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Case Report

Tardy ulnar nerve palsy after fracture non-union medial epicondyle of humerus – An unusual case

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ABSTRACT

Tardy ulnar nerve palsy is a chronic clinical condition characterised by delayed onset ulnar neuropathy. Typically tardy ulnar nerve palsy occurs as a consequence of non-union of lateral condyle in child resulting in cubitus valgus deformity which ultimately is the cause of ulnar nerve palsy. However very few literature are available for tardy ulnar nerve palsy as a result of old fracture of medial epicondyle without cubitus varus or valgus deformity. We report a rare case of tardy ulnar nerve in an adult male with fracture non-union of medial epicondyle of humerus.

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1. Introduction

Tardy ulnar nerve palsy is a chronic clinical condition characterised by delayed onset ulnar neuropathy. Ulnar nerve is vulnerable because of its curvature around elbow joint. Any pathological condition which alters the normal anatomy of the elbow joint can lead to stretching or irritation of the nerve. Various types of fractures around the elbow have been described by the early writers as the cause of late or tardy nerve palsy. Historically the first case of ulnar nerve palsy in the literature was reported in 1878 by Panas¹ before L'Académie de Médecine in Paris. Hunt² in 1916 applied the term 'Tardy Ulnar Nerve Palsy' to the late presenting ulnar nerve paralysis. Typically tardy ulnar nerve palsy occurs as a consequence of non-union of lateral condyle in child resulting in cubitus valgus deformity which ultimately is the cause of ulnar nerve palsy. It was first mentioned by Mouchet³ that, as a result of the cubitus valgus deformity, the nerve is compelled

to take a longer course around the olecranon process, over which it becomes stretched in the manner of a bowstring. Abnormal tension with repeated trauma during movement leads to tension neuritis and intraneural fibrosis. There are also reports of tardy ulnar nerve palsy developing cubitus varus deformity as a consequence of supracondylar fractures in children.^{4–8} However very few literature are available for tardy ulnar nerve palsy as a result of old fracture of medial epicondyle without cubitus varus or valgus deformity. We report a rare case of tardy ulnar nerve in an adult male with fracture non-union of medial epicondyle of humerus.

2. Case report

The patient is a 33 years old male who sustained injury to the left elbow due to fall on outstretched hand 18 years back. Patient was managed conservatively with above elbow cast for

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Fig. 1 – a – X-ray of left elbow with fracture non-union with hypertrophy of medial epicondyle. b – X-ray of normal right elbow.

45 days. He was asymptomatic till one year back when he started experiencing decreased sensation in left little and ring finger. It was progressive in nature resulting in development of motor loss in form of weakness in left hand. On examination there was sensory loss over the ulnar nerve distribution of left hand and weakness of ulnar nerve supplied muscles of wrist and hand. There was no cubitus varus or valgus deformity. A clinical diagnosis of ulnar nerve neuropathy was made. Nerve conduction velocity revealed ulnar neuropathy at the level of elbow joint. X-ray (Fig. 1a) and CT (Fig. 2) revealed fracture non-union of the medial epicondyle of left distal humerus. On comparison with normal elbow (Fig. 1b), there was significant enlargement of the medial epicondyle of the left distal humerus as a result of the fracture non-union. Surgical ulnar nerve exploration and epineurolysis with anterior submuscular transposition was performed. Intra-operatively, the ulnar nerve was found to be thickened at the cubital tunnel (Fig. 3).

3. Discussion

Tardy ulnar nerve palsy has a variety of etiological factors including old fractures around the elbow, arthritis, cyst of elbow, congenital anomalies, adhesion, recurrent dislocation of the elbow etc. However majority of cases are as a

consequence old fractures around the elbow, and more than half of which are due to fracture of the lateral condyle with resultant cubitus valgus deformity. Tardy nerve palsy can also result from cubitus varus deformity following old supra-condylar fracture of humerus. The cause of ulnar neuropathy are usually due to V-shaped kinking of the ulnar nerve, compression of the nerve by a fibrous band over flexor carpi

Fig. 2 – CT of (L) elbow showing fracture medial condyle.

Fig. 3 – a – Ulnar nerve thickening at medial epicondyle. b – Epineurolysis of ulnar nerve.

ulnaris and incongruity of elbow joint due to osteoarthritic changes. Tardy nerve palsy developing in patients with old fracture of medial epicondyle is very rare and no literature is available to the best of our knowledge. In our case the patient

had sustained elbow injury eighteen years back and symptoms of ulnar neuropathy appeared only one year back. Clinically there was no cubitus valgus or varus deformity which could explain the ulnar nerve palsy. However the radiographic examination reveals that the medial epicondyle of the affected elbow has enlarged due to non-union of old fracture. The enlarged cubital tunnel has probably caused abnormal stretching of the ulnar nerve as it has to traverse a longer distance, resulting in ulnar neuropathy over a period of time. This has been corroborated with our intraoperative finding in which the ulnar nerve was found thickened and fibrosed in the cubital tunnel.

Conflicts of interest

All authors have none to declare.

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