

# Case Report—Calcification of the Ulnar Nerve in Leprosy

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## Introduction

Calcification of the peripheral nerves in leprosy is rare (Nalasco, 1936; Trapnell, 1965; Pant and Seghal, 1967; Jopling, 1971) and may be associated with a previous history of nerve abscess, itself an uncommon complication (Browne, 1957; Seghal *et al.*, 1967; Enna and Brand, 1970).

In view of the rarity of this condition the following case is reported.

## Case Report

An alert African female juvenile presented at the Harare Central Hospital Neurological clinic with right ulnar and median nerve paralysis of two months duration. She was referred to the leprosy clinic for investigation.

## History

She reported that in August 1972 a coppery coloured lesion appeared on the extensor surface of her right upper arm and elbow. Shortly afterwards she experienced pain and paraesthesia along the flexor aspect of the arm from the elbow distally to her ring and little fingers. She then noted progressive clawing of all her digits, impaired opposition of the thumb and weakness of dorsi-flexion of her wrist. Finally the right arm became anaesthetic from the elbow downwards, and the skin lesion on her upper arm disappeared.

She had had no previous illness or injury, nor did her family suffer any chronic disease.

## On Examination

No skin lesions were detected after repeated natural light examinations.

The right great auricular, radial, ulnar and median nerves were all enlarged; the radial was tender, as was the ulnar which had an easily palpable fusiform swelling above the medial epicondyle. Anaesthesia extended from the elbow downwards to include the hand.

The right hand had fixed clawing of the middle finger; wasting of the thenar and hypothenar eminences; weakness of the lumbricals and interossei; impaired

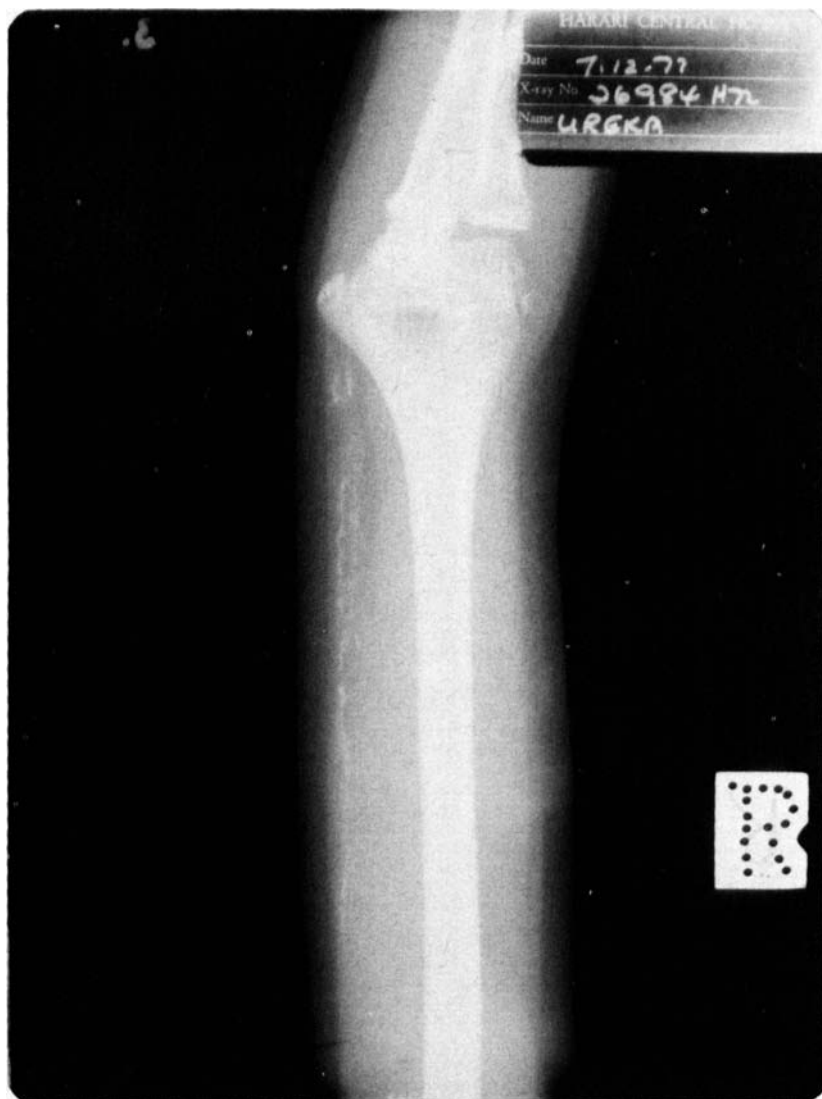


Fig. 1. Calcification of the medial and lower aspects of the ulnar nerve at the level of the right lower humerus.

opposition of the thumb and an unstable pinch. There was partial wrist drop, with hyper-extension of the metacarpophalangeal joints on attempting to straighten the fingers.

The Lepromin test was positive (++) and the Heaf test negative. Except that she had both *Schistoma mansoni* and *haematobium*, all other investigations were either normal or within normal limits.

A skin biopsy from the area where the patient alleged the coppery lesion had

appeared 2 months previously showed no histological abnormality. Unfortunately parental permission for a nerve biopsy was not obtained.

### Radiology

Radiology showed "calcification of the medial and lower aspect of the ulnar nerve at the level of the right lower humerus" (Fig. 1).

### Follow-Up

In January 1975 the patient presented again for reassessment, having had, since discharge, continuous dapsone therapy as an out-patient at her local clinic.

She still had no skin lesions and her peripheral nerves, with the exception of the right ulnar, were of normal size on palpation. The right ulnar had a large fusiform swelling above the medial epicondyle easily visible as such on extending the arm. On palpation the swelling was firm and tense, but not adherent, and could be tracked above and below until the nerve became apparently of normal size. The area of anaesthesia was now limited to the ulnar distribution of the hand, and the intrinsic motor deficit confined to the ulnar and median nerves.

Radiology showed that "the calcification of the ulnar nerve is markedly extended in comparison with the previous film (1972)" (Fig. 2).

### Discussion

The diagnosis of leprosy in this case is based upon the clinical signs of peripheral nerve involvement and the history of a spontaneously healing skin lesion.

Cochrane (1964) stressed that a diagnosis of leprosy is seldom justified unless one of two cardinal signs is present, namely, clinical signs of nerve involvement and the demonstration of *Myc. leprae* in the skin.

Peripheral nerve thickening in the tropics and subtropics should always suggest leprosy according to Jopling and Morgan-Hughes (1965) and they give as differential diagnosis two rare neurological diseases—familial progressive hypertrophic interstitial neuritis (Déjerine-Sottas) and primary amyloidosis affecting peripheral nerves.

The radiological appearance of calcification of nerves has been described by some workers (Campos, 1942; Campos, 1946; Floch and Destombes, 1951; Saikawa, 1951) as blobs consistent with calcification of old nerve abscesses; whilst others (Trapnell, 1965; Ramanujam and Ramu, 1966) as widespread flakes without evidence of abscess formation. Contreras *et al.* (1961) described their case as giving the "impression of a bony tissue and shedding off of particles which seem to be veritable sequestrae".

The literature contains a number of reports of nerve abscess in leprosy, albeit most authors agree that it is an uncommon complication with a predilection for the high resistant form of leprosy in the male.

An analysis of 1500 leprosy patients undergoing treatment at the Harare Central Hospital revealed two abscess cases, both tuberculoid, one an adult male and the other a female child.

Lowe (1934) observed that frequently a single nerve abscess is the only sign of active leprosy and that in many such cases the disease undergoes spontaneous



Fig. 2. Follow-up radiograph showing calcification has extended.

arrest. He considered that abscess formation was associated with a substantial immunity, a finding supported by Campos (1936).

Browne (1965) commented on the infrequency of caseation in peripheral nerves and describes the lesions as small areas of caseating autolysis, local and circumscribed accumulation of fluid being rarely sufficiently large to justify the term abscess.

In two cases at Harare Central Hospital, both males with tuberculoid leprosy, where the ulnar nerves were explored surgically, one had multiple areas of caseation both within and surrounding the nerve from the wrist to the axilla; the other had several fusiform swellings above and below the medial epicondyle without caseous material.

Enna and Brand (1970) describing the surgical appearance of affected nerves in leprosy report "the presence of an area of cellular necrosis within which there is a continuity of collagen framework without caseation. This process may be focal or continuous, and may be located between fasciculi which are fundamental and intact. It may progress to the destruction of all tissue elements that the material becomes caseous. Following caseation a true abscess may form.

"When an abscess forms within the nerve trunk, it may either burst through the epinurium to produce a localized fusiform swelling, or it may migrate, extending a narrow tract that leads to a saccular swelling within adjacent soft tissue."

The basis of calcification of the peripheral nerves in leprosy may be therefore caseation, abscess formation and, uncommonly, deposition of calcium within or adjacent to the affected nerves. This process may be halted dependent upon host resistance, and the caseous material retained within the epineurium to become calcified, as in the case reported here.

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