

Pruritus and Cutaneous Lesions: Granuloma Annulare vs. Mycosis Fungoides in a Patient with Comorbidities. Case Report

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Abstract

Introduction: Pruritus is a common symptom in dermatological practice. Affecting patients with a wide range of cutaneous and systemic diseases. It can be caused by cutaneous disorders, systemic diseases, neurological disorders, psychological disorders, medications, among others. When assessing individuals with pruritus and cutaneous lesions, it is essential to consider mycosis fungoides and granuloma annulare as noteworthy differential diagnoses.

Case presentation: A 51-year-old female patient exhibited symptoms of pruritus and two occurrences of pruritic skin lesions. Accompanied by a low-grade fever measuring 37.7 °C, as well as asthenia and myalgia. Physical examination revealed two rounded plaques with erythematous borders and multiple non-confluent papular lesions.

Discussion: Differentiating between mycosis fungoides and granuloma annulare can be challenging due to the similarities in their clinical presentations. However, performing a biopsy is essential to reach a definitive diagnosis.

Conclusions: A biopsy is being suggested for the front part of the left lower limb. The application of mometasone furoate twice a day for two weeks was prescribed. Subsequently, a meeting has been arranged to conduct a review and to carefully analyze the biopsy findings within thirty days.

Key words: pruritus; granuloma annulare; mycosis fungoides.

Prurito y lesiones cutáneas: Granuloma anular frente a micosis fungoide en un paciente con comorbilidades. Reporte de caso.

Resumen:

Introducción: El prurito es un síntoma frecuente en la práctica dermatológica, que afecta a pacientes con una amplia gama de enfermedades cutáneas y sistémicas. Puede estar causado por trastornos cutáneos, enfermedades sistémicas, trastornos neurológicos, trastornos psicológicos y medicamentosos, entre otros. En la evaluación de personas con prurito y lesiones cutáneas, es fundamental tener en cuenta la micosis fungoide y el granuloma anular como diagnósticos diferenciales destacables.

Presentación del caso clínico: Una paciente de 51 años de edad presentaba síntomas de prurito y dos apariciones de lesiones cutáneas pruriginosas, acompañadas de fiebre baja de 37.7 °C, así como astenia y mialgias. El examen físico reveló dos placas redondeadas con bordes eritematosos y múltiples lesiones papulares no confluentes.

Discusión: Diferenciar entre micosis fungoide y granuloma anular puede ser un reto debido a las similitudes en sus presentaciones clínicas. Sin embargo, la realización de una biopsia es esencial para llegar a un diagnóstico definitivo.

Conclusiones: Se sugiere la realización de una biopsia en la parte anterior del miembro inferior izquierdo. Se prescribe la aplicación de furoato de mometasona dos veces al día durante dos semanas. Posteriormente, se ha concertado una reunión para realizar una revisión y deliberar sobre los resultados de la biopsia en un plazo de treinta días.

Palabras clave: prurito, granuloma anular, micosis fungoide.

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Introduction

Pruritus, commonly known as itching, is a prevalent symptom in dermatological practice, which affects patients with a broad spectrum of cutaneous and systemic diseases¹. This symptom can be extremely bothersome and is one of the most common reasons why patients seek medical attention². Skin disorders, systemic diseases, neurological disorders³, psychological disorders, medications, and chemicals may cause pruritus. Notably, histamine, stored in mast cells, plays a significant role in the itching associated with cutaneous and systemic allergic disorders. In addition to histamine other well-known peripheral and central mediators are involved in the genesis of pruritus⁴. These mediators include tryptase, cathepsins, gastrin-releasing peptide, opioids, substance P, leukotrienes⁵, interleukins, and tumor necrosis factor. In response to scratching, friction, and inflammation these mediators are released by cells such as keratinocytes⁶, fibroblasts, mast cells⁷⁻⁸, macrophages⁹, eosinophils¹⁰, and neutrophils¹¹.

In the context of systemic diseases, it has been observed that interleukin-31 (IL-31) can play a role in the sensation of pruritus and antibodies that block IL-31 or its receptor¹², such as nemolizumab¹³, have been shown to decrease this sensation. In addition, a metabolic cascade known as IL-6-induced pruritus, which along with calcium can trigger the sensation of pruritus has been described¹⁴.

It is worth mentioning that pruritus can be exacerbated by factors such as temperature¹⁵, consumption of spicy foods¹⁶⁻¹⁷, hot drinks, alcohol, as well as contact with aeroallergens¹⁸⁻¹⁹. Therefore, it is recommended to avoid these situations to alleviate the symptoms of chronic pruritus.

It is widely acknowledged that pruritus, or itching, is a prevalent symptom in various dermatological and systemic diseases. This symptom can cause substantial discomfort, leading to scratching and inflammation, skin damage, and secondary infections. For an appropriate differential diagnosis, it is crucial to determine whether the pruritus originates from a dermatological condition^{1,20-21}. Furthermore, understanding the location and nature of the disease is essential. Skin diseases that can cause pruritus include, but are not limited to, atopic dermatitis, psoriasis, urticaria, and lichen

simplex chronicus^{1,20}. However, pruritus can also be caused by infectious conditions such as pediculosis, scabies, oxyuriasis, insect bites or by inflammatory conditions like herpetiformis, atopic dermatitis, and psoriasis²². The diagnosis of pruritus is primarily clinical but additional tests may occasionally be required to identify or confirm the cause. The diagnosis of pruritus begins with a physical examination and a review of the patient's medical history²³. Multiple etiologies of pruritus can be elucidated without further diagnostic procedures. However, when the cause of the skin lesions is uncertain, a skin biopsy may be necessary. Cutaneous lesions associated with pruritus can be primary, present at birth or acquired, or secondary, resulting from the irritation or manipulation of primary lesions. Mycosis fungoides, a cutaneous T-cell lymphoma²⁴⁻²⁵, presents with skin lesions that can vary in appearance from erythematous plaques to nodules or tumors²⁶⁻²⁷. The determination of mycosis fungoides relies upon its clinical manifestations and its histopathological and immunohistochemical attributes²⁶. On the other hand, granuloma annulare is a benign granulomatous disease characterized by ring-shaped or nodular lesions on the skin²⁸, whose etiology remains unknown¹.

Case report

The case of a 51-year-old woman who sought medical consultation due to pruritus and two outbreaks of itchy skin lesions. The first one appeared 20 days previous to the medical consultation and at the time all those skin lesions had disappeared. However, the second outbreak, which was the current one at the time of the consultation, was located on the trunk and anterior face of the limbs. The patient had a low-grade fever of 37.7 °C and reported fatigue and muscle pain that had been developing for a day. In spite of grade 1 obesity, inflammatory back pain with positive HLAB27, obstructive sleep apnea syndrome that is being treated with a CPAP machine, a benign cytological study of a left thyroid nodule, antral gastritis due to NSAIDs, reflux esophagitis, and cardiology follow-up for sinus tachycardia, she provided a blood test that included a thyroid profile within the normal range and a GGT with a 5-point increase. Among her personal history, the absence of known hypertension, diabetes mellitus, and dyslipidemia stood out. No known

adverse drug reactions and no relevant family history. The patient was under treatment with infliximab and escitalopram. Upon physical examination, two rounded plaques were observed, with erythematous borders, well-defined limits, and a desquamative surface situated on the trunk. In addition, multiple non-confluent papular lesions with an erythematous border were found on the anterior face of the right upper and left lower limbs. The lesions were firm to the touch with a purplish hue. They appeared to have an annular morphology with a clear center. Positive diascopy. The clinical judgment proposed a differential diagnosis between granuloma annulare and mycosis fungoides. It was recommended to perform a biopsy on a lesion situated on the anterior surface of the left lower leg for the purpose of confirming the diagnosis (Figure 2). According

to the prescription, mometasone furoate should have been applied twice daily for 14 days. If the lesions did not remit the applications would be maintained for 3 times a week until the next consultation. A review was scheduled in a month for the biopsy result.

At the biopsy of the lesion situated on the anterior surface of the left lower leg was reported. The epidermis, dermo-epidermal junction, papillary and reticular dermis were observed. There was an intense inflammatory infiltrate at the dermo-epidermal junction and a localized infiltrate in the reticular dermis with a perivascular and interstitial pattern (Figure 1) and at a high-magnification anatomopathological image an intense lymphohistiocytic infiltrate in the reticular dermis was observed (Figure 2).

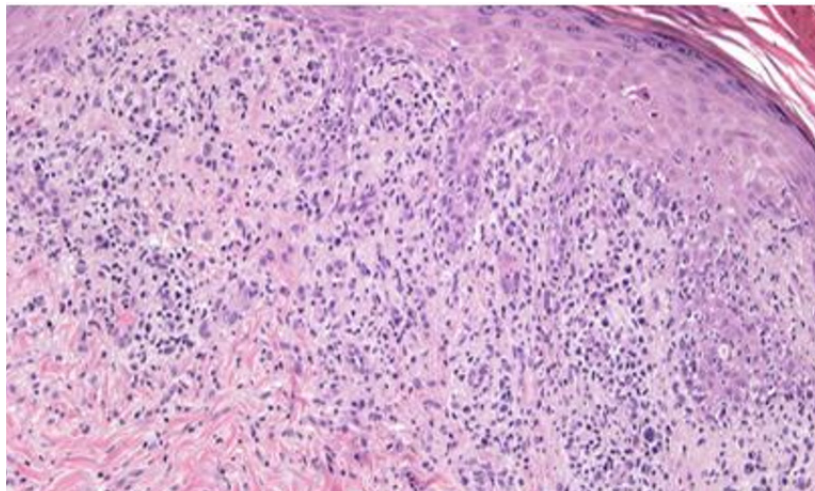


Figure 1. Biopsy of the lesion situated on the anterior surface of the left lower leg.

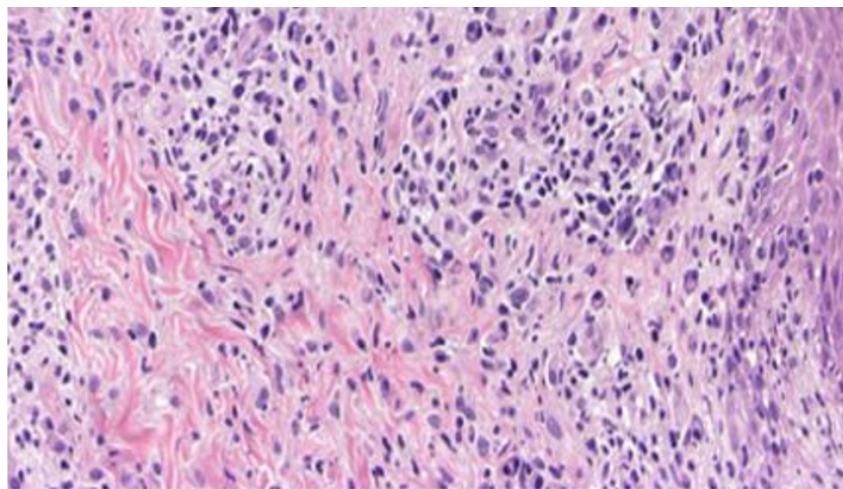


Figure 2. High-magnification image of the biopsy.

Finally, a follow-up visit was scheduled for a month, expecting for the lesion to resolve or improve spontaneously with the treatment. The patient was informed of the biopsy result that confirm the diagnosis during the visit. The lesion had entirely resolved. The patient was discharged and advised to seek further consultation if the lesions reappear.

Discussion

Pruritus, commonly known as itching, is a prevalent symptom in primary care dermatology, with one study finding that 69.83% of patients presented between 1 and 5 types of skin lesions and 26.88% had more than one skin disease²⁹. Pruritus can be linked to systemic and dermatological illness and may be caused by various factors, such as skin disorders, systemic conditions, or medications,

among other determinants³⁰. Parasitic causes of pruritus include scabies³¹, pediculosis, trombidiasis, larva migrans, and dermatomycosis³⁰. Pruritus can be a transient, persistent, or repetitive sensation and can appear unexpectedly or gradually³⁰. In the clinical case presented, the patient consulted for pruritus and two outbreaks of itchy lesions, highlighting, the significance of pruritus in dermatological practice. It is crucial to consider the potential diagnoses of mycosis fungoides and granuloma annulare in patients exhibiting pruritus and skin lesions, as illustrated in Figure 3.

In light of the current situation, obtaining a biopsy of the lesions is integral in verifying the diagnosis (Table 1) and enhancing the patient's clinical care. The histopathological variances define each of these two entities.

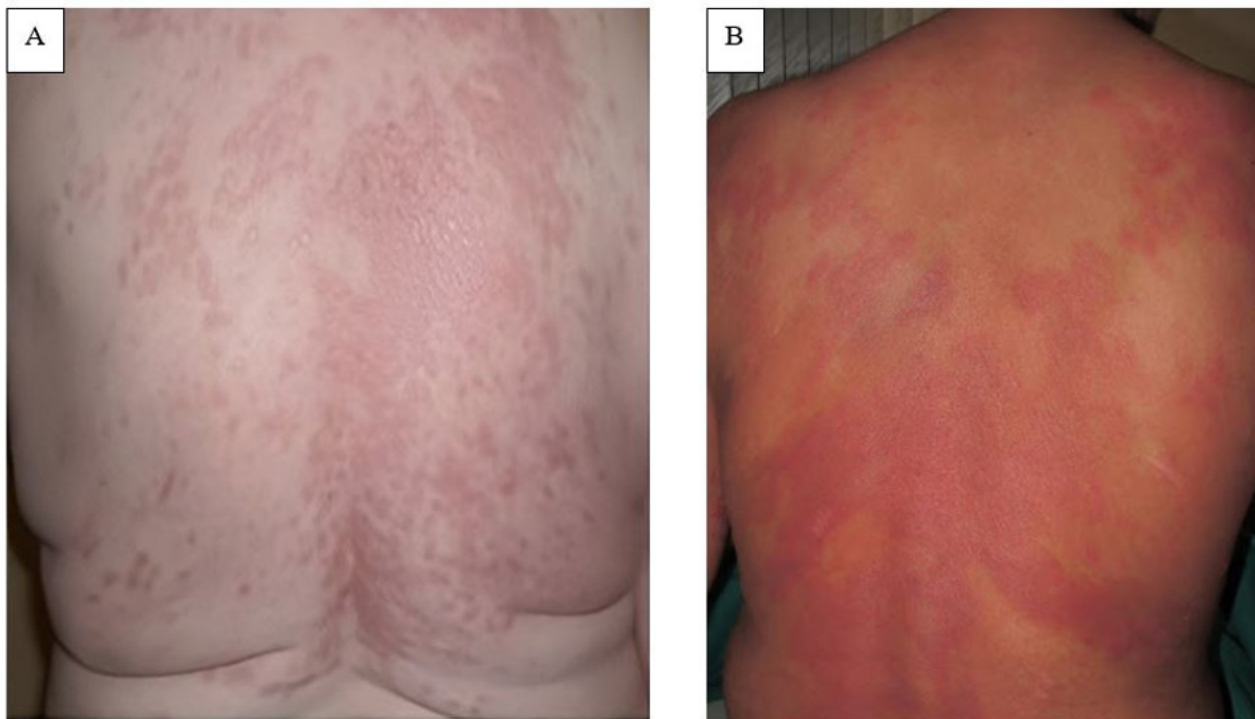


Figure 3. Comparison of skin manifestations in the same body region. (a) Presentation of skin lesions corresponding to granuloma annulare. Courtesy of the image: Actas Dermo-Sifiliográficas; (b) Presentation of skin lesions corresponding to mycosis fungoides. Courtesy of the image: Dermapixel blog, available at: <https://www.derpapixel.com/2021/03/micosis-fungoide-hongos-solo-en-el.html>.

Table 1. Differential diagnosis between granuloma annulare and mycosis fungoides. T-lymphocyte lineage: CD4+.

Granuloma Annulare	Mycosis Fungoides
Predominant infiltrate of histiocytes	Lymphocytes > Histiocytes
Interstitial arrangement of histiocytes	No interstitial mucin
Presence of mucin and collagen alterations	Lymphocytes with normal morphology
Lymphocytes < Histiocytes	Lymphocytes > Histiocytes arranged over the reticular dermis.

Conclusion

The 51-year-old patient who presented with pruritus and cutaneous lesions poses a diagnostic challenge due to the wide range of potential causes of pruritus and the similarity in the clinical presentation of mycosis fungoides and granuloma annulare. The presence of pruritus, a commonly encountered manifestation, can be a sign of systemic and dermatological ailments. Thus, pruritus requires a thorough evaluation to identify the underlying cause and devise a suitable management plan. In this context, the histopathological and immunohistochemical characteristics revealed by the biopsy will help establish the diagnosis.

Recommendations

When assessing individuals with pruritus and cutaneous lesions, it is crucial to consider Mycosis fungoides and granuloma annulare as notable differential diagnoses. Mycosis fungoides, a type of cutaneous T-cell lymphoma, can present with various skin lesions, challenging its differentiation from other conditions. On the other hand, granuloma annulare is a benign granulomatous disease characterized by ring-shaped or nodular lesions on the skin. Due to the similarities in their clinical presentations, performing a skin biopsy may be necessary to reach a definitive diagnosis when the cause of the skin lesions is uncertain.

The importance of a thorough evaluation to identify the underlying cause of pruritus and devise a

suitable management plan is emphasized, as pruritus can be a sign of systemic and dermatological ailments. Therefore, careful consideration and appropriate diagnostic measures are essential in assessing and managing individuals presenting with pruritus and cutaneous lesions.

Informed consent

No identifying characteristics of the participant are described; however, informed consent was obtained directly from the patient of the clinical case.

Author contribution

Manuscript design, compilation of clinical history data, compilation of biographical data, writing and editing, and review and validation: Manuel Flores Sáenz

Competing interests

The author declares that there are no competing interests.

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