International Journal of
Rheumatic Diseases

International Journal of Rheumatic Diseases 2012; **15:** e12–e14

LETTER TO THE EDITOR

An unusual case of polyarthritis, skin nodules and patchy skin thickening: fibroblastic rheumatism

Dear Editor,

Fibroblastic rheumatism (FR) is a rare disease characterized by chronic onset destructive polyarthritis involving the hands and feet associated with painless cutaneous nodules, sclerodactyly and contracture of the fingers. To-date, 26 cases of FR have been reported worldwide, mostly in Caucasians and only one from Asia (Japan).[1] Herein, we present a case of FR, probably the first from India, to highlight its clinical presentation and diagnostic workup.

A 46-year-old man presented with symmetric inflammatory polyarthritis of 3 years duration. Arthritis involved bilateral shoulder, elbow, wrist, metacarpophalangeal, proximal (PIP) and distal interphalangeal (DIP), knee, ankle, metatarsophalangeal (MTP) and interphalangeal joints within 1 month of disease onset and had been persistent since then. Early morning stiffness was > 1 h duration. After 6 months, he developed progressively increasing multiple painless, small nodules over the dorsum of both proximal and distal interphalangeal joints and elbows (Fig. 1). For the past 8 months, he noticed gradual thickening of skin over trunk and both arms and forearms without any itching, discoloration or loss of sensation. There was no history of Raynaud's phenomenon or sclerodactyly. The disease was rapidly progressive and caused flexion contractures of fingers and toes of both upper and lower limbs for the last 6 months, compelling the patient to change his job as a driver. There was no history of fever, weight loss or loss of appetite. There was no history of cough, breathlessness or gastrointestinal reflux symptoms. History of diabetes mellitus, hypertension and tuberculosis or high-risk sexual behavior were negative. He had received alternative medicine along with non-steroidal anti-inflammatory drugs but without any relief.

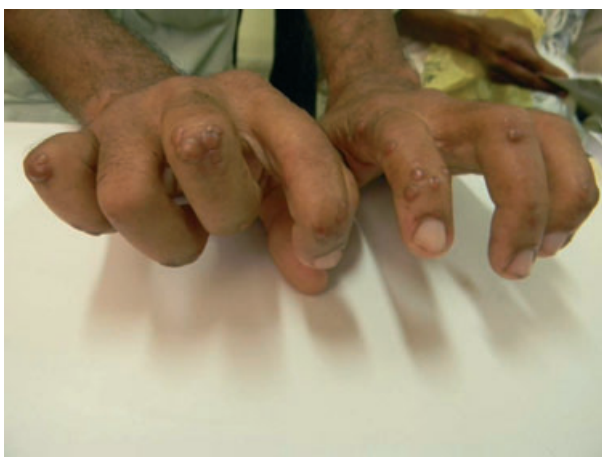

Figure 1 Multiple subcutaneous nodules over the dorsal aspect of fingers of both hands.

Examination revealed average body build, thickened and coarse skin over anterior parts of chest, back, bilateral arms and forearms with peau d'orange appearance without any discoloration or anesthesia. However, the skin was not adherent to underlying subcutaneous tissue. There were multiple superficial, non-tender, firm, non-compressible and freely mobile cutaneous nodules about 2–10 mm in size on the dorsum of both elbows and proximal and distal interphalangeal joints. Musculoskeletal examination revealed tenderness at bilateral shoulders, MCP, PIP and DIP joints of hand, knee, ankle, PIP joints of feet and right wrist joints. There was fixed flexion deformities at PIP of the second, third, fourth, fifth fingers of both hands and the second, third and fourth toes of both feet. The peripheral nerves were not thickened. Rest of the general and systemic examination was unremarkable.

Laboratory investigations, including hemoglobin, total white blood cell with differential counts, platelets, erythrocyte sedimentation rate and C-reactive protein, renal and liver function tests were normal. Immunological tests like immunoglobulin M rheumatoid factor and anti-cyclic citrullinated peptide antibodies were negative. Radiograph of the hands demonstrated severe periarticular osteopenia without any erosion. Histopathology of the skin revealed proliferation of plump

spindle-shaped fibroblastic stromal cells and thick collagen bundles with whorled arrangement at places in the subepithelial region with sparse perivascular chronic inflammatory cells without any histiocytes, giant cells, granulomas or foreign bodies. Immunohistochemical staining for myofibroblasts was positive for vimentin but negative for desmin and α-smooth muscle actin (Fig. 2), thus, confirming the diagnosis of fibroblastic rheumatism (FR).

Fibroblastic rheumatism is a recently described entity involving primarily skin and joints. The clinical spectrum of the disease can only be studied from case reports because of the rarity of the disease. It is a disease of young to middle aged persons with equal distribution between men and women.[2] In our case, the patient presented with symmetrical polyarthritis, flexion contractures of fingers and toes with para-articular skin nodules and diffuse patchy thickening of skin over the trunk and extremities, prompting us to consider multicentric reticulohistiocytosis as the differential diagnosis. However, absence of erosions on radiographs was against this. Histopathological and immunohistochemical studies of the skin confirmed FR. Diffuse thickening of skin over the trunk and extremities without sclerodactyly or Raynaud's phenomenon was unique in our case The skin manifestations may appear before, simultaneously or after joint manifestations.[3] The most common dermatological manifestation is cutaneous nodules which are firm pinkish to flesh colored measuring around 2–20 mm in diameter and mainly involving para-articular sites on hands, elbows, knees, ears and neck.[2] Other skin manifestations are sclerodactyly (76%) and thickened palmar fascia (44%) and erythematous plaques or papules (28%).[4]

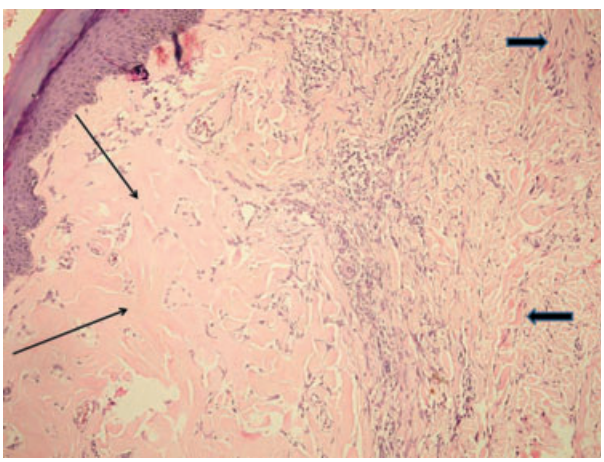

Figure 2 Section of skin showing elevated epidermis, with extensive hyalinization of papillary and superficial reticular dermis (long thin arrows) and fibroblastic proliferation and thick collagen deposition (small thick arrows) in the deep dermis. Sweat glands are atrophic and entrapped in dense fibrocollagenous tissue. Sparse perivascular mononuclear cell infiltration is noted. Stain for vimentin was positive. (Hematoxylin and eosin stain, ×100).

Rheumatological manifestations consist of symmetrical polyarthritis or polyarthralgia mimicking rheumatoid arthritis in the early part of the disease but can easily be differentiated by its frequent DIP involvement.[3] With progression of the disease, articular movement of affected joints becomes markedly restricted and painful and is associated with flexion contractures of the fingers (92%). Radiology shows periarticular osteopenia or erosive arthritis in more than 50% of cases, again simulating an inflammatory arthritis.[5] Other nonspecific features include fever (8%) and Raynaud's phenomenon (36%). Hematological and biochemical laboratory tests including acute phase reactants are usually normal.

Histology of the skin is unique for the disease showing fibrosis of dermis and subcutaneous tissue with an increased number of dermal fibroblasts and thickened collagen bundles occasionally arranged in a whorled pattern[6] as in our case. Elastic fibers are usually diminished and vessels and adnexa are surrounded but not destroyed by the fibrosis. There is no or little inflammatory cell infiltration. Immunohistochemistry usually reveals fibroblast-like cells positive for vimentin or XIIIa factor or α-smooth muscle actin or CD8ab.[2] The etiology of FR is unknown. However, histological changes suggest an overwhelming myofibroblastic response to an unknown stimulus. Transforming growth factor-β and granulocyte-macrophage colony-stimulating factor and similar cytokines might be playing an important role as these are known to transform fibroblasts into myofibroblasts.[6] However, exact etiopathogenesis is not yet clear.

Fibroblastic rheumatism has to be differentiated from other causes of similar-looking skin nodules. Multicentric reticulohistiocytosis is the closest differential diagnosis but it causes early-onset erosive arthritis, mucosal involvement and histopathology shows lipid-laden histiocytes and multinucleated giant cells with ground glass cytoplasm.[7] Progressive nodular fibrosis is another condition characterized by a nodular proliferation of plump fibroblasts in the dermis together with thickened collagen bundles.[8] However, it neither involves joints nor is restricted to para-articular areas.

FR should be suspected in a setting of symmetrical polyarthritis, para-articular skin nodules, and flexion contracture of fingers and toes with patchy skin thickening. Histopathological study of skin nodules is diagnostic.

Jyoti Ranjan PARIDA,[1] Vikas AGARWAL[1] and Narendra KRISHNANI[2]

[1]*Department of Clinical Immunology, and* [2]*Pathology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, India*

Correspondence: Vikas Agarwal, email: vikasagr@sgpgi.ac.in

REFERENCES

1 Watanabe S, Kamada K, Imai H, *et al.* (2010) An Asian case of fibroblastic rheumatism: clinical, radiological, and histological features. *Mod Rheumatol* **20**, 423–6.

2 Colonna L, Barbien C, Lella G, *et al.* (2002) Fibroblastic Rheumatism: a case without rheumatological symptoms. *Acta Derma Venerol* **82**, 200–3.

3 Jacob J, Sartoris D, Kursunoglu S, *et al.* (1986) Distal interphalangeal joint involvement in Rheumatoid Arthritis. *Arthritis Rheum* **29**, 10–5.

4 Marconi IML, Rivitti-Machado MC, Sotto MN, *et al.* (2008) Fibroblastic rheumatism. *Clin Experimental Dermatol* **34**, 29–32.

5 Rety F, Tayebjee OA, Servettaz A (2007) Radiological bone lesions in Fibroblastic rheumatism; Case Report. *Presse Med* **36**, 432–6.

6 Romas E, Finalay M, Woodruff T (1997) The arthopathy of fibroblastic rheumatism. *Arthritis Rheum* **40**, 183–7.

7 Rapini RP (1993) Multicentric reticulohistiocytosis. *Clin Dermatol* **11**, 107–11.

8 Bauer EA, Uitto J, Santa Cruz D, *et al.* (1986) Progressive nodular fibrosis of the skin: altered procollegenase expression by cultured fibroblasts. *Invest Dermatol* **87**, 210–6.