Pseudorheumatoid nodules in a young woman

Dear Editor,

Asymptomatic, skin-coloured nodules, typically located over bony prominences, can present a clinical challenge when they appear without other systemic signs. In such cases, a comprehensive biochemical and histopathological evaluation becomes crucial for reaching a definitive diagnosis.

A 27-year-old woman presented with asymptomatic skin lesions on both her knuckles and elbows for four months. Initially small, the lesions had gradually increased in size.papules gradually enlarged to their then-current size. On cutaneous examination, well-defined, skin-coloured to erythematous, non-tender, non-pruritic, smooth-surfaced nodules measuring approximately 3-4 mm, were noted on the bilateral dorsal interphalangeal joints of the index and middle fingers, as well as on both elbows [Figures 1a and 1b]. These nodules were not fixed to the underlying tissue. There were no other mucocutaneous findings or joint abnormalities. Polarised dermoscopy using a 3 Gen DermLite DL4 (CA, USA) at 10x magnification revealed structureless yellow-white areas at the centre, linear vessels, a whitish-brown background, and peripheral white scales [Figure 1c]. Systemic examination was unremarkable.

The nodule over the right finger dorsum was excised and sent for histopathological analysis. A well-circumscribed inflammatory infiltrate involving the deep dermis and subcutaneous tissue was seen. This infiltrate was composed predominantly of histiocytes, epithelioid cells and lymphocytes in a palisading pattern. There were areas of degenerated collagen (eosinophilic fibrous material) at the centre [Figures 2a-2c]. Alcian blue staining for mucin was negative. Her rheumatoid factor, anti-cyclic citrullinated peptide (CCP) antibodies, anti-nuclear antibodies were negative and hand joint X-rays (lateral and oblique view) were normal. Based on the clinical presentation and histopathological findings, a final diagnosis of pseudorheumatoid nodule (deep granuloma annulare) was made. The patient was treated with intralesional triamcinolone acetonide 5 mg/mL, administered at four-week intervals with good improvement in two doses [Figures 3a and 3b].

Pseudorheumatoid nodules refer to nodules in the reticular dermis and subcutaneous tissue that resemble the histological features of rheumatoid nodules but can form in the absence of rheumatoid arthritis (RA) or other collagen vascular diseases like systemic lupus erythematosus, systemic sclerosis, etc.[1] These nodules are believed to represent a deep form of

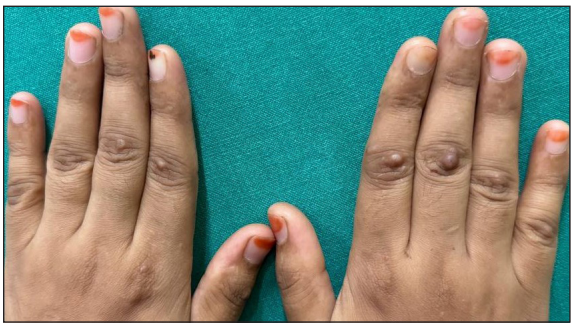

Figure 1a: Skin-coloured, smooth-surfaced, asymptomatic nodules over the dorsum of the bilateral hand.

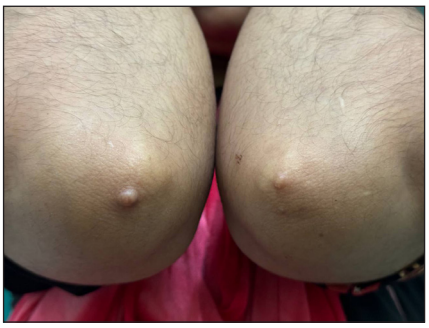

Figure 1b: Skin-coloured nodule over bilateral elbow joints.

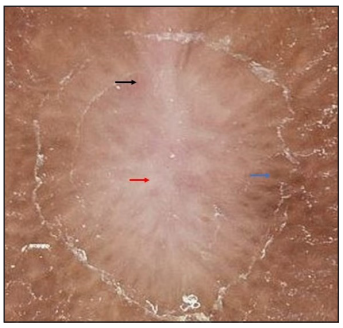

Figure 1c: Dermoscopy showing yellow-white area in the centre (red arrow), blurred vessels (black arrow), whitish-brown area in the background (blue arrow) and peripheral white scale [DermLite DL4, 10x magnification, polarised mode].

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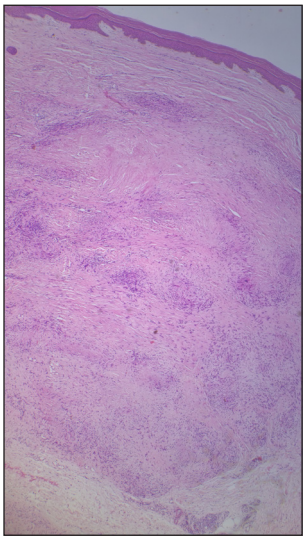

Figure 2a: Well-circumscribed inflammatory infiltrate in the deep dermis and upper subcutaneous tissue [Haematoxylin & eosin, 40x].

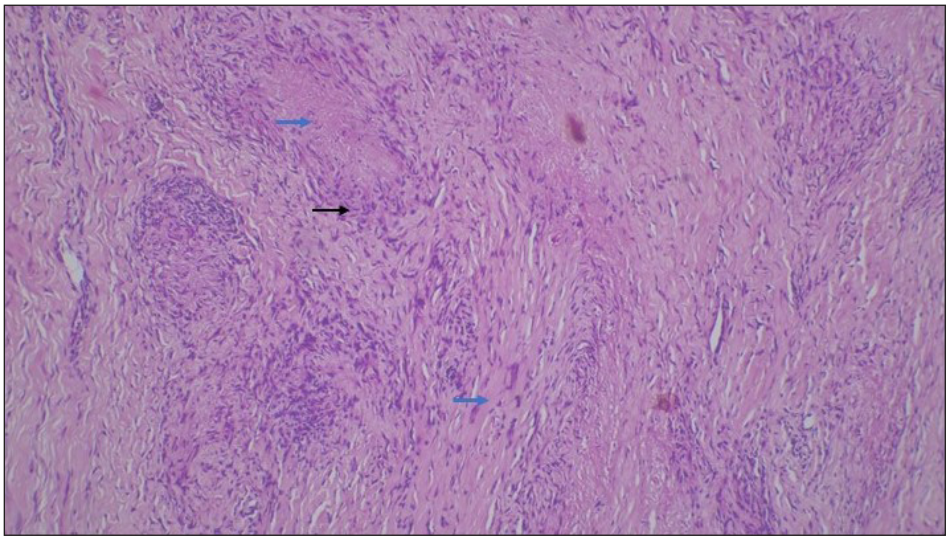

Figure 2b: Areas of altered collagen in the centre (eosinophilic material) (blue arrows) surrounded by palisading of the inflammatory cell (black arrow) [Haematoxylin & eosin, 100x].

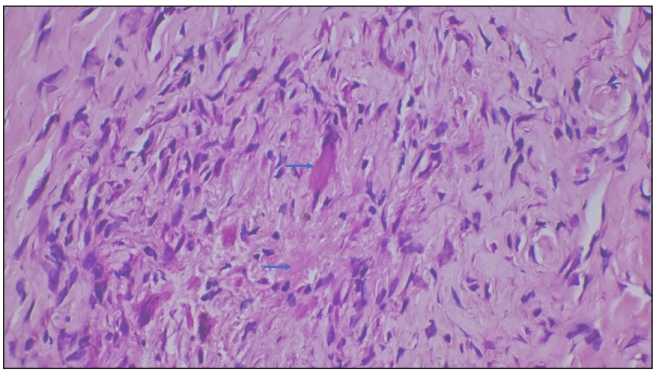

Figure 2c: Fibrinous degeneration of collagen (blue arrows) surrounded by palisading of histiocytes [Haematoxylin & eosin, 400x].

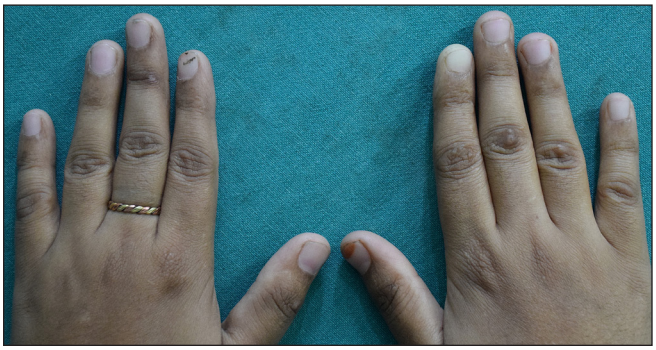

Figure 3a: Post-treatment images of the dorsum of both hands.

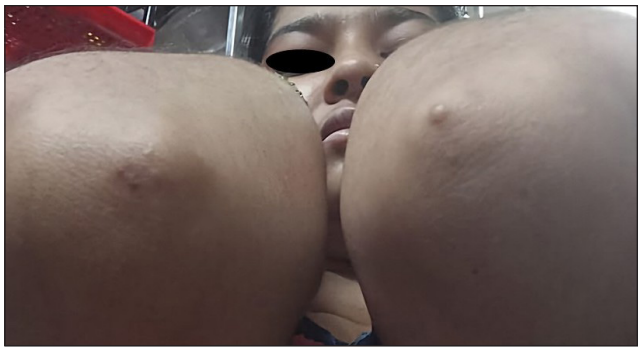

Figure 3b: Post-treatment images of both elbow joints.

granuloma annulare (GA), particularly the subcutaneous or nodular variant, due to the presence of palisading granulomas mainly in the deep dermis and subcutis.[1] Most cases occur in children and young adults and typically have a favourable prognosis.[2-4] The condition commonly affects the lower legs and scalp in children, often resolving spontaneously, though recurrence at the same site and the development of new nodules are frequent.[3,4] Pseudorheumatoid nodules are rare in young women, but when they do occur, they typically involve the interphalangeal joints and elbows.[1,3]

The exact cause of pseudorheumatoid nodules remains unclear. There are several potential triggers, including insect bites, infections (such as *Borrelia, Herpes, Streptococcus*, and Epstein-Barr virus), phototherapy, trauma, surgery and medications like methotrexate and other disease-modifying antirheumatic drugs.[4] Evidence suggests that these triggers elicit an immunological response in the form of a delayed-type hypersensitivity reaction regulated by T-lymphocytes, which results in a panniculitis-type inflammatory response resulting in granuloma formation.[4] Pseudorheumatoid nodules may be confused with similar appearing entities clinically and can pose a dilemma in diagnosis. These can be differentiated based on certain characteristics [Table 1].[5] Histologically, subcutaneous GA nodules show a predominance of large histiocytes surrounding mucin and altered collagen. However, the presence of mucin is not a prerequisite for diagnosis, which is why subcutaneous GA and rheumatoid nodules

Table 1: Pseudorheumatoid nodule and its mimickers

Patient characteristics	Rheumatoid nodule	Pseudorheumatoid nodule	Rheumatic fever nodules[5]
Age	Middle age	Typically, in children, rare in adults	Children (5 to 15 years)
Sex	Male > Female	Female > Males	Equal predisposition
Association	Rheumatoid arthritis, collagen vascular diseases.	No associations	Rheumatic fever. The presence of these nodules indicates the involvement of cardiac valves and severe rheumatic heart disease (RHD).
Arrangement	Asymmetrical	Symmetrical	-
Site	Areas of repetitive trauma-like fingers, heels, back of forearms	Scalp, palm, buttocks	Elbows, knees, scalp, knuckles, ankles, spine (mainly periarticular).
RA factor	Positive	Negative	Negative
Histopathology	Central fibrinoid necrosis, fibrin aggregates, palisading mononuclear cells, perivascular lymphocytic infiltration. Mucin may be present.	Central fibrinoid collagen degeneration, palisading histiocytes. Mucin may be present.	Central necrosis, no palisading of histiocyte, perivascular lymphocytic, neutrophilic infiltration with vessel wall thickening. No mucin deposition.
Treatment	Treatment of underlying rheumatoid arthritis will resolve these nodules.	Intralesional corticosteroids are most effective. Others include surgical excision, cryotherapy, isotretinoin, potassium iodide, clorambucil, dapsone, rifampicin, ofloxacin, minocycline, etc. Recurrence is common.	Treatment of underlying rheumatic fever.

are often histologically indistinguishable., Hence the term, "pseudorheumatoid."[1] Rheumatoid nodules, which are extra-articular manifestations of RA, may precede the onset of rheumatoid disease, and testing for rheumatoid factor and anti-CCP antibodies can assist in early RA diagnosis.[6]

On dermoscopy, GA presents with blurry vessels and a pinkish-red background, followed by areas of white, yellow, or orange.[7] In our patient, the yellow-white areas likely correspond to the palisading granulomas, while the central structureless white areas may indicate sclerosis due to altered collagen, as seen in histopathology. Among the available treatments, intralesional corticosteroids are considered a first-line and effective therapy wherever feasible. However, recurrences are common. This approach is preferred over topical steroids, as the drug is delivered directly to the target site, reducing time to resolution.[8] Other treatment options include surgical excision, cryotherapy, dapsone, chlorambucil, isotretinoin and potassium iodide.[2,4] A recent report of subcutaneous GA treated with a three-month regimen of rifampicin, ofloxacin, and minocycline showed no improvement.[2]

In conclusion, pseudorheumatoid nodules in adults are a distinct clinical and pathological entity that may be mistaken for rheumatoid nodules. Given the rarity of this condition, a careful clinicopathological correlation is essential for accurate diagnosis.

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