Complications and Diagnostic Dilemma in Hansen's Arthritis: a Case Report

Anurag S. Lavekar[1*], Tanuja P. Manohar[2]

[1]Assistant Professor, Department of Medicine Shankarrao Chavan Govt Medical College, Nanded, Maharashtra, INDIA.

[2]Associate Professor, Department of Medicine, NKP Salwe Institute of Medical Sciences, Nagpur, Maharashtra, INDIA.

[*]Corresponding Address:

anuraglavekar@gmail.com

Research Article

Abstract: Hansen's disease caused by Mycobacterium leprae is generally revealed by cutaneous lesions often associated to nerve impairment. Diagnosis of the same becomes difficult in absence of the classic symptoms and is complicated when the disease presents itself solely by rheumatic manifestation. We describe a case of a 48 year old man, a recently diagnosed case of diabetes mellitus who presented with polyarthritis, morning stiffness and pitting oedema and was considered as a case of rheumatoid arthritis (RA) with remitting seronegative symmetrical synovitis with pitting oedema (RS3PE). Non-compliance with the treatment, presence of a thickened ulnar nerve after month of treatment followed by presence of acid-fast bacilli in the nerve biopsy lead to correct diagnosis of Hansen's arthritis was made. We ecommend investigating the possibility of Hansen's disease when treating a patient with rheumatological manifestations.

Keywords: Indexing terms: Hansen's disease, Rheumatoid arthritis, diabetes mellitus, Diagnosis

Background

Hansen's disease caused by Mycobacterium leprae is one of the oldest diseases known to have afflicted humankind. With the advent of anti leprosy drugs, the incidence of the disease had been curbed to a considerable extent in affluent countries, but it continues to be prevalent in the lower socio-economic stratum and is still endemic in few developing and underdeveloped countries. 1, 2 Appropriate treatment and management of the disease requires timely diagnosis, which in this disease is straightforward and involves examination of cutaneous lesions and nerve involvement and a positive laboratory test (the slit skin smear), if reliably available. 3 The challenge lies when the disease mimics a myriad of different clinical conditions with or without the presence of its characteristic features 4. One of such condition, which is not uncommon, but under reported is when Hansen's disease mimics rheumatoid arthritis (RA) and primarily presents itself with rheumatological manifestations such as polyarthritis and polynephropathy with void of any skin lesions or lepra reaction. 5, 6 this leads to confusion in diagnosis and delay in treatment. Diagnostic dilemma could further confound by the presence of autoimmune disorders such as diabetes and its clinical manifestations. The superficial resemblance of some features due to diabetes (mucoskeletal complaints, polyneuropathy) is close enough to RA to create a good deal of confusion in the mind of uninitiated physician. Use of anti-inflammatory drugs under these circumstances could further complicate the situation 7. In this report, we present such a case with recently diagnosed. Diabetes mellitus showing clinical appearance of rheumatoid arthritis (RA), however ultimately diagnosed and provided treatment for Hansen's disease, which lead to the cure of the patient.

Case Report

The patient was a 48-yr-old male, textile industry worker who was known to have type 2 diabetes mellitus since two months and was on metformin 500 mg twice daily along with diabetic diet for sugar control. He was referred to our rheumatology clinic in September 2011. There was a history of pain and swelling over both wrist joints which went on and off since 1 month. He also had generalized weakness and morning stiffness since 15 days, which lasted for two hrs but eased with physical activity as the day progressed. He also described a continuous pain and swelling over bilateral knee joints. There was no history of urinary, gastrointestinal and ophthalmic symptoms prior to presentation and his family history was negative of any arthritic disease. He had a positive family history of Hansen's disease. He had used diclofenac and other non-steroidal anti-inflammatory drugs (NSAIDs) for pain control and there was no history of intake of corticosteroids or immunosuppressants prior to presentation. Clinical examination revealed gross pitting oedema of the dorsum of feet and hands. There was no evidence of hypopigmentation. Deep tendon reflexes were depressed suggesting peripheral neuropathy. Vibration and joint position sense were impaired; touch pain and temperature sensation was intact. All other vitals were stable. During hospital stay patient developed nasal cellulitis, which drained 20 cc pus. Fundus examination revealed background retinopathy. Rest of the general and systemic examination

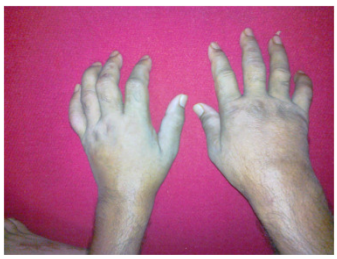
was unremarkable. The investigations revealed raised inflammatory markers; erythrocyte sedimentation rate of 52 mm/first hour and C-reactive protein of 56 mg/dl (N < 10). Full blood count, renal and liver function tests, urine analysis, antistreptolysin O antibody (ASO) titre, rheumatoid factor (RF), and anti-nuclear antibody (ANA) and anti-CCP antibodies and thyroid function tests were within normal results. His diabetes did seem well-controlled (HbA1c of 6.9%). Skin clipping examination revealed no acid-fast bacilli. MRI of both wrists was within normal limits. After one month of admission, bilateral ulnar nerves appeared thickened and were extremely tender. Nerve biopsy revealed epitheloid and dense mononuclear inflammatory infiltrate multiple perineural granulomata with demonstrable acid-fast bacilli on Fite Farco stain. Treatment was initiated for Hansen's diseases and diabetes. Patient was administered a combination of rifampicin 600 mg/day, dapsone 100 mg/day, etoricoxib-90mg/ day and clofazimine 50 mg/day OD for 12 months along with daily dose of insulin and tab hydroxychloroquine 200mg/ day. There was a remarkable resolution of his symptoms over the following weeks with pain, and arthritis disappearing first, followed by reducing tenderness of the thickened nerves after 4 weeks from initiating therapy. The patient was followed after completing a 12-month course of therapy; he had remained asymptomatic and is doing well.

Discussion

Hansen's disease should be extensively searched for in patients presenting for the first time with unexplained articular

manifestations as these may be the first and the only presenting complaint. However, in patients where the characteristics neuro cutaneous lesions are absent, a high index of suspicion and clinical evidence is required to ascertain Hansen's disease as a cause for developing arthritis. In the present case, the patient initially presented with distinctive clinical picture of inflammatory poly arthritis with morning stiffness along with pitting oedema which are characteristic features for RA with remitting seronegative symmetrical synovitis with pitting oedema (RS3PE) (8). He did not show any presence of cutaneous lesions and neural involvement and therefore possibility of Hansen's disease missed in the beginning. Only non-compliance with the treatment and appearance of a thickened ulnar nerve after month of the admission lead to the suspicion of Hansen's disease as an underlying cause. On further questioning patient stated a positive family history of Hansen's disease with his father having Hansen's disease 25 years ago. The patient was finally treated and managed after consultation with a dermatologist experienced in treating leprosy who confirmed the diagnosis of Hansen's arthritis by demonstration of acid-fast bacilli in nerve biopsy. Articular involvement in Hansen's disease is known from long time and had been described earlier. Gibson T *et al*. 1994, (4) reported the presence of arthritis in 20 out of 31 patients with lepra reaction. In a recent published study, Sheetal S and Chopra A, 2009 (9) described two cases of acute onset inflammatory polyarthritis, skin rash and mild sensory neurodeficit diagnosed to have borderline lepromatous leprosy. However, in comparison to this, lepra reactions manifesting only as insidious onset chronic symmetrical or relapsing poly arthritis mimicking RA is occasional. Atkin *et al*., (31 patients) (10), Cossermelli-Messina *et al*. (39 cases) (11) described that arthritis due to leprosy was not associated with lepra reaction but most of them had leprosy had for more than 10 years was currently inactive in 19 of them. Our case report is among the few reports available in literature where the patient neither had the classical features or past history of leprosy nor a positive lepra reaction which further lead to the delay in correct diagnosis. Only a positive family history of leprosy was present which we suppose should be given due consideration even in a country with high prevalence of this disease. The only piece of evidence, which lead us to suspect Hansen's disease, was the presence of thickened ulnar nerve. Presence of combination of arthritis, tenosynovitis with or without paraesthesia or thickened nerves should indicate towards Hansen's disease in absence of characteristic skin lesions, especially if the case presents unexplained rheumatological symptoms, in an endemic area (6). Apart from the presence of rheumatological complaints, what made our case rather peculiar was the presence of diabetes in the patient. Association between diabetes and RA is still not fully understood but is considered a positive one (12). The presence of diabetic retinopathy (13) coupled with raised CRP (14) and ESR marker (15) thus obviously reflected an ongoing acute inflammatory process other than a lepra reaction. Exclusion of diabetes or any other inflammatory condition is a rather challenging but necessary to exclude the administration of anti-inflammatory drugs (eg.anti-TNF-a mAbs) which could actually worsen Hansen's disease (7) In conclusion, Hansen's disease in all its different forms has shown repeatedly to be capable of producing a wide range of manifestation. In patients with rheumatological complaints, a diagnosis of Hansen's disease should be considered even in the absence of neuro cutaneous lesions. In this case, a correct diagnosis of Hansen's arthritis relied on the presence of thickened nerve, demonstration of bacilli in the neural biopsy of a thickened nerve and a positive family history of Hansen's disease. The limitation in our study was that we had not

tested synovial fluid for the presence of acid-fast bacilli, which could raise doubts against Hansen's disease to be the cause of arthritis. The possibility of an underlying diabetic neuropathy contributing to arthritis was another challenge. However, our patient responded well to anti-lepra therapy and is doing well after 12 months of therapy, which strongly argue against any other possibility than Hansen's arthritis. The case presented here highlights the importance of awareness of Hansen's disease among rheumatologists and its various presentations in the geographical regions burdened of this disease.



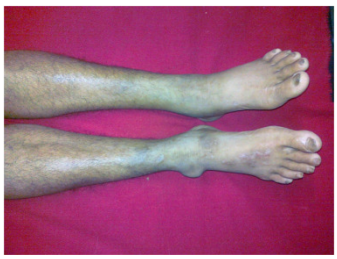


Figure 1: Photograph showing acute swelling in hands/ ***Figure 2:*** Photograph showing swollen feet due to pitting oedema wrists and small joints of hands in the patient

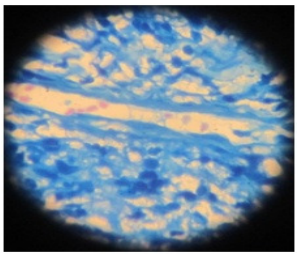


Figure 4: Sural nerve biopsy showing infiltration by chronic inflammatory cells, predominantly lymphocytes and histiocytes

Epithelioid cell granuloma with histiocytic giant cell and few acid-fast lepra bacilli (arrow) are seen in the centre (Wade-Fite stain; 400*). Ours-The nerve biopsy revealed epitheloid and dense mononuclear inflammatory infiltrate multiple perineural granulomata with demonstrable acid-fast bacilli on Fite Farco stain.

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