Leprosy – presenting as Rheumatoid Arthritis misleading the correct diagnosis

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September 20, 2024

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Ethical statement and consent:

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

conflict of interest : devoid of any competing interests.

Funding : self

Availability of data and materials : Available

Key clinical message

Leprosy can often present with symptoms resembling rheumatoid arthritis, leading to delays in diagnosis or inappropriate treatment that may progress to a lepromatous form, resulting in neuropathy and disability. Physicians and rheumatologists need to consider leprosy as a differential diagnosis in the patients presenting as rheumatoid arthritis, particularly in those from leprosy endemic regions. Early detection is vital to prevent chronic neuropathy, physical and functional disabilities, and disfigurement in affected individuals.

ABSTRACT

Leprosy, caused by Mycobacterium leprae, was declared eliminated by 2010. However, new cases continue to arise, often presenting with both typical and atypical symptoms that can mimic a range of skin diseases, inflammatory arthritis, and autoimmune disorders. We present the case of a 67-year-old male presenting with symmetrical polyarthralgia in his hands, accompanied by tingling, and later decreased sensation along the ulnar aspect of his left hand, along with frequent ulcerated lesions. He was initially treated with oral Methotrexate for seronegative rheumatoid arthritis. Due to the persistence of symptoms, he was noncompliant with methotrexate. Upon further evaluation, we noted ulnar clawing and diminished to absent sensation in the ulnar distribution, palpable ulnar nerve, and leonine like facies. A slit skin smear test confirmed the diagnosis of leprosy, which was positive. Clinical improvements were visible with the initiation of MDT and oral steroids. Clinicians must maintain a high index of suspicion for this disease, particularly in patients hailing from endemic leprosy regions.

Keywords: Leprosy, Mycobacterium, Rheumatoid Arthritis, ulnar clawing, MDT

Introduction

Leprosy, also known as Hansen's Disease, is a chronic granulomatous bacterial disease due to infection with Mycobacterium leprae bacilli affecting mainly skin and peripheral nerves. It can also affect the eyes, mucous membranes, bones, cartilage, joints, and testes producing a spectrum of clinical presentations and has the potential to cause severe disfigurement of the affected individuals.[1–3]Elimination of leprosy as a public health problem globally was achieved in 2000 and most countries including Nepal by 2010.[1,4–6] In 2020, Globally 127,396 new cases were reported with a case detection rate of 16.4 per million population. Brazil, India, and Indonesia reported 72.5% of registered cases and 74% of new cases detected in 2020. In Nepal 2304 new cases were detected in 2020.[4] Diagnosis might be delayed due to unusual presentation or mimicking other Rheumatological diseases especially when presented along with polyarthritis.[7–10] Early detection and treatment are critical for preventing neuropathy and disability. Here we present a case of a 67-year-old male with a delay in diagnosis of leprosy who has suffered for almost one and half years due to its resemblance to seronegative rheumatoid arthritis initially and unaware of variation of clinical presentation in leprosy.

Case History/Examination

A 67-year male from Gorkha Nepal visited the outpatient clinic at Amppipal Hospital Gorkha with a complaint of multiple joint pain for 1.5 years, decreased sensation over the left ring and little fingers for 8 months, and frequent ulcerated lesions over the left hypothenar, ring, and little fingers for 3 months. Since the last 1.5 years, he has had multiple joint pains, especially over bilateral hands (CMC, MCP, PIP > DIP), bilateral elbow worsening with rest with morning stiffness with occasional swelling. He gradually had tingling and decreased sensation over his left ring and little fingers for 8 months with some decrease in grip strength. Multiple turbid fluid-filled eruptions followed by ulceration over the hypothenar, ring, and little fingers. He has been taking antihypertensive medication for 10 years. He didn't have diabetes, and traumatic injury to

the elbow and cervical spine. He has been visited multiple times in hospital and evaluated for Rheumatoid Arthritis. In blood investigations, Rheumatoid factor was negative, leucocyte counts of 6000/ml, 23% Lymphocyte 65% Neutrophil, Haemoglobin: 12.8 g/dl, ESR: 18 mm/hr and CRP negative, uric acid level of 4.4 mg/dl. With the suspicion of Seronegative Rheumatoid arthritis, NSAIDs, Methotrexate 15mg once a week, and Folic acid supplementation started. For ulcerated wounds, oral antibiotics as well as topical antibiotics were prescribed multiple times from different centers. The patient was non-compliant with all medication due to recurrence of symptoms and further worsening. On re-evaluation with thorough history and examination, he also had decreased sensation over the forehead and facial area with sensation of tough skin and changes in the shape of the nose. He worked in Bihar India for 20 years as a labourer. His mistress was also having similar symptoms and taking medication for Rheumatoid arthritis. Ill-defined erythematous plague with minimal whitish scales seen over right retro auricular, neck, left mid abdomen, left elbow, and forearm with intact touch but impaired temperature sensitivity. Madarosis was seen with the rough, thickened skin over the forehead, nose, and chin, resembling leonine facies (fig1). Enlarged bilateral greater auricular nerve right more prominent than the left (fig2), bilateral ulnar nerve left more than right were seen. Atrophy of interosseous muscles, hypothenar, and thenar muscle with an ulnar clawing, ulcerated wound at the tip of the little finger, and hypothenar area were present (fig3,4). Signs of ulnar nerve injury; Card test, Froment's sign, and Egawa test were positive. A plain radiograph of the hand shows juxta-articular osteopenia with signs of erosion over CMC, MCP, PIP, and DIP. The leprosy was suspected, and a slit skin smear was sent for diagnosis which came to be positive with 1+ bacteriological index. The diagnosis of Lepromatous Leprosy with the left ulnar claw hand was made. Multidrug therapy (MDT) with pulse dose of 600mg Rifampicin, 300mg Clofazimine and 100mg Dapsone once a month, and daily dose of 50mg Clofazimine, 100mg Dapsone was started. Proper physiotherapy was taught, and he was well counselled about the drug reaction and possible complications.

Discussion

According to the World Health Organization (WHO), one of the following three features are essential for the diagnosis of leprosy:

- Definite loss of sensation in a pale (hypopigmented) or reddish skin patch
- A thickened or enlarged peripheral nerve with loss of sensation
- The presence of acid-fast bacilli in a slit-skin smear.[5,11]

Musculoskeletal symptoms such as arthritis are the third most common presenting manifestation of leprosy, after neurological and cutaneous features, and can mimic more common disorders such as rheumatoid arthritis (RA).[12] Clinicians should be aware of this disease since some form of joint involvement is reported to occur in 75 % of cases of leprosy and at times may be the only obvious manifestation.[9,13] Sometimes, patients with leprosy were treated for SLE, RA, dermatopolymyositis, and systemic vasculitis.[14] Leonine facies and madarosis are one of the hallmarks of lepromatous leprosy.[2] Radiographic changes in RA are usually more pronounced than those in leprosy arthritis.[15] Early diagnosis and a full course of treatment are critical for preventing lifelong neuropathy and disability. Treatment consists of combination of three drugs: Dapsone, Rifampicin, and Clofazimine six months for paucibacillary and 12 months for multibacillary leprosy.[5]In patient with inflammatory rheumatic disorder prolonged use of steroid, immunosuppressive therapy, and biological agents might flare up the latent form of tuberculosis and leprosy in the patient. Sometimes autoantibodies like RF and ANA may also be false positive in leprosy[9] but when both RF and anti CCP are negative, other causes including leprosy should be considered when patient is from endemic area.[13] So not only leprosy patients mimicking Rheumatoid disease, but also patients with known case of Rheumatoid disorder may present with signs and symptoms of leprosy during the course of treatment if there was a latent infection. Ulnar nerve is the commonest nerve involved in leprosy ranging from neuritis sensory symptoms to clawing of hand.[16]Steroid therapy along with MDT is the common medical approach for treatment of ulnar neuritis. Surgical decompression of nerve is required in case who failed to respond by 12 weeks of

combination therapy with steroid or in cases with severe ulnar neuritic pain disturbing daily activities, and with nerve abscess. Dose of steroid varies, commonly started with 1mg/kg/day gradually tapering weekly and continued for 6-9 months with maintenance dose of 5-10mg/day. In a study by Sajid et al. Pain recovery was seen in 100% cases, sensory recovery in 60-82% in 6-8 weeks period, and motor improvement (upgrading of MRC score) in 50-80% of cases depending on initial motor power in 24 to 54 weeks period. In our case, initially patient presented with polyarthritis and was treated for seronegative rheumatoid arthritis. Due to the persistence of symptoms and even worsening, he was noncompliant with medication. After a few months as he started developing neuropathic symptoms to ulnar distribution and subsequently ulnar clawing with cutaneous lesions, we suspected leprosy. With a thorough history, examinations and split skin smear, he was diagnosed with lepromatous leprosy and treatment started. This delay in diagnosis was due to misdiagnosis of clinical signs more towards Rheumatoid and also due to the inability of early detection and suspicion of leprosy with symptoms timeline. So, it is essential to recognize the association of arthritis in leprosy, its resemblance with other inflammatory causes, disease and symptoms progression for early detection and treatment.

conclusion

Leprosy can often mimic rheumatoid arthritis, particularly when patients present with polyarthralgia without evident additional signs or symptoms. Furthermore, individuals with other inflammatory conditions who are receiving DMARDs, biological agents, immunosuppressive therapy, or steroids may experience reactivation of latent infections, including not only tuberculosis but also leprosy, especially if they come from endemic regions. Therefore, physicians and rheumatologists need to consider leprosy as a differential diagnosis whenever applicable. Early detection is vital to prevent chronic neuropathy, physical and functional disabilities, and disfigurement in affected individuals. Top of Form Bottom of Form

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