF GRANULOMA ANNULARE OCCURING IN UNBALANCED DIABETES: CLINICAL, DERMOSCOPIC, HISTOLOGICAL AND THERAPEUTIC FEATURES.

Kerroum S.[1], Aitkhabba C.[1], Zeggwagh Z.[1], Darkaoui S.[2], Znati K.[2], Meziane M.[1], Ismaili N.[1], Benzekri L.[1] and Senouci K.[1]

1. Service de Dermatologie et Vénérologie, Hôpital Ibn Sina -Université Mohammed V, Rabat, Maroc.
2. Service d'Anatomo-Pathologie, Hôpital Ibn Sina - Université Mohammed V, Rabat, Maroc.

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Abstract

Granuloma annulare is a benign, inflammatory dermatosis of uncertain etiology, classically presenting with localized or generalized, skincoloured to violaceous, non-scaly, dermal papules/nodules which may be discrete or coalesce to form annular or roundish plaques. While granuloma annulare is a benign disease, little is known about its pathophysiology, etiology, and comorbidities. Furthermore, its treatment remains poorly standardized. This case of granuloma annular highlights the importance to look for associated diseases.

Introduction:-

Granuloma annulare is a chronic inflammatory dermatosis characterised by papules or nodules that form a ring with normal or discretely depressed skin in the centre. The clinical variants include localized, generalized, perforating and subcutaneous types . We herein present a case of granuloma annulare occurring in poorly controlled type 2 diabetes.

Patient and Observation:-

A 60 years old patient with poorly controlled type 2 diabetes on oral anti-diabetic drugs (final glycated haemoglobin of 10%) had been presenting for about 3 months annular papular lesions with a pale centre and raised erythematous border. These lesions are located on the back of both hands (Figure 1) and one on the neck (Figure 2).

Corresponding Author:- Kerroum S.
Address:- Service de Dermatologie- Vénérologie CHU Ibn Sina - Rabat - Maroc.

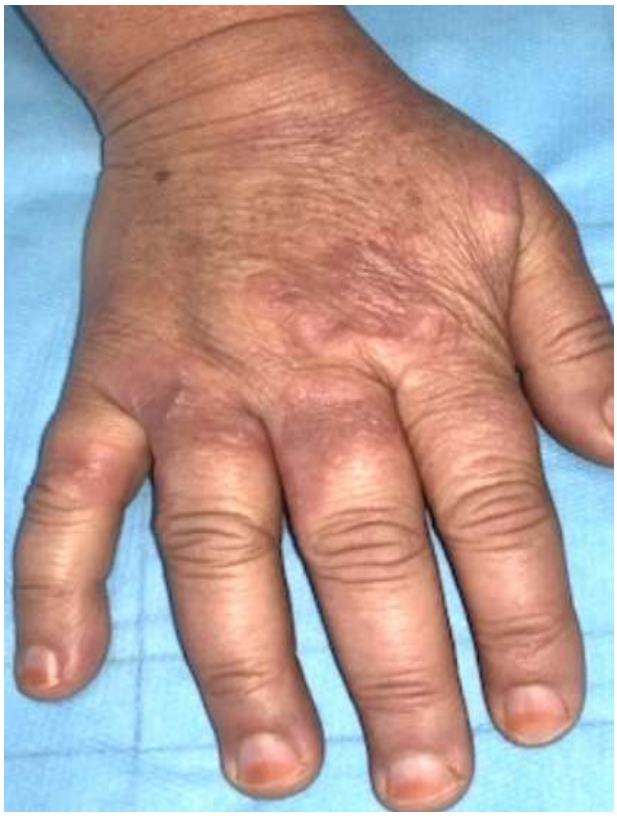

Figure 1:- Papular ring lesion with pale centre and raised erythematous border on the back of the hand.

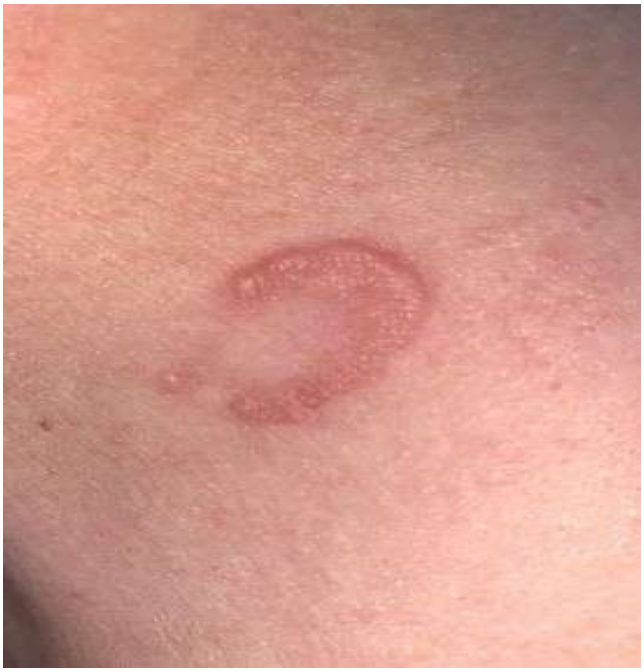

Figure 2:- Annular neck lesion.

The dermoscopic findings showed a yellowish-orange structureless areas (Figure 3), adotted line vascularisation and rosettes structures (Figure 4).

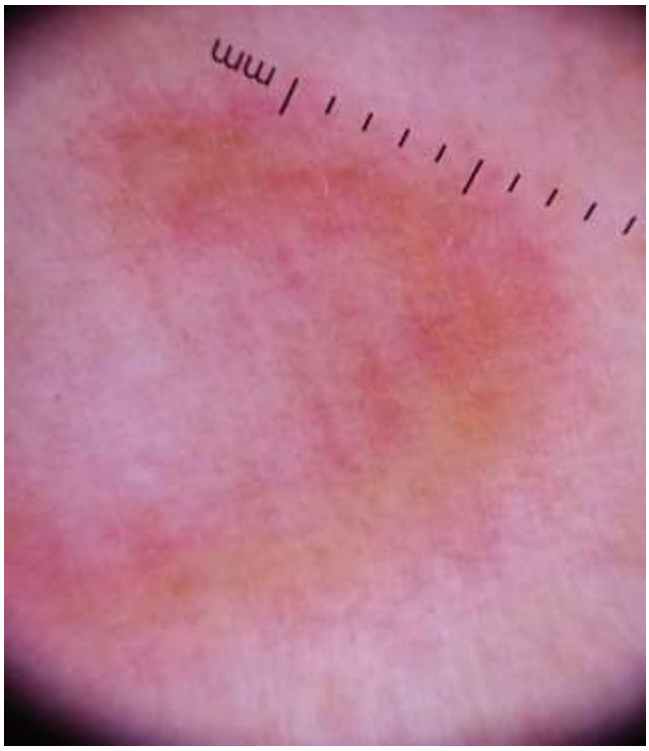

Figure 3:- Dermoscopy showed a yellowish-orange structureless areas. (Dermlite DL4).

Figure 4:- Dermoscopic image showing adotted line vascularisation and rosettes structures. (Dermlite DL4).

A skin biopsy was performed showing a dermal inflammatory lesion consisting of a histiocytic infiltrate (Figure 5) with collagen fibre necrosis .

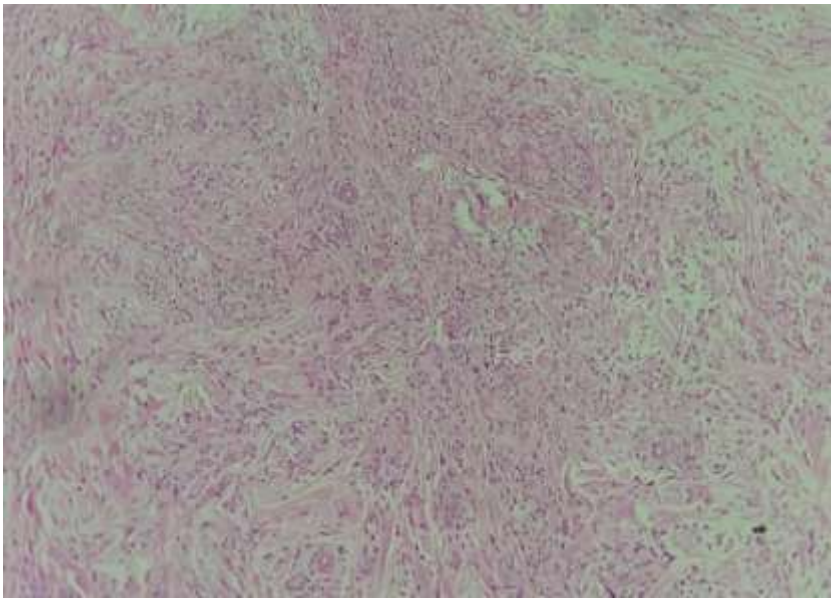

Figure 5:- Histological image showing an inflammatory infiltrate made up mainly of histiocytes.

The diagnosis of granuloma annulare was made, and treatment with strong class dermocorticoids was proposed, as well as rigorous follow-up for diabetes.

Discussion:-

Granuloma annulare is a chronic inflammatory dermatosis. It is a benign, and usually self-limited, inflammatory skin disease. The incidence is estimated to be between 0.1% and 0.4% [1]. Majority of previous studies demonstrate female preponderance [2], with a female-to-male ratio of 2:1, and onset commonly occurs before the age of 30 years [3] . Localized granuloma annulare is the most common subtype. Whereas localized granuloma annulare affects younger female adults, generalized granuloma annulare is slightly more prevalent in males and has a bimodal age distribution.

The etiology of granuloma annulare is unknown, although its histological findings support a delayed-type T-helper 1 (Th1) cell-mediated hypersensitivity reaction. In 2000, Fayyazi and al. [4] found infiltrating clusters of CD3 cells expressing Th1- associated cytokine interferon (IFN)-c, macrophages producing proinflammatory cytokine tumor necrosis factor (TNF)-alpha, and cytokine-regulated matrix metalloproteinases 2 and 9. The findings suggest that inflammation driven by Th1-mediated cytokines and activation of downstream matrix metalloproteinases induces tissue destruction. Mempel and al. [5] found a dominance of interleukin (IL)-2 transcription in patients with granuloma annulare, which is known to activate lymphocytic proliferation and maintain local T-cell activation, further supporting a T-cell directed process . The abundance of mucin in granuloma annulare may also play a role in inflammation. Recently, Mocan and al. [6] found that mucin-1 peptide activated macrophages, with subsequent release of proinflammatory cytokines such as TNF-alpha, IL-6, -10, and -12.

Granuloma annulare is a non-infectious granulomatous skin disease with varying morphologies and various subtypes. The most classic subtype is localized granuloma annulare, which is characterized by annular or ring-like skin-colored or erythematous papules commonly involving the dorsal hands or feet [7] . Rings are usually less than 5 cm in diameter and can enlarge centrifugally. The presence of ten or more lesions is considered to be generalized granuloma annulare, although some consider generalized granuloma annulare as a disseminated form of localized granuloma annulare with involvement of any part of the body, particularly the trunk, neck, and scalp. The terms ‘generalized granuloma annulare’ and ‘disseminated granuloma annulare’ are often used interchangeably in the literature [8]. Several differential diagnoses were described. Some mimickers of the localized and generalized form include tinea corporis, psoriasis, nummular eczema, pityriasis rosea, sarcoidosis, lupus, necrobiosis lipoidica, and granulomatous mycosis fungoides . If granuloma annulare cannot be diagnosed clinically, skin biopsy is recommended. Granuloma annulare presents histologically with a focus of necrobiosis surrounded by palisading histiocytes. Additionally, mucin deposition is an important hallmark of granuloma annulare. Multinucleated giant

cells are also a common finding and eosinophils, lymphocytes, and neutrophils infiltrating the dermis may also be observed [9] . Different subtypes of granuloma annulare have been noted to have certain characteristic features, although the triad of degraded collagen, histiocytic infiltrate, and presence of mucin seem to be common findings across all subtypes of granuloma annulare.

Dermoscopic findings may also facilitate diagnosis. The presence of unfocussed vessels having variable morphology (dotted, linear-irregular, and branching) over a more or less evident pinkish reddish background is a nearly constant dermoscopic feature of granuloma annulare, with whitish (irregular or globular) and yellowish-orange (focally or diffusely distributed) areas representing the most common non-vascular findings **.** Granuloma annulare include pigmented structures [10] and crystalline leaf venations (whitish, parallel, secondary striae branching from a central vein) [11] , with the latter being visible only by using polarized devices . The dermoscopic findings of our patient is yellowish-orange structureless areas , adotted line vascularisation and rosettes structures.

Some factors have been incriminated such as animal and insect bites, trauma, viral infections as hepatitis, medication and vaccination. Granuloma annulare may be associated with various pathologies such as diabetes, thyroid disease, dyslipidaemia, connective tissue diseases such as rheumatoid arthritis and lupus erythematosus, haemopathies, solid tumours (the most frequently found cancers are breast, colon and prostate). An association with HIV is regularly reported**.**

Topical and intralesional corticosteroids are considered firstline therapies for granuloma annulare and can induce partial or complete granuloma annulare regression in some patients, although several cases remain recalcitrant to corticosteroid treatment [12] . Because localized granuloma annulare is self-limited and asymptomatic, treatment usually is not necessary. Systemic therapy may be required for disseminated ones, and many different treatments have been proposed : dapsone [13] isotretinoin [14] antimalarial agents, cyclosporine, psoralen combined with ultraviolet A, topical imiquimod,or potassium iodide have shown positive outcome for generalized granuloma annulare treatment. Our patient was treated with strong class dermocorticoids with a good clinical evolution. She also benefited from a rigorous follow-up to control her diabetes.

Conclusion:-

Granuloma annulare is a benign, usually self-limited, inflammatory skin disease. It is an uncommon clinical manifestation of complex description. It should lead to a search for other associated pathologies that should be treated.

Informed consent has been obtained from the patient for us to use the pictures.

The authors declare no conflict of interest.

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