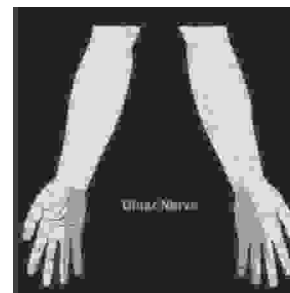


ORIGINAL

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## ULNAR NERVE; OCCUPATIONAL CAUSES OF COMPRESSION ACROSS ELBOW

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**ABSTRACT ...** [drsaeedq@yahoo.com](mailto:drsaeedq@yahoo.com) **Objective:** To determine the etiology of ulnar nerve compression across the elbow. **Design:** Retrospective and descriptive. **Setting:** At AFIRM Rawalpindi. **Period:** From Jan 2000 to Jan 2004. **Material & Methods:** 267 cases of Ulnar Nerve Compression at elbow diagnosed after electro-physiological studies were selected. Most of the patients with a variety of complaints were referred to Rehabilitation Medical Department, Rawalpindi (AFIRM) for diagnostic evaluation (NCS/EMG) and management. **Results:** Out of 267 patients 210(78.65%) were males and 57(21%) were females. The mean age was 35 yrs (Range 9-67yrs). Most of the patients 180(67.41%) had left sided Ulnar nerve compression at elbow where as 87(32.59%) suffered on Right side. The most common mode of presentation were paraesthesia 234(88%), pain 166(44%) and weakness of intrinsic hand muscles 104(27%). Electro-physiological evaluation shows prevalence of occupational 121(45%) and traumatic 51(21%) causes. **Conclusion:** Management of Ulnar nerve compression must include a comprehensive rehabilitation program that should focus on postural correction and workstation modification along with pharmacological and surgical advice.

**Key words:** Etiology, ulnar nerve, compression at elbow, occupation.

### INTRODUCTION

Ulnar nerve compression is the most common entrapment neuropathy after carpal tunnel syndrome. Ulnar nerve is more prone to be compressed at elbow, wrist and rarely at mid forearm. Ulnar neuropathy usually occurs due to chronic compression or stretch of the ulnar nerve. In the region of elbow, the ulnar neuropathy occurs either at ulnar groove formed by medial epicondyle of humerus and olecranon process of ulna or at cubital tunnel<sup>1</sup>. The compression at ulnar groove is mostly caused by external compression and repeated trauma along with rare causes like ganglions, fibrous bands and accessory muscles. At cubital tunnel<sup>4</sup> the

mechanical compression is the most common cause that may be due congenitally tight cubital tunnel or repetitive and persistent stretch during flexion of elbow<sup>6</sup>.

In contrast to other entrapment neuropathies motor symptoms including intrinsic muscle weakness in hands and atrophy are more common than sensory symptoms in ulnar neuropathy<sup>5</sup>.

The diagnosis of ulnar nerve compression across elbow is based on clinical examination and therefore patient presenting with signs and symptoms of ulnar tardy syndrome are referred for electro-physiological

evaluation. The nerve condition study helps in localization of the lesion and electromyography helps in determining the exact type of lesion and its subsequent management.

Most of the cases of ulnar nerve compression at elbow related with occupational factors that include bad posture, workstation incompatibility and nature of work.

The data from our country in this regard is scanty and this study provides us the opportunity to focus on occupational etiology of ulnar nerve compression at elbow and its subsequent management.

### MATERIALS AND METHODS

A total of 267 patients were included in the study after electro-physiological evaluation done at Armed Forces Institute of Rehabilitation Medicine, Rawalpindi (AFIRM) from 1<sup>st</sup> Jan 2000 to 31<sup>st</sup> Dec 2003. The data was recorded on a proforma that consisted of a detailed patient profile, history, clinical examination and electro-physiological studies.

### SAMPLING TECHNIQUE

Non probability convenient sampling

### INCLUSION CRITERIA

All electro-physiologically diagnosed cases of ulnar nerve compression at elbow.

### EXCLUSION CRITERIA

Patients with coexisting compression neuropathies other than ulnar neuropathy. Patients with other diseases like leprosy, Diabetes Mellitus, stroke or any other central pathologies.

### RESULTS

Out of 267 patients, 210(78.65%) were males and 57(21%) were females. The mean age was 35 yrs (Range 09-67 yrs). The age groups showed that diseases was more prevalent in 21-30 age range (Table I).

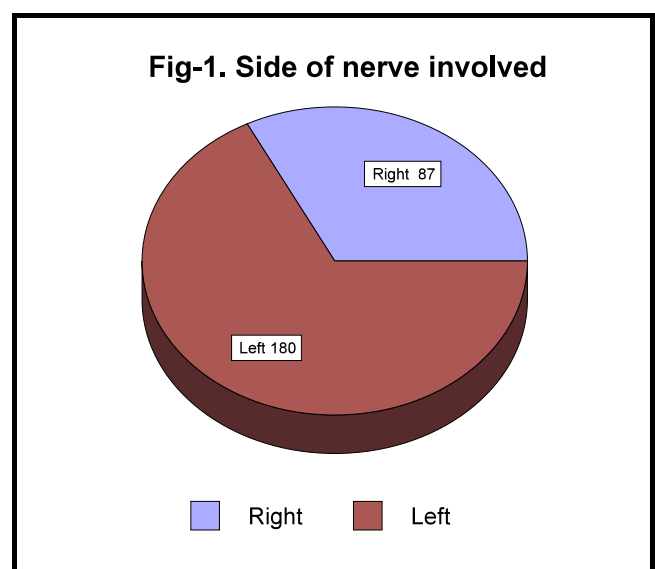
Most of the patients 180(67.41%) had left sided ulnar nerve compression at elbow where as 87(32.59%)

suffered on Right side (Fig 1).

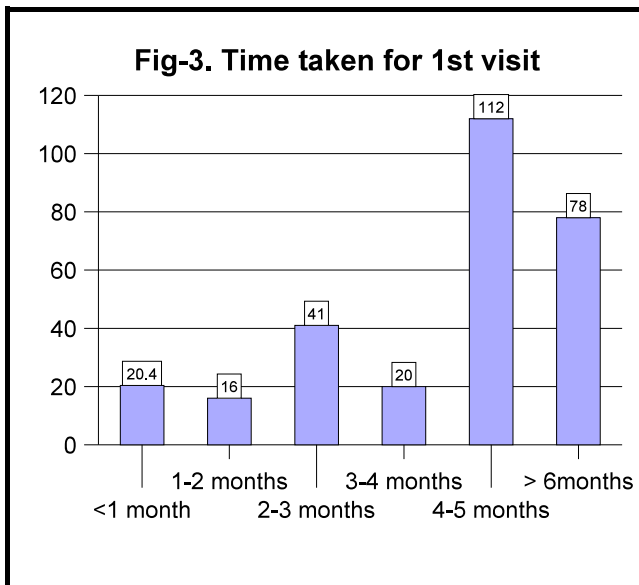
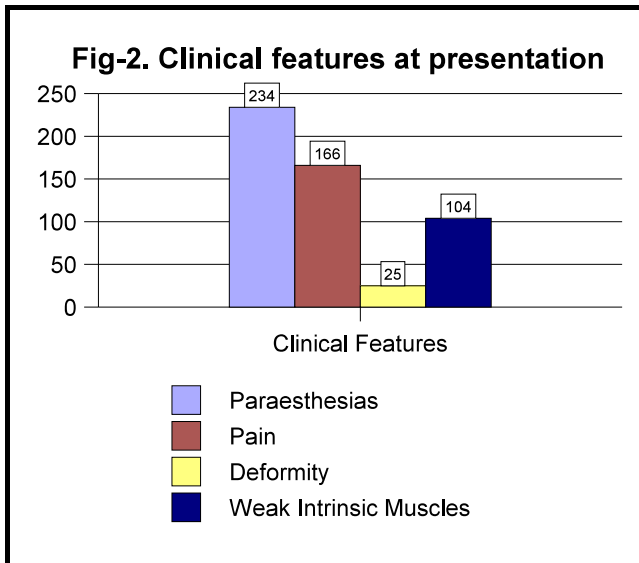
Age of Onset	No of patients
1-10	10
11-20	15
21-30	116
31-40	46
41-50	30
51-60	30
>61	20

The most common modes of presentation were paraesthesia 234(88%), pain 166%(44%) and weakness of intrinsic hand muscles 104(27%), whereas 25(9%) presented with deformity.

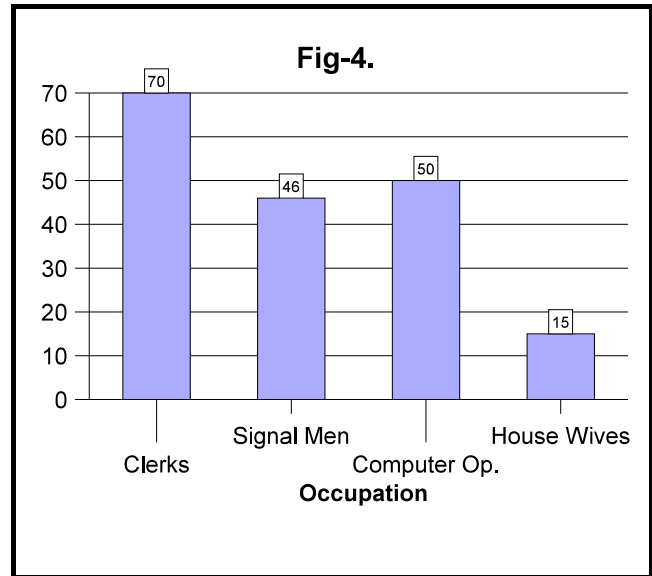
Electro-physiological evaluation showed prevalence of occupational 181(67%) and traumatic 51(21%) causes, whereas 03(1%) where due to iatrogenic injury after surgery at/near elbow and 03(1%) due to unknown cause. Time taken by the patients to visit the physician after start of signs and symptoms is shown in fig 3.



In this study it was found that 181(67%) cases had some relation with occupation. Out of 267 patients, 70(26%) were clerks, 46(21%) were signal/telephone operators, 15(5%) were housewives and 50(20%) were computer operators.



On the basis of electro physiological evaluation 132(49%) patients were advised to consult surgeon for operative management whereas 136(51%) were asked to follow a comprehensive rehabilitation for conservative management.



**DISCUSSION**

In our study the male to female ratio was 4:1 where as in other studies it is 2:1. The most probable reason for this difference is that most of the referrals were from military setup.

Most of the cases had left sided involvement that was contra lateral to the dominant side. This reflects bad posture with sustained flexion at elbow causing over stretching of ulnar nerve at elbow.

The disease was most common in third decade of life, showing that young age group is the major sufferer. The study also shows an average of 05 months of time after which the patient went for 1<sup>st</sup> visit to the physician for their problems. These factors show that in general young population<sup>3</sup> is careless and ignores the minor paraesthesias and this delay might ultimately lead to chronic damage to the ulnar nerve.

Regarding occupation this study shows that a large group was associated with occupational causes<sup>2</sup> of ulnar compression at elbow.

**CONCLUSION**

Management of Ulnar nerve compression must include a comprehensive rehabilitation program that should focus on postural correction and workstation ergonomic

modifications along with pharmacological and surgical advice.

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