CASE REPORT

A woman with juxta-articular nodules—An uncommon form of subcutaneous granuloma annulare

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ABSTRACT

Granuloma annulare is a benign inflammatory dermatosis that is most common in children and young adults. The subcutaneous form of granuloma annulare, which occurs mainly on the extremities in children, is rare. Lesions usually occur as painless subcutaneous nodules without infiltration of the cutaneous surface; the most frequent sites are the legs, buttocks, and scalp. Nevertheless, we present a case of subcutaneous granuloma annulare confined to the dorsa of the hand joints and right knee in a 51-year-old woman.

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Introduction

Granuloma annulare is a common, self-limited inflammatory skin disease that occurs in both children and adults. To date, four clinical subtypes have been identified: (1) localized; (2) generalized; (3) perforating; and (4) subcutaneous. These subtypes are clinically distinct and have overlapping histologic characteristics, yet their etiology is unknown; triggers are thought to include insect bites, trauma, and intralesional skin tests.1

Subcutaneous granuloma annulare (SGA) is a rare variant of granuloma annulare found mainly on the extremities and scalp in children. Typical lesions of SGA can be single or multiple, violaceous or flesh-colored small, nonulcerated nodules in the deep subcutaneous tissue. Here, we report a case of SGA confined to the dorsa of the hand joints and right knee in a 51-year-old woman.

Case report

A 51-year-old woman presented with gradually increased asymptomatic nodules located over the joints of the hands and right knee. According to the patient, the nodules on the dorsa of the hands first presented 10 years ago. The lesions slowly progressed to involve the entire dorsa of the hands. The newer lesion on the right knee appeared just 1 month prior to her arrival to our department. The patient’s medical history revealed no previous trauma or insect bites, and she had not received any treatment.

Physical examination revealed painless, pinkish nodules of 5–20 mm in size on the dorsa of the hands and right knee (Figure 1). The nodules were firm and moveable, and were most often found over bony prominences. Systemic examination of the patient was unremarkable.

Histopathologic examination showed nodules composed of necrotic material surrounded by palisading histocytes in the dermis and subcutis (Figure 2A and B). Masson stain revealed that the major constituent of the granulomata was degenerated collagen. Mucin between the collagen bundles was scarce, as confirmed by the alcian blue stain (Figure 2C).

All laboratory results, including routine blood test, biochemical profile, erythrocyte sedimentation rate (ESR), blood glucose level, serology for rheumatoid factor, C-reactive protein, nonspecific serology for syphilis (rapid plasma reagin), antinuclear antibodies, and urine protein excretion were all within normal range. No obvious changes were observed on electrocardiogram and on X-rays of the chest, hands, and knees.

Based on the clinical and histopathologic findings, a diagnosis of SGA was made.

Discussion

Granuloma annulare was first described by Colcott Fox in 1895.2 SGA is a rare subtype of granuloma annulare that is most commonly found in children. The etiology and pathogenesis of SGA are unknown. In most cases, the condition appears without any obvious reason, and spontaneous regression frequently occurs. No
The diagnosis of SGA is usually based on the biopsy of the lesions. Nodules in the deep dermis and subcutis are the main histopathologic changes, presenting with necrobiosis surrounded by histiocytes and lymphocytes in a palisade arrangement. The central areas of necrobiosis contain increased amounts of mucin and nuclear dust between the degenerated collagen bundles. A perivascular infiltrate of lymphocytes and histiocytes is also present.

Upon histopathologic examination, the nodules of SGA may be easily mistaken for rheumatoid nodules (RNs), which are the most common extra-articular manifestation of rheumatoid arthritis (RA). However, a careful medical history and laboratory tests can lead to the correct differential diagnosis of these two diseases. Patients with RNs usually have arthritic joint complaints, along with elevated serum rheumatoid factor and ESR. In addition, radiologic changes of the joints are usually seen in patients with cutaneous nodules. Moreover, certain histologic features can be used to differentiate SGA nodules and RNs. The necrobiotic granulomas of RNs are usually located in the deep subcutis, whereas the necrobiotic granulomas of SGA nodules involve the entire dermis and extend to the subcutis.

SGA nodules can be differentiated not only from RNs, but also nodules of necrobiosis lipoidica (NL). The lesions are usually localized to the pretibial shins and present as small papules or oval plaques that may grow peripherally and become atrophic and yellowish in the center with an elevated erythematous edge. Upon histopathologic examination, NL nodules appear similar to SGA nodules, but the necrobiosis of NL nodules is considered to be more extensive and less well defined. Based on the features of the lesions and the laboratory tests, NL was excluded in our case.

Barzilai et al in 2005 reported 14 women with lesions similar to those presented in this case. These authors thought that the lesions most likely represented a variant of granuloma annulare and suggested the term juxta-articular nodular granuloma annulare. All the patients they reported were women, and the lesions were over bony prominences (interphalangeal and elbow joints). None of the patients experienced the development of RA or any other systemic disease. Barzilai et al indicated that the granulomata in juxta-articular nodular granuloma annulare could be distinguished from that in SGA by sex, age, location, course, and material contained therein (Table 1).

Table 1 Distinction between juxta-articular nodular granuloma annulare and deep/subcutaneous granuloma annulare.

<table>
<thead>
<tr>
<th>Entity criteria</th>
<th>Juxta-articular nodular GA</th>
<th>Deep/subcutaneous GA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td>Women (mostly young)</td>
<td>Children, young adults</td>
</tr>
<tr>
<td>Location</td>
<td>Periarticular (interphalangeal and elbow joints)</td>
<td>Anterior tibia, feet, scalp</td>
</tr>
<tr>
<td>Course</td>
<td>Persistent, recurrent</td>
<td>Self-resolving, recurrent</td>
</tr>
<tr>
<td>Material within the granulomata</td>
<td>Collagen (scant mucin)</td>
<td>Mucin</td>
</tr>
</tbody>
</table>

Note: This table is a partial copy of Table 2 from “Pseudorheumatoid nodules in adults: a juxta-articular form of nodular granuloma annulare,” by A. Barzilai, M. Huszar, D. Shpiro, D. Nass, and H. Trau, 2005, Am J Dermatopathol, p. 4. Copyright 2005, Lippincott Williams & Wilkins. Adapted with permission.
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