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Firm Papules and Nodules on Face, Neck, and Thorax

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Figure 1. Multiple firm, erythematous, nontender nodules and small plaques on the patient's face.

A miner in his early 40s presented with a 6-month history of asymptomatic, erythematous nodules on his face, his chin, the anterior portion of his neck, and the anterior thorax. Approximately 15 years earlier, he had sustained injuries from an accidental land mine explosion that had lacerated his face, neck, and thorax in several places. The wounds apparently healed without difficulty, leaving only scars of expected severity. Approximately 6 months before presentation, the patient began to notice an increase in the size of these lesions. Physical examination showed multiple firm, erythematous, nontender papules, nodules, and small plaques on his face, his chin, the anterior portion of his neck, and the anterior thorax (**Figure 1**).

WHAT IS YOUR DIAGNOSIS?

A. Sarcoidosis

B. Cutaneous silica granuloma

C. Infectious granuloma

D. Keloid

Diagnosis

B. Cutaneous silica granuloma

Discussion

Histologic examination demonstrated multiple nonfusing, noncaseating granulomas containing irregular, highly refractile yellow fragments (**Figure 2**A). When examined with polarization microscopy, these particles were birefringent (Figure 2B) and showed characteristic features of silicaceous foreign material. Moreover, energy-dispersive radiographic spectroscopy revealed that the particles contained silicon (Figure 2C). Laboratory examination revealed no abnormal findings suggestive of sarcoidosis, such as an increased serum angiotensin-converting enzyme concentration or abnormal chest computed tomography findings. On the basis of the patient's clinical history and physical and pathologic examination findings, cutaneous silica granuloma was diagnosed. The lesions gradually resolved during 2½ years of observation.

Cutaneous silica granuloma is a rare condition that occurs many years after accidental trauma or minor wounds contaminated by glass, sand, or other silica-containing particles. Most

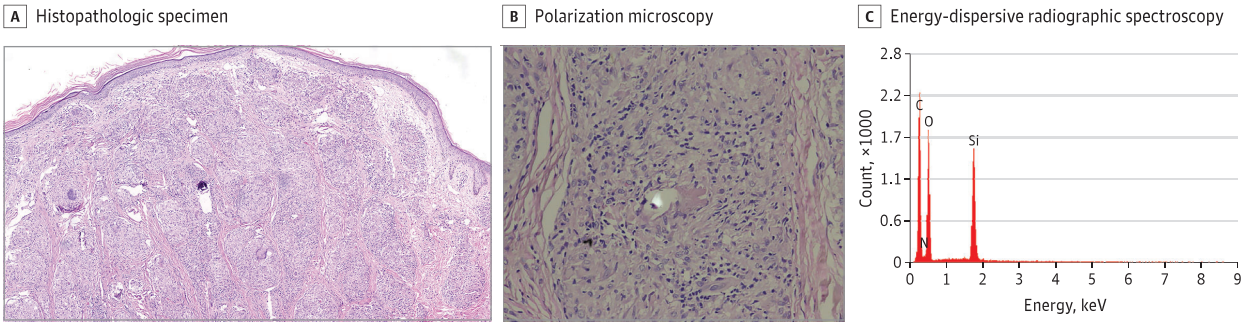

Figure 2. A, Histopathologic findings of a cutaneous silica granuloma. Multiple noncaseating granulomas were observed (hematoxylin-eosin, original magnification ×60). B, Polarization microscopic examination of a cutaneous silica granuloma. The particles were birefringent when observed with polarization microscopy (original magnification ×200). C, Energy-dispersive radiographic spectroscopy revealed that the particles contained silicon. C indicates carbon; N, nitrogen; O, oxygen; and Si, silicon.

reported cases of silica or silicon granuloma occurred at scar sites.[1-5] Such localization occurred as a result of the introduction of silica material into wounds or administration of silicone injections for cosmetic reasons. Skin lesions, which are often nodular, indurated, and erythematous, develop after an asymptomatic latent period that can range from several weeks to many years. Silica granuloma is a granulomatous reaction to silica or silicate and is considered to be a type of delayed hypersensitivity reaction. The pathological picture of silica granuloma involves an allergic reaction to a foreign body, with a typically tuberculoid pattern consisting of epithelioid cells with or without giant cells and with or without caseation necrosis.[6]

The diagnosis of cutaneous silica granuloma is made largely on the basis of clinical findings, including a history of embedment of silica-containing substances in the skin and the development of papules or nodules on a scar caused by past trauma. Silica granuloma should not be confused with sarcoidosis. The diagnosis can be confirmed by the observation of crystalline particles of varying sizes, mainly in giant cells, using light microscopy and doubly refractile particles using polarization microscopy. However, some authors have suggested that silica granuloma and scar sarcoidosis might be the same disease or that silica granuloma might be a feature of systemic sarcoidosis.[7,8]

The optimal treatment of silica granuloma is not clearly defined. Although spontaneous resolution of silica granuloma is mentioned in several articles, excision is the most commonly reported treatment. Therapy with systemic corticosteroids, irradiation, and antibiotics has cleared some lesions.

ARTICLE INFORMATION

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