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# Necrobiosis Lipoidica Mimicking Cutaneous Sarcoidosis Finally Treated With an Intralesional Injection of Corticosteroid: A Case Report

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## ABSTRACT

**Background:** Necrobiosis lipoidica (NL) and sarcoidosis are granulomatous disorders with an unknown pathogenesis. They may coexist in the same patient, which suggests a possible overlap between these diseases among shared granulomatous inflammatory pathways. Case Presentation: This study presents the case of a non-diabetic 52-year-old woman who presented with red-yellowish border plaques on the face and upper extremities previously diagnosed as sarcoidosis. After 13 years of inappropriate treatment, histopathological findings consistent with the clinical and para-clinical examination suggested the diagnosis of NL. After treatment with an intralesional injection of steroids, significant improvement was observed, and no recurrent lesions were found.
**Conclusion:** Necrobiosis lipoidica may mimic cutaneous sarcoidosis. Prompt recognition and treatment of NL can be helpful for managing the disease.

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## INTRODUCTION

Necrobiosis lipoidica (NL) and cutaneous sarcoidosis are rare granulomatous diseases. Sarcoidosis is a chronic multisystem inflammatory disease, which can involve any part of the body. The cutaneous form of sarcoidosis was observed in 25% to 30% of NL patients and has a varying clinical morphology.[1,2] In the histopathology, cutaneous sarcoidosis is characterized as clusters of epithelioid histiocytes without significant necrosis or surrounding lymphocytic infiltrates. NL can develop in any patient, but approximately 60% occurs in type 1 diabetic patients.[3-5]

Herein we report the case of a 52-year-old non-diabetic woman who was misdiagnosed with cutaneous sarcoidosis for 13 years. Clinically she presented with painless red-yellowish plaques with an erythematous border on the upper extremities. She was treated with an intralesional injection of steroids, and improvement was observed within 3 weeks.

## CASE PRESENTATION

A 52-year-old woman presented to a dermatologist with annular painless red-yellowish plaques with an erythematous border on the face and upper extremities. The patient described a 13-year history of cutaneous sarcoidosis, which was treated with prednisolone 10 mg to 15 mg/daily for 5 years and calcium 400 mg/daily. When symptoms continued after 5 years, she looked for a second opinion. A clinical eye examination revealed intact disc, macula, and vessels. Additional laboratory tests were negative -- including blood biochemistry tests, complete blood count, erythrocyte sedimentation rate, blood urea nitrogen, creatinine, alkaline phosphatase, calcium, C-reactive protein, and purified protein derivative tests. Antinuclear antibody, anti-DNA, and angiotensin-converting-enzyme tests were also negative. Urinalysis was normal. Chest X-ray and spiral multidetector computed tomography showed no fibrosis or interstitial lesions; but a few small nodules were present at the peripheral middle zone on both lungs. In addition, high-resolution computed tomography showed no pleural effusion, lymph node enlargement, sor mediastinal masses; however, fibrotic changes in the parenchymal view of the inferior lung area were observed, potentially caused by an infectious lesion.

The following diagnoses were proposed: necrobiosis lipoidica, lupus vulgaris, sarcoidosis, and granuloma annulare. A biopsy of the lesions was taken. A histopathological examination of the

**FIGURE 1.** Involvement of the full thickness of the dermis with extension into the subcutis, collagen degeneration. and vascular damage. Extracellular lipid and giant cell are seen.

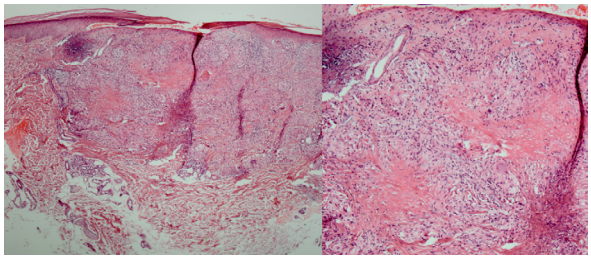


**FIGURE 2.** Red-yellowish erythematous border plaques on the face and upper extremities.

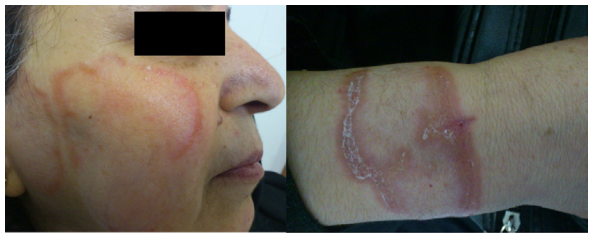
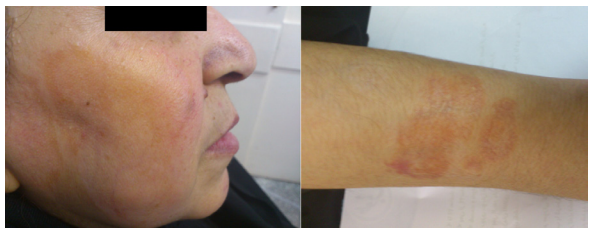


**FIGURE 3.** Three weeks after treatment with an intralesional corticosteroid injection.



biopsy revealed collagen degeneration and vascular changes within the entire dermis, as well as extra-cellular lipid and giant cells. Overall, these findings were consistent with necrobiosis lipoidica and treatment for NL was started.The patient was treated with a one-time intralesional injection of corticosteroid. Lesions were significantly improved after 3 weeks. At one-year follow-up, no further lesions or recurrent plaques were observed.

## DISCUSSION

Sarcoidosis is a multisystem disorder and can involve any organ of the body. Approximately 30% of systemic sarcoidosis appears with skin involvement.[6] NL did not come to mind in the first differential diagnosis of the annular lesions of the face. Our case subject was undergoing treatment with an oral corticosteroid (prednisolone 15-10 mg/daily) for about 8 years because of suspected sarcoidosis, without improvement. After the diagnosis of NL and a one-time intralesional injection of corticosteroid, significant improvement was observed.

The incidence of NL and sarcoidosis occurring in the same non-diabetic patient has been reported in a few studies.[7] This occurrence may be incidental or due to an association between the 2 disorders with unclear pathophysiology. Chiba et al evaluated a 70-year-old woman with a 8-year systemic sarcoidosis history concomitant with NL, and stated that although necrobiosis was present, there were non-necrotizing granulomas in the dermis with histological diagnosis of cutaneous sarcoidosis.[8] Mendoza et al evaluated 3 patients with confirmed diagnosis of sarcoidosis who developed NL skin lesions, reporting that the relationship of NL-like skin lesions with sarcoidosis is not widely appreciated.[9] Igawa et al evaluated a 62-year-old woman with systemic sarcoidosis and lower leg erythematous plaques and reported that because cutaneous involvement of sarcoidosis may mimic NL clinically and/or histologically, her skin lesions were necrobiosis-like skin sarcoids.

NL is typically located on the lower extremities. In our case, given the atypical locations on the face and upper extremities, the diagnosis of NL was very difficult, explaining why the lesions were misdiagnosed as sarcoidosis. More studies are needed to explore the pathogenesis of granulomatous disorders and the associations between these disorders.

## CONCLUSION

In summary, we report a rare case of non-diabetic necrobiosis lipoidica. Our case is novel since after being misdiagnosed with cutaneous sarcoidosis for 13 years, our patient then improved with just one intralesional injection of corticosteroid after the new diagnosis of necrobiosis lipoidica.

There is a probable relationship between the occurrence of NL and sarcoidosis. They may represent different stages of the same granulomatous process linked through yet unknown patho-mechanisms, but at the same time they may be quite different diseases with an overlapping clinical and pathologic history. Diagnosis at the appropriate time can help in preventing unnecessary or incorrect treatment. NL may present with lesions localized in atypical sites, in which cases it may be misdiagnosed and managed

## DISCLOSURES

The authors have reported no conflicts.

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