## Answer to Dermacase *continued from* **page 859**

### 3. Sarcoidosis

The patient had cutaneous lesions from sarcoidosis. Microscopic examination of skin biopsy specimens obtained from lesions on the forearm (**Figure 1**) and thigh (**Figure 2**) showed noncaseating epithelioid granulomas in the papillary and upper reticular dermis.

A chest radiograph showed bilateral hilar prominence, a sign of adenopathy. Moreover, owing to the patient's discrete pain and swelling of the right fourth digit, a radiograph of the hand was performed, revealing a round-shaped and well-defined osteolytic defect within the base of the phalanx, consistent with osseous sarcoidal granuloma. Electrocardiogram and ophthalmic examinations did not reveal relevant information.

## Epidemiology and pathogenesis

Sarcoidosis is a multisystem granulomatous disorder of unknown cause, characterized by the accumulation of lymphocytes and mononuclear phagocytes inducing noncaseating granuloma formation and secondary normal tissue or organ anatomy and function derangement.[1]

Sarcoidosis is a relatively rare disorder, with a prevalence estimated to be between 10 and 40 per 100 000 persons in the United States and varying from 1.4 to 102 per 100 000 persons worldwide.[1,2] It affects all races, both sexes, and all ages, with 2 statistically registered peaks between 25 and 35 years of age and between 45 and 65 years of age, the latter mostly in women.[3] Cases affecting white subjects tend to be asymptomatic with a more favourable prognosis.[1]

The origin of sarcoidosis has still not been clarified. Various infectious and environmental agents, drugs, and autoimmune processes have been proposed as potential causes of sarcoidosis, suggesting also possible links to the human leukocyte antigen system and host genetic susceptibility.[4,5]

**Figure 1.** Annular plaque on the extensor surface of the forearm with an infiltrated active border and central atrophy with telangiectasias

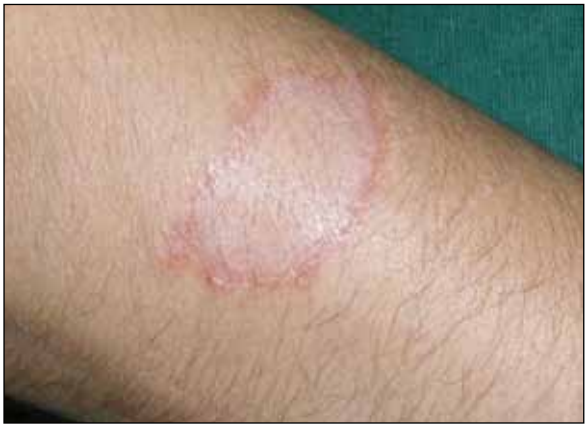
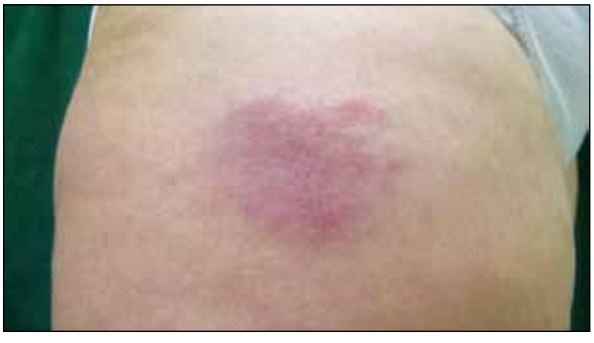


**Figure 2.** Erythematous to violaceous infiltrated plaque on the lateral aspect of the right thigh



## Differential diagnosis

Because of its polymorphic clinical presentation, the substantial overlap with other conditions, the multiorgan involvement, and the lack of a useful classification of the disease owing to the insensitive and nondiagnostic testing, sarcoidosis is a diagnosis of exclusion.[6] Nevertheless, the diagnosis requires a compatible clinical picture, histologically identified lesions, and detailed examinations by several subspecialties to deliver optimal care.

Lungs are involved in approximately 95% of patients,[7] the condition being asymptomatic in 30% to 60% of cases. Cough, dyspnea, wheezing, and chest pain are common. Pulmonary function tests are not completely useful, sometimes detecting restrictive ventilatory defects.

Chest radiographs are more reliable, as they reveal bilateral hilar adenopathy, with or without parenchymal infiltrates, and fibrosis in later stages of the disease.[8]

Cutaneous lesions of sarcoidosis are frequent (25% of cases), especially at the onset of the disease,[8,9] representing an impressive clue to the diagnosis and an easy way to histologically examine typical lesions.

Specific lesions can exhibit several different forms, more commonly maculopapules, cutaneous or subcutaneous nodules, and plaques, red-brown in colour, varying in size, and symmetrically distributed on the face, lips, neck, upper trunk, and extremities. Other anecdotal atypical presentations of sarcoidosis (ulcerative, psoriasiform, verrucose, lichenoid, eruptive, erythrodermic forms or as granulomatous cheilitis, scarring alopecia, and mutilating lesions) are documented[1,2,9]; thus, it claims the title of "great imitator" in dermatologic practice.[2] Generally, specific skin lesions have no prognostic importance, do not correlate with the extent of systemic involvement, and do not indicate a more severe form of sarcoidosis.[1,10]

Sarcoidosis can affect any organ in the body. When sarcoidosis is suspected, a complete workup should be performed to exclude conditions capable of producing similar clinical features and to evaluate possible specific organ involvement other than skin. In this setting, careful history taking and physical examination are required, including a complete blood count (with erythrocyte sedimentation rate, C-reactive protein levels, kidney and liver function tests, serum calcium levels, and angiotensin-converting enzyme levels, which are often elevated in systemic disease), urinalysis, histologic evidence of noncaseating granulomas (mainly based on skin biopsy specimens), chest radiography, and routine cardiac and ophthalmic evaluations.[1,2,7] To rule out tuberculosis, tuberculin testing is also mandatory.

With regard to our patient, musculoskeletal involvement is present in approximately 40% of cases, whereas osseous sarcoidosis occurs in less than 10% of patients. It affects mainly the hands, is often asymptomatic, and can be easily recognized by classical radiographic imaging as minute, well-defined osteolytic defects in the metaphyses of the phalanges.[11] Bone lesions are rarely presenting manifestations of the disease; osseous sarcoid lesions seem to be more frequent in the presence of pulmonary and cutaneous sarcoidosis.[1,11]

As described above, all the organs can be affected[1]; therefore, by identifying more affected organs, one can be more comfortable with the diagnosis.[12]

Based on cutaneous manifestations, lupus erythematosus, granuloma annulare, syphilis, and tinea corporis should be considered in the differential diagnosis when papules are present; with plaques and subcutaneous nodules, psoriasis, tuberculosis and nontuberculosis mycobacterial infections, deep mycoses, lymphoma, and keloids (by infiltration of old scars) have to be taken into account. Other clinical forms are really infrequent and hard to suspect with cutaneous examination only.[13]

## Treatment

Very few controlled studies have been performed concerning the treatment of sarcoidosis. Treatment depends on disease severity and progression. Asymptomatic patients should be observed without treatment.

Localized cutaneous disease can be treated with topical or intralesional corticosteroid therapy. Similarly, patients with minor pulmonary symptoms could be considered for inhaled corticosteroid therapy or bronchodilators.

In generalized or severe cutaneous disease or systemic involvement, prednisolone, colchicine, methotrexate, azathioprine, thalidomide, chloroquine, hydroxychloroquine, and, anecdotally, tumour necrosis factor-α inhibitors such as etanercept and infliximab have been successfully used.[14]

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**Competing interests**
None declared

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