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Single Case

Lupus Erythematosus Tumidus Misdiagnosed as Erythema Nodosum from Coccidioidomycosis

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Keywords

Lupus erythematosus tumidus · Coccidioidomycosis · Erythema nodosum · Valley fever · Misdiagnosis

Abstract

Introduction: Lupus erythematosus tumidus (LET) is a rare photosensitive dermatosis that is categorized as intermittent cutaneous lupus erythematosus. It shares clinical similarities and histopathological features with other skin disorders, such as erythema nodosum, lymphocytic infiltrate of Jessner, and reticular erythematous mucinosis, thus making diagnosis quite challenging. We present a patient with LET whose diagnosis was confirmed after seeing several doctors. ***Case Presentation:*** A 52-year-old Hispanic female presented with tender erythematous nodules on her thighs for approximately 1 month. She was suspected of having erythema nodosum secondary to coccidioidomycosis and was prescribed fluconazole 200 mg for 30 days but showed no improvement. However, histopathological and direct immunofluorescence tests later confirmed a diagnosis of LET. The patient was treated with hydroxychloroquine, and the lesions improved remarkably after 2 weeks. ***Conclusion:*** LET is a rare dermatosis that closely resembles other dermatologic conditions such as erythema nodosum, lymphocytic infiltrate of Jessner, and reticular erythematous mucinosis. Diagnosis based on clinical features alone should be avoided, and ideally, treatment should only be initiated after confirmatory histopathological testing.

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Introduction

Lupus erythematosus tumidus (LET) is a rare photosensitive dermatosis that is categorized as intermittent cutaneous lupus erythematosus [1]. LET usually presents as annular, indurated, erythematous, edematous plaques on the face and trunk [2]. Prominent features of LET are the lack of atrophy, scarring, follicular plugging, and dyspigmentation. LET is usually negative on direct immunofluorescence studies [1].

LET closely resembles other skin disorders, such as erythema nodosum, lymphocytic infiltrate of Jessner, and reticular erythematous mucinosis (REM), thus making diagnosis quite challenging [3, 4]. However, LET lesions typically respond well to photoprotection, topical corticosteroids, and antimalarials [5].

Case Report

A 52-year-old Hispanic woman from Kern county, southern California, with a past medical history of gastroesophageal reflux disease, osteopenia, complex regional pain syndrome of the right upper extremity status post-carpal tunnel release surgery, lumbar spondylosis at L5-S1, and iron deficiency anemia, presented to her primary care physician for the evaluation of tender erythematous nodules on her thighs that had been present for approximately 1 month. Based on the clinical appearance (see Fig. 1) and the geographical region of presentation, the patient was suspected of having erythema nodosum secondary to valley fever (coccidioidomycosis). The patient was prescribed fluconazole 200 mg daily, pending results from serological testing for coccidioidal immunoglobin M (IgM) and immunoglobin G (IgG). However, there was no improvement when the patient returned for a follow-up visit after 30 days of treatment. Additionally, the coccidioidal IgM and IgG tests were negative. Thus, treatment with fluconazole was discontinued and the patient was referred to a pulmonologist, who ordered tests to rule out sarcoidosis, tuberculosis, and thrombosis.

The following results were obtained: angiotensin 1-converting enzyme levels (<5 U/L) (reference range: 9–67 U/L); QuantiFERON tuberculosis gold (interferon-gamma release assay [negative]); activated partial thromboplastin time (27 s); prothrombin time (9.6 s); international normalized ratio (0.9); and von Willebrand factor antigen (121 IU/dL). Based on these results, sarcoidosis, tuberculosis, and thrombosis were ruled out and no definitive diagnosis was made. The patient was then referred to a dermatologist, who suspected a diagnosis of LET based on clinical presentation. A punch biopsy of the skin lesion measuring 0.4 × 0.4 × 0.5 cm was taken from the right lateral thigh.

The histopathology report on the punch biopsy was as follows: "superficial and deep perivascular and interstitial mononuclear inflammatory cell infiltrate with increased dermal mucin deposition. Periodic acid-Schiff staining was negative for fungal organisms; colloidal iron (mucin stain) showed increased dermal mucin deposition. There was no evidence of vasculitis or malignancy." The histopathologist commented that these findings would be compatible with connective tissue disease/LET or an interstitial variant of granuloma annulare in an appropriate clinical setting. To arrive at a definitive diagnosis, the histopathologist advised to correlate clinical findings with serologic studies and to perform a direct immunofluorescence study to rule out morphea versus LET. Direct immunofluorescence study of a biopsy of the lesion, measuring 0.3 × 0.3 × 0.6 cm which was taken from the right lateral thigh, showed no specific immune deposits. Due to the high index of suspicion of LET, and its association with other autoimmune conditions, especially systemic lupus erythematosus, the patient was subsequently referred to a rheumatologist.

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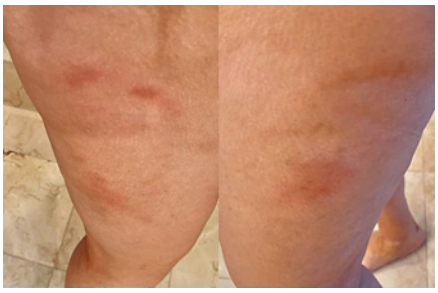

Fig. 1. Rash on the right and left thighs.

The rheumatologist's physical examination demonstrated a left thigh nodule, and the right thigh exhibited warmth, erythema, and tenderness to palpation. A full screening for autoimmune diseases was done, which included the following diagnostic studies: complete blood count, comprehensive metabolic panel, c-antineutrophilic cytoplasmic antibody, p-antineutrophilic cytoplasmic antibody, anti-nuclear antibody, proteinase-3 antibody, beta-2-glycoprotein IgG/IgM/IgA, cardiolipin IgG/IgM/IgA, anti-Ro antibodies and anti-La antibodies, anti-Smith antibody, ribonucleoprotein antibody, erythrocyte sedimentation rate, C-reactive protein, complement C3 and complement C4, dilute Russell's viper venom time, thyroid peroxidase antibody, double-stranded deoxyribonucleic acid antibody enzyme immunoassay, cyclic citrulline peptide antibody IgG, rheumatoid factor, and thyroid-stimulating hormone. Remarkably, all diagnostic studies were within normal limits, except the erythrocyte sedimentation rate, which was elevated at 39 (reference range: <25 mm/h). Thus, based on clinical, laboratory, and histopathological findings, LET was diagnosed, and other autoimmune conditions were ruled out. The patient was treated with hydroxychloroquine 200 mg daily and she showed significant improvement within 2 weeks of the follow-up visit.

Discussion

LET was first described in 1909 by the German dermatologist Erich Hoffmann in a couple of patients who had elevated, rounded, non-scaling, erythematous urticarial lesions [6]. It is a photosensitive skin disorder and is known to occur predominantly in sun-exposed areas, including the face, back, hands, arms, shoulders, and the V-shape of the neck [7]. However, our patient presented with lesions on both thighs, which is an uncommon location. This may have resulted from frequent sun exposure to these areas, as a majority of patients react to some form of ultraviolet radiation. Moreover, most cases tend to occur during summer [7].

Notwithstanding, the initial diagnosis of erythema nodosum from coccidioidomycosis in this patient can be attributed to the physical appearance, location, and symmetrical distribution of the lesions [8], in addition to the rising incidence of coccidioidomycosis in California in the past few years [9]. The patient's geographical region of Kern County, which has the highest incidence of coccidioidomycosis in the state of California, was a major contributory factor that led to the primary care physician's initial suspicion of erythema nodosum from coccidioidomycosis [10]. Thus, clinicians should be mindful of prematurely diagnosing diseases without confirmatory testing. However, to the best of our knowledge, there is no published article of a similar case in which LET was misdiagnosed as coccidioidomycosis. Nonetheless, LET is often misdiagnosed as other forms of cutaneous lupus erythematosus, lymphocytic infiltrate of Jessner, and REM [2–4].

One important distinction from other similar skin disorders is that LET causes no epidermal changes, thus causing no scarring or post-inflammatory pigmentation changes [1].

LET is a more benign condition with a better course and prognosis than other types of chronic lupus erythematous [2]. The hallmark of most cutaneous forms of lupus erythematosus is the dermo-epidermal interface changes [2]. On histopathology, LET is noted to have abundant dermal mucin deposition and a superficial and deep perivascular and peri-adnexal lymphocytic infiltrate with edema in the papillary dermis [11]. Thus, this poses diagnostic challenges with lymphocytic infiltrate of Jessner and REM [5, 11].

As can be seen from our patient, substantial testing was required to establish a final diagnosis of LET. Thus, it is prudent that careful examination and appropriate immunological testing, histopathology, and immunofluorescence study should be done before a diagnosis is made and treatment is initiated. Given that LET is a photosensitive disorder, preventing sun exposure to the skin should be taken as a prophylactic measure to reduce the risk of pathogenesis, flare-ups, and exacerbation in these patients [12].

Conclusions

LET is a rare dermatosis that closely resembles other dermatologic conditions such as lymphocytic infiltrate of Jessner and REM, and can be confused with erythema nodosum, depending on clinical presentations. Diagnosis based on clinical features alone should be avoided, and ideally, treatment should only be initiated after confirmatory histopathological testing. The CARE Checklist has been completed by the authors for this case report, attached as online supplementary material (for all online suppl. material, see https://doi.org/10.1159/000538737).

Statement of Ethics

Ethics approval was not required for this case report. This retrospective review of patient data did not require ethical approval in accordance with local/national guidelines. Written informed consent was obtained from the patient for publication of this case report with the accompanying image.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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Author Contributions

Conceptualization, validation, and resources, B.G.; methodology, visualization, and project administration, B.G. and P.V.A.K.R.; writing – original draft preparation, review, and editing, B.G., P.V.A.K.R., and H.A.; supervision, P.V.A.K.R. All authors have read and agreed to the published version of the manuscript.

Data Availability Statement

All data generated or analyzed during this study are included in this article and its online supplementary material. Further inquiries can be directed to the corresponding author.

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