CASE REPORT

Hansen's Chronic Polyarthritis in a Child

ANANYA DAS, RAKESH MONDAL, #KAUSHANI CHATTERJEE AND DONA BANERJEE
From Departments of Pediatric Medicine, Medical College and #BC Roy PGIPS, Kolkata, West Bengal, India.

Correspondence to: Dr Rakesh Mondal, Professor and Pediatric Rheumatologist, Department of Pediatrics, Medical College, 88 College Street, Kolkata 700 073, India. ivanrakesh2001@gmail.com
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Background: Musculoskeletal manifestations of leprosy are often underdiagnosed and under-reported. **Case characteristics:** An 11-year old girl with leprosy presented with deforming symmetric polyarthritis with raised inflammatory parameters and erosion on imaging. **Observation:** The patient was diagnosed to have Hansen's chronic polyarthritis and treatment started with non-steroidal anti-inflammatory drugs and methotrexate. **Message:** Hansen's chronic polyarthritis is a rare differential of juvenile chronic arthritis in children.

Keywords: *Arthritis, Complication, Leprosy.*

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Leprosy (Hansen's disease) is a major public health problems in India. It usually presents with skin lesions. Musculoskeletal complaints are uncommon manifestations of leprosy in the pediatric age group [1]. Among the different types of arthritis present in leprosy, Hansen's chronic polyarthritis is the rarest variant. We here present a case of chronic symmetrical polyarthritis which was initially diagnosed as Erythema nodosum leprosum (ENL) and later confirmed as Hansen's chronic polyarthritis.

CASE REPORT

An 11-year-old girl, a diagnosed case of borderline lepromatous leprosy (BL) on six months of multi-drug therapy (MDT), was referred to our institution with tender erythematous nodules over the lateral aspect of legs, shin and back, burning sensation in hands and legs and constitutional symptoms for the last two weeks. Ulnar claw hands were present (***Fig.*1**). Bilateral ulnar and common peroneal nerves were thickened. Xerosis, thickening and hyperpigmentation of skin of the face, hands and legs were noted. There was no urinary complaint, photosensitivity, skin rash or oral ulcer. Organomegaly and lymphadenopathy were absent. However, the patient had symmetrical polyarthritis involving small joints of hand, wrist, knee and ankle for the last eight months for which she was taking non-steroidal anti-inflammatory drugs (NSAIDs).

Investigations revealed raised inflammatory parameters (erythrocyte sedimentation rate 62 mm/h, C-reactive protein 10.8 mg/dL; normal <0.6 mg/dL). Complete haemogram showed anemia, neutrophillic leucocytosis and thrombocytosis. Chest *X*-ray, liver function test, renal function tests and urinalysis were within normal limits. Mantoux test was non-reactive. Juxta-articular erosion was present in *X*-ray of wrists. Ultrasonography of knee joint showed mild effusion with marginal erosion (***Fig.* 2**). Serology for hepatitis B, hepatitis C, human immunodeficiency virus (HIV) and Epstein Barr virus (EBV) were non-reactive. Serological markers for other connective tissue diseases such as Rheumatoid factor (RA), antinuclear antibody (ANA), anti ds-DNA, anti-neutrophil cytoplasmic antibody (ANCA), anti-cyclic citrullinated peptide (anti-CCP) and direct coombs test (DCT) were negative. C3 level was 43 U/L. Nerve conduction velocity (NCV) study showed axonal type of sensory-motor polyneuropathy in all four limbs. A feature of panniculitis was found in skin biopsy specimen suggestive of ENL.

In view of skin lesions and raised inflammatory parameters, ENL reaction was diagnosed, prednisolone started and MDT continued. Skin lesions resolved over next four weeks. However, the articular complaints persisted and fixed deformities noted. Polyarthritis in this child was established as Hansen's chronic polyarthritis. Methotrexate along with NSAID was added. The child showed gradual improvement on follow-up over the next four months.

DISCUSSION

Chronic polyarthritis in the index case, a feature of leprous rheumatism was not due to lepra reaction, as deforming arthritis of prolonged duration preceded the initiation of MDT and was steroid non-responsive. Chronic arthritis in Charcot's joint is characterised by dislocations, destruction of articular cartilage with

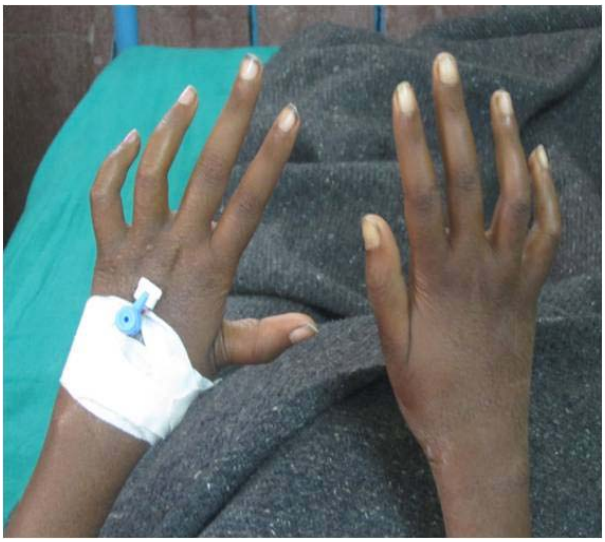

Fig.1 *Swelling of small joints of hand with ulnar clawing.*

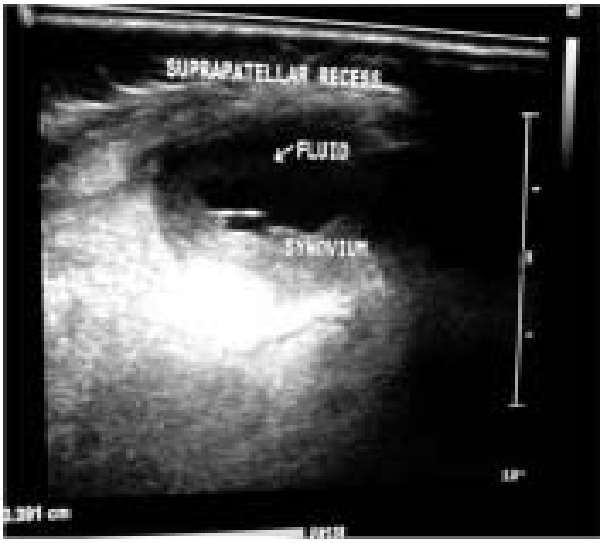

Fig.2 *Ultrasound image showing effusion and erosion of knee joint.*

debilitating deformities, which was not the scenario in index case. Chronic arthritis in this case cannot even be explained by co-occurrence of juvenile idiopathic arthritis (JIA) or any other connective tissue diseases in absence of characteristics symptomatology and related sero-markers. Hence, our case was confirmed to be that of Hansen's chronic polyarthritis.

Arthritis in leprosy is broadly divided into two groups: acute arthritis and chronic arthritis. Acute arthritis seen as a part of lepra reaction (ENL), is usually non-erosive, associated with fever and worsening cutaneous lesions, which resolve over weeks without deformities [2]. Hansen's chronic polyarthritis, first described by Atkin, *et al*. [3] is a symmetric polyarthritis with predominantly rheumatoid distribution. Postulated pathogenesis is direct synovial infiltration by *Mycobacterium leprae*. This entity of chronic arthritis is erosive, leading to deformities, and responds poorly to anti-leprosy treatment. Aberrant immunological response in leprosy leads to production of numerous autoantibodies like RA, ANA, and ANCA [4]. This may create diagnostic dilemma in patient of chronic polyarthritis in leprosy patients, raising the possibility of co-occurrence of JIA. However, anti-CCP is less likely to be found positive in leprosy arthritis cases [5]. Haroon, *et al*. [6] described five cases of Hansen's chronic polyarthritis out of 11740 leprosy patients in an adult population [6]. Four of them were misdiagnosed as rheumatic disorders initially [6].

Hansen's polyarthritis, though extremely rare, should be kept in mind as a differential while managing a child with chronic polyarthritis.

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