

## CASE STUDIES

**Lepromatous leprosy or rheumatoid arthritis with leprosy? A challenging case**Bharathraj MY<sup>1</sup>, Chandrashekara S<sup>2</sup>, Ghanti S<sup>3</sup>, Kori D<sup>4</sup>, Krishna R<sup>5</sup><sup>1-4</sup>ChanRe Rheumatology and Immunology Center and Research, Bengaluru, India**Abstract**

Rheumatoid arthritis (RA) manifestations in leprosy are very common, but often undiagnosed. The present study discusses a challenging case having dilemma in concluding the diagnosis as lepromatous leprosy or RA with leprosy.

Keywords: rheumatoid arthritis, leprosy, tenosynovitis

**Introduction**

Hansen's disease, commonly known as lepromatous leprosy or leprosy, is a highly contagious and chronic systemic disease caused by *Mycobacterium leprae*.<sup>1</sup> Cutaneous and peripheral nervous systems are mainly involved, and the disease may also affect visceral and musculoskeletal or joint systems. Though rheumatoid arthritis (RA)-like manifestations is common in leprosy, it is often underreported and underdiagnosed. In leprosy patients, RA manifestations are most commonly presented as symmetrical or chronic polyarthritis.<sup>2</sup> In some cases, leprosy may be associated with tenosynovitis or tenosynovitis arthritis.<sup>2</sup> The present study discusses the case of an elderly woman with both symptoms and evidence of leprosy and RA.

**Case report**

An elderly housewife with a history of inflammatory joint pains for 4 years presented with puffiness of fingers, paleness of digits, and ulceration for 20 days (Fig. 1). There were no deformities of the joints. The pain involving finger tips aggravated on touching and on movements of the hands. Small areas of digit ulceration were present over right index finger, but there was no history of discharge or bleeding from ulcers. Dry mouth, fever, skin rashes, oral ulcers, muscle weakness, difficulty in breathing, dysphagia, dry eyes/vision disturbances, weight loss, alopecia and bluish discoloration of fingertips were absent. Other comorbidities such as diabetes, hypertension, asthma, tuberculosis, and seizure disorder were absent. Her vitals were stable and systemic examination was apparently normal. Peripheral nerve examination revealed asymmetrical palpable thickened right-side ulnar nerve

without nodularity. Laboratory findings indicated: normal blood counts, ESR 48 mm/hr, CRP 16 mg/dl, RA factor 189, and ANA 2+. Nerve conduction test showed right ulnar motor-sensory axonal and demyelinating neuropathy. Histopathology of skin obtained from medial aspect of distal right forearm revealed papillary dermis showing non-caseating epithelioid granulomas involving dermal appendages and erector pili (Fig. 2). Inflammatory cells, comprising of lymphocytes and foamy macrophages, were present around the blood vessels. The presence of gram-positive bacilli confirmed the diagnosis of leprosy.

**Discussion**

Leprosy shows various clinical manifestations, and some are typical to RA.<sup>3</sup> Manifestations of RA or musculoskeletal involvement occur in 75% of leprosy cases and may lead to delayed treatment or improper diagnosis.<sup>4</sup> RA manifestations occur either as a complication of disease or as a leprosy reaction, mainly during anti-bacterial treatment.<sup>5</sup> RA manifestations include chronic or symmetrical polyarthritis, Charcot's joint and swollen hands and feet syndrome.<sup>6</sup> The present case had negative anti-CCP and all the typical symptoms of RA with positive RA factor, which can also be noted in leprosy. The diagnosis of leprosy was speculated, as there were additional signs of skin rash and thickened ulnar nerve.

Recent decades have witnessed significant reduction in the global burden of leprosy, and this could be mainly attributed to the wider use of multidrug therapy. India was successful in eliminating the leprosy by 2005, but the disease is reemerging due to poor social standards, increased strategized approach and development of

**Fig. 1: Inflammation of joints and pale digits**



**Fig. 2: Inflammatory cells with lymphocytes and foamy macrophages**



bacterial resistance.<sup>7</sup> Annual New Case Detection Rate (ANCDR) for the year 2016-17 showed increase in the leprosy cases of around 10.17 per 100,000 population in India when compared to 2015-16.<sup>8</sup> With positive biopsy result for leprosy in our case it is emphasized that leprosy should be the differential despite there is low number of leprosy prevalence.

Neural involvement and articular involvement in leprosy have been reported since 600 B.C. in China.<sup>9</sup> Neural involvement can be seen as mononeuropathy or polyneuropathy.<sup>10</sup> Neuropathy may lead to neuropathic

joint and septic arthritis in post-trauma stage.<sup>11</sup> Acute and chronic symmetric polyarthritis involving hand joints, mimicking rheumatoid arthritis (RA), has been described with or without lepra reaction; however the exact physiology of joint involvement is not fully understood.<sup>12</sup> Systemic immune effect and complex reaction may lead to the arthritis and related complications.

A 2017 case study by Tatiana *et al.* has reported a case of lepromatous leprosy mimicking RA. The patient had both the symptoms of RA and leprosy with no considerable improvement in RA with treatment. The study highlighted

the need of considering the possibility of leprosy, even in areas where the disease is considered as eradicated.<sup>13</sup> Non-leprotic manifestations are common in leprosy. The study by Haroon *et al.* have noted the presence of pure neuritic leprosy in 5 patients having inflammatory arthritis with/without tenosynovitis and tenosynovitis.<sup>14</sup> A good understanding of arthritis and knowledge of arthritis manifestations in leprosy will help in proper and prior diagnosis. Uniqueness in our case is that even though after confirmation of leprosy made through biopsy it is still a dilemma whether co-existing RA is present. As a rule treat the infection first and wait and watch is recommended in this situation to further ascertain the diagnosis of RA existing along leprosy.

### Conclusion

Leprosy associated with RA is a rare scenario. However, there are possibilities for co-existence of RA with leprosy and possible presentation of symptoms mimicking RA in leprosy. The present case study underscores the need of considering leprosy as an differential diagnosis to RA, while managing patients belonging to endemic areas.

### Competing interests

The authors declare that they have no competing interests.

### Citation

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### Correspondence

Dr. Bharathraj, Fellowship trainee, ChanRe Rheumatology and Immunology Center and Research, Bengaluru, India  
mybharathraj@gmail.com

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