

CASE REPORT

Compressive ulnar nerve neuropathy resembling nerve abscess at a leprosy referral hospital in Purulia, a high endemic district in India

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Accepted for publication 14 August 2015

Introduction

Peripheral nerve trunk involvement is a common manifestation of leprosy, leading to impairments and disabilities. The ulnar nerve is the most commonly involved nerve in leprosy.¹ *Mycobacterium leprae* exhibits a strong tropism for Schwann cells, ensheathing axons of the peripheral nervous system. This subsequently results in sensorimotor and autonomic dysfunction in leprosy patients. Researchers speculate that *M. leprae* specific phenolic glycolipid (PGL-1) enables the bacteria to bind with Schwann cell basal laminae II, causing demyelination and nerve function impairment.² Also, in some patients with tuberculoid leprosy, *M. leprae* produces soft granulomas within the nerves. These soft granulomas present as nerve abscesses which compresses the nerve bundles, resulting in nerve conduction block, consequently leading to degeneration of nerve fibres and loss of nerve function.^{3,4}

The Leprosy Mission Home and Hospital is a major referral centre for leprosy, situated in Purulia district, West Bengal, India catering to leprosy-affected people for 125 years. The district prevalence rate is 6.633 per 10,000 as on 31st March 2013. In 2012, 757 (546 MB, 211 PB) new patients were registered in the hospital and in 2013, 454 (348 MB, 106 PB) new patients were registered in the first 6 months.

CASE REPORT

A 22 year old married woman presented to our outpatient department with swelling on the medial aspect of the right arm. She had pain and tingling sensation along ulnar nerve and presented with weakness of the right hand for 1 month. The swelling was progressing in size, but there was no history of fever, weight loss, trauma or neck pain (See Figure 1).

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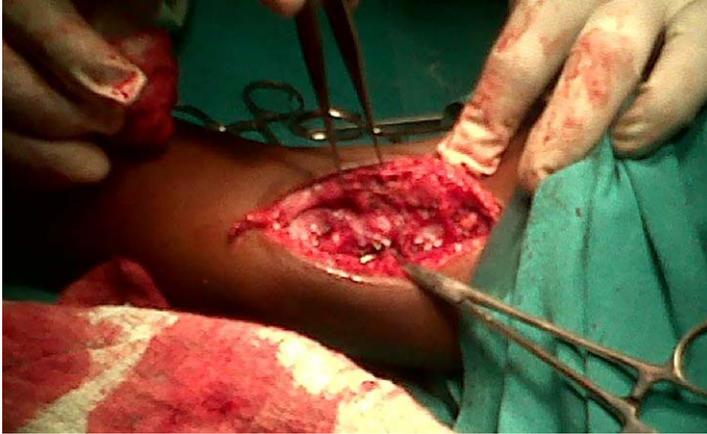


Figure 1. A fusiform swelling with an abscess which compressed the ulnar nerve.

On examination, her general condition was good with no signs of pallor or pedal edema. Her vital signs were stable. There was no cervical or axillary lymphadenopathy. Her respiratory, cardiac and gastrointestinal systems were normal. Her menstrual cycles were regular.

The swelling was well defined, 6–7 cm in diameter, cystic in consistency, movable from side to side along the course of the right ulnar nerve. It was tender and warm to the touch. The right ulnar nerve was not palpable separately, and there was no thickening along the rest of the nerve. There were no hypopigmented anesthetic patches on the body. On voluntary muscle testing, using the MRC scale, the right Abductor Digiti Minimi (ADM) was grade 3 with preserved protective sensation (Tested with 2 gms monofilament).

The bacteriological index was negative on slit skin testing and laboratory investigations were normal. Family history revealed that her husband has been treated for borderline tuberculoid multibacillary leprosy from our hospital and was released from treatment earlier the same year.

On clinical grounds and contact history the patient was diagnosed as pure neuritic leprosy (PNL)⁵ with ulnar abscess. She was admitted and started on a WHO regime of paucibacillary Multi Drug Therapy (PB MDT),^{5–8} along with oral prednisolone therapy of 40 mg/day. Physiotherapy treatment included an ulnar resting splint and hand exercises.

There was no relief from the pain and tingling after 1 week of the above treatment. Hence surgical decompression consisting of external neurolysis and epineurotomy was planned.

During surgical exploration under axillary block, we found a lipoma extending from the coracobrachialis and the short head of biceps up to the brachialis muscle. The lipoma was carefully excised and the ulnar nerve was found to be underneath (See Figure 2). The nerve looked normal with no thickening or fusiform swellings. On incision the excised lipoma, it was found to be filled with pus. The wound was closed with nylon after irrigation and a long arm POP slab was applied. Multi Drug Therapy was withdrawn and oral steroid therapy tapered over 2 weeks. Antibiotic therapy was instituted and the specimen was sent for histopathological examination.

On the third postoperative day, the ulnar nerve function had improved from 3 to 4 of ADM on voluntary muscle testing. Nerve pain and paresthesias were markedly reduced.



Figure 2. The excised lipoma with an abscess which compressed the ulnar nerve.

The biopsy pathological report revealed an organised abscess in the midst of fibrous fatty tissues. There was no evidence of malignancy or tuberculous infection.

Discussion

Nerve function impairment has been a hallmark of leprosy, often affecting the ulnar nerve.¹ This is the second most common nerve after the median nerve involved in entrapment neuropathy of the upper extremity.⁶ In our hospital, we frequently treat leprosy related neuropathy and know that it is vital to distinguish a case of leprosy neuropathy from other conditions which also affect peripheral nerves such as diabetic and entrapment neuropathy.

There are several reported cases of posterior interossei nerve compression at forearm and elbow joint by lipomas (intramuscular, intermuscular and paraosteal), ganglions and soft tissue condromas.^{7,8} On the other hand, a leprosy patient with painful swelling over the upper arm was misdiagnosed as tuberculous lymphadenitis and neuroma.⁹ The misdiagnosis of such abscesses, due to unusual presentations, is not infrequently reported in the literature.^{10,11}

To our knowledge, we are the first to report ulnar nerve compression due to an intermuscular lipoma. In our patient, the diagnosis of leprosy was made on the basis of clinical examination. Her husband being a possible contact strengthened our diagnosis of pure neuritic leprosy presenting as an ulnar nerve abscess with nerve function impairment. However, surgical exploration was indicated when the patient continued to have nerve pain and there was adeterioration of motor and sensory deficits. It also helped us diagnose and reveal the cause of the motor and sensory deficits.

Purulia district still has high prevalence in the post leprosy elimination era. A patient with an abscess-like swelling over the medial arm, with ulnar nerve function impairment may likely be misdiagnosed as pure neuritic leprosy by clinicians who work with leprosy. The stigma and rejection in society due to the disease is still prevalent in endemic areas like Purulia. Hence efforts should be made to ensure people with signs and symptoms mimicking leprosy or its complications are correctly diagnosed. This can prevent the potential development of a lifetime of stigmatization, misery and ostracization from society.

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