

Case Report

A rare case of ulnar nerve calcification in a patient without Hansen's disease

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ABSTRACT

Ulnar nerve calcification is rarely seen without association with Hansen's disease. Ulnar nerve arises from brachial plexus within the axilla and is a major peripheral nerve of the upper limb. Its root value is C8-T1. It is one of the superficial nerves and is the most commonly affected nerve in leprosy. Our patient 52 years old female, came to Dr. D. Y. Patil hospital, Nerul casualty with a history of fall in bathroom and complaining of pain in right elbow with no neurological deficit. The radiological investigations confirmed a severely comminuted intra-articular humeral condylar fracture of the right side with a linear calcification seen in soft tissues near the ulnar nerve. It is an idiopathic ulnar nerve calcification of the right side. Hence, ulnar nerve calcification can also be seen in patients without Hansen's disease.

Keywords: Ulnar nerve, Hansen's disease, Calcification, Idiopathic

INTRODUCTION

Ulnar nerve calcification is rarely seen without association with Hansen's disease. Ulnar nerve arises from brachial plexus within the axilla and is a major peripheral nerve of the upper limb. Its root value is C8-T1. It is one of the superficial nerves and is the most commonly affected nerve in leprosy. The ulnar nerve is a terminal branch of the medial cord of the brachial plexus. It contains mainly fibers from the anterior rami of spinal nerves C8 and T1, but may sometimes carry C7 fibers as well.¹

From its origin, ulnar nerve courses distally through axilla, arm and forearm into hand. It is a mixed nerve and provides motor innervation to various muscles of the forearm and hand as well as sensory supply to skin of hand.

The ulnar nerve can broadly be described as the nerve of the hand, as it innervates the vast majority of the intrinsic hand muscles. It is one of the most clinically relevant nerves of the upper limb, due to its superficial course and clinically apparent role in hand function.

A study conducted in 74 TT/TB patients, with gross thickening of nerves together with nerve abscess, showed calcification in 8 patients.²

Compression of the ulnar nerve in the canal of Guyon is a well-recognised condition but we have not been able to find another reported case resulting from extrinsic pressure from calcium deposits at the wrist level. The causes of pathological calcification are briefly reviewed.³

Table 1: Brachial plexus.

Origin	Brachial plexus (C8-T1)
Branches	Muscular branches, articular branches, palmar cutaneous branch, dorsal cutaneous branch, superficial branch, deep branch
Supply	Motor
	Flexor carpi ulnaris and medial half of flexor digitorum profundus
	Most of the intrinsic hand muscles
	Sensory
	Anterior aspect of the ulnar 1½ fingers (little finger and half of the ring finger) and medial palmar skin
	Dorsal aspect of the ulnar 1½ fingers and medial aspect of dorsum of hand

CASE REPORT

Our patient 52 years old female, came to Dr. D. Y. Patil hospital, Nerul casualty with a history of fall in bathroom and complaining of pain in right elbow with no neurological deficit. The radiological investigations confirmed a severely comminuted intra-articular humeral condylar fracture of the right side with a linear calcification seen in soft tissues near the ulnar nerve.

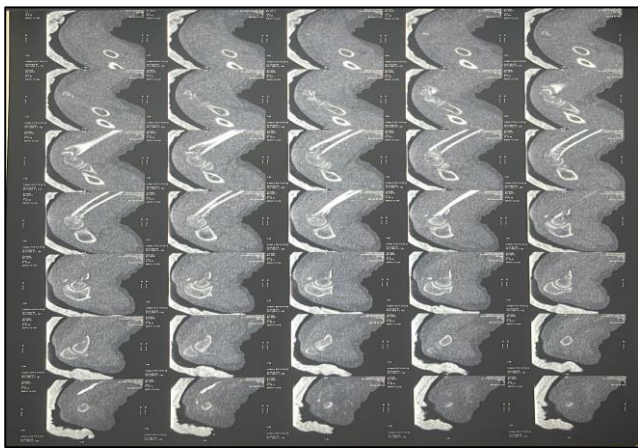


Figure 1: CT scan-distal humerus.

CT scan confirmed the calcification of the ulnar nerve. Ultrasonography finding is s/o a long segment ulnar nerve thickening with calcification in the inferior portion of the right arm.

Patient was taken up for open reduction and internal fixation with plating. The ulnar nerve was isolated. The ulnar nerve was hard and cord like for 3 cm suggestive of calcification in the ulnar nerve. It was an incidental finding.

Post-operative x-rays shows implant in situ with (plating and screws). There is persistence of the soft tissue linear calcification postero-medially which corresponds to the ulnar nerve calcification which was identified intra-operatively.

To rule out Hansen’s disease we have taken a dermatology opinion, patient has no symptoms at present and also do not give any history in the past or family history. On palpation of the opposite elbow there is no thickening of the ulnar nerve. No hypo-pigmented patches on the body.



Figure 2: CT scan-distal humerus.



Figure 3: 3D CT scan.

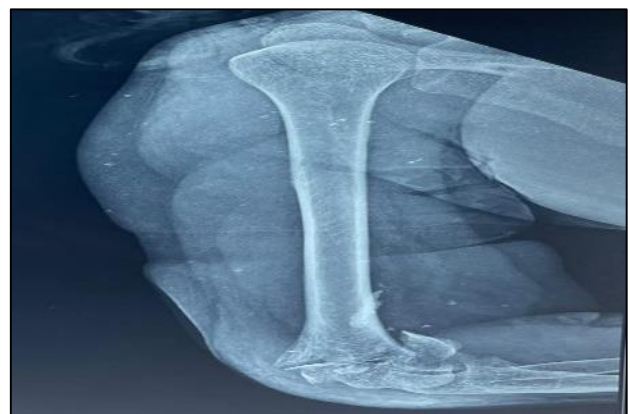


Figure 4: X-ray humerus ap.



Figure 5: X-ray elbow lat.



Figure 6: X-ray humerus lat.



Figure 7: X-ray elbow lat.

DISCUSSION

The radiological appearance of calcification of nerves has been described elsewhere by some workers. Floch et al described them as blobs consistent with calcification of old nerve abscesses; Trapne et al described it as widespread flakes without evidence of abscess formation.⁴

Contreras et al described their case as giving the "impression of a bony tissue and shedding off of particles which seem to be veritable sequestrae".⁵ 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.

Most of the literature regarding calcification of the ulnar nerve seem to stem from the leprosy, ours was probably a very rare case of the non leproae calcification of the ulnar nerve.⁶

Lowie observed that frequently a single nerve abscess is the only sign of active leprosy and that in many such cases the disease undergoes spontaneous arrest. He considered that abscess formation was associated with a substantial immunity, a finding supported by Campos.⁷ Browne 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 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 of "When an abscess forms within the nerve trunk, it may either burst through the epineurium to produce a localized fusiform swelling, or it may migrate, extending a narrow tract that leads to a sacular swelling within adjacent soft tissue."⁸ 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.

Though the cause of the calcification in our case is still not known, it would be wise to know that calcification of the nerve can exist independent of Hansen's disease.

CONCLUSION

It is a case of idiopathic ulnar nerve calcification. As the patient does not give any past history of Hansen's disease. No kind of skin lesion seen all over the body. Our case reports suggest that isolated ulnar nerve calcification may exist without the association of Hansen's disease. Hence more research and interest in this ulnar nerve calcification is required to know the etiologies behind isolated ulnar nerve calcifications.

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