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ORIGINAL ARTICLE

Surgical Decompression of Carpel Tunnel Syndrome:

LIAQAT ALI, MOHD ISRAR, NISAR ALI
Mohd Ismail
Saidu Teaching Hospital, Saidu Sharif, Swat

ABSTRACT

Objective: *To study the out come of surgical treatment of carpel tunnel syndrome, and to evaluate symptomatic improvement.*

Material & Methods: *This study was conducted in the department of neurosurgery saidu teaching hospital, swat from January 2006 to December 2007.All the patients were randomly selected irrespective of their age and sex from neuro surgical out door clinic. Patients responded to conservative treatment were excluded from the study. The age range was from 20-70 years. A total of 83 patients were included in this study. 72 (8.6.74%) were females and 11 (13.25) males.*

Results: *83 patients with age ranging from 20-70 years, 72 (86.74%) females and 11 (13.25) males (6.5:1) were subjected to surgical decompression 30 (36.14%) patients had bilateral carpel tunnel syndrome. Excellent result were obtained in 71 (85.54%) patients, good in 9 (10.84%) while 3 (3.6%) patients had poor response.*

Conclusion: *Surgical decompression is more effective than conservative treatment.*

Key words*: Carpel tunnel syndrome (CTS) surgical decompression.*

INTRODUCTION

Carpal tunnel syndrome is a painful, progressive condition, caused by median nerve compression when it passes through the fibro osseous canal at wrist joint with in the unyielding space known as carpal tunnel.[1,2] Most of the patients were in 3rd to 6th decades of their life.[3]

It is much more common in female than male,[4] the patient involved in repetitive manual work are the common sufferer. Pregnancy, obesity, diabetes, myxoedema, gout, ganglion, lipoma and aberrant tendon have some casual relationship with carpel tunnel syndrome.[5]

Clinical presentation is pain and paraesthesia in the distribution of median nerve, worse in the late mid night [6.] Patients get some relief by hanging or shaking theirs hand. Examination may revel paraesthesia in the distribution of median nerve with weakness of thennar muscles.

Positive **tinnel sign** and **pahalen sign** is highly suggestive of carpal tunnel syndrome.[7]

Nerve conduction studies are of help to confirm the diagnosis. **Magnetic resonance imaging** can reveal the anatomical details, median nerve compression Treatment options are conservative, in the form of splintage, local steroid and mass lesion.

Treatment options are conservative, in the form of splintage, local steroid injection NSAID, etc but positive results were achieved with surgical decompression.

MATERIAL AND METHODS

This prospective study was conducted in neurosurgical unit of saidu teaching hospital swat, from January 2006 to December 2007.

A total of 83 patients were selected, based on clinical presentation, evaluated clinically through positive **tinnel's** and **phalen test** with evidence of **thenner muscle wasting**. **Nerve conduction study** was carried out in all the patients, showing evidence of median nerve compression at wrist.

Surgical Technique

All the patients were subjected to surgical decompression, 77 subjects were subjected to local anaesthesia

(LA) and 6 subjects were given general anesthesia (GA, in apprehensive patients) under tourniquet control. After skin preparation and dropping, a curved incision was extended up to the proximal skin crease at wrist. The skin subcutaneous tissue were incised, the carpel ligament identified and divided along its ulnar border.

Wound (skin only) closed with interrupted 2/0 prolene. Volar splint applied for two weeks stitches were removed on 10th postoperative day.

Prophylatic antibiotics and postoperative analgesics were given to all the patients, and were followed periodically for upto 12 months and the results obtained.

RESULTS

A total of 125 hands of 83 patients were operated for established carpel tunnel syndrome. Out of 83 patients, 72 were females and 11 males, the mean age was 40 ± 15 in female and age 45 ± 15 in male. In female 40 (n = 72) were suffering from bilateral CTS and 32 had unilateral symptom. In male (n = 11) 9 patients has one symptomatic hand and both hands were involved in 2 patients.

125 hands among 83 patients were operated for the release of carpal tunnel under local anesthesia in 77 patients and 6 patients were operated under GA (patients preference) with surgical decompression.

There were wound infection in 3 patients and those were treated with appropriate antibiotics, daily anti septic dressing. Postoperative pain was mild to moderate reported in all patients, which was treated with oral analgesic for 2 days. Two patients one from each gender presented with the same symptom after 4 months in follow up study.

Table 1: *Sex, age and side involved.*

Sex	Female (%)	Male (%)
Total number	72 (86.74)	11 (13.25)
Mean age	40 ± 15	45 ± 15
Uni lateral	32 (38.55)**	9 (10.84)
Bilateral	40 (48.19)**	2 (2.40)
Thennar atropy	12 (14.45)**	2

Values were give mean ± SEM *p ≤ 0.05, **P ≤ 0.01.

Two female patient presented with hypertropic scar. All the patients were followed for one year. Sensation improved in 10 weeks in 81 patients, nocturnal pain disappears in one-week in all patients, excluding two cases of recurrence. Reasonable grip strength was obtained in one year. All of 14 with hands thenner muscle atrophy showed symptomatic relief, but recovery of wasted muscle was very slow in most of the cases. Out of 83 patients 75 were satisfied from the results.

Table 1 shows the comparison of unilateral, bilateral and thenner atrophy between male and female.

Table 2 shows comparison of complication between male and female subjects.

Table 2: Complication.

Sex	Female (%)	Male (%)
Recurrence	01 (1.20)	01 (1.20)
Nerve	0	0
Hyper tropic	02 (2.40)**	0
Wound Infection	03 (3.61)**	0

Values were give mean ± SEM *p ≤ 0.05, **P ≤ 0.01.

DISCUSSION

In our study out of 83 patients 72 (86%) were female, majority of patients with carpal tunnel syndrome (CTS) are female population in most of published studies.[1,3.8-10]

M.shabir[11] has shown female to male ratio 7:1 and age range of 30-60 years, which is comparable with the age range of our study. In other studies CTS was reported four times more common in women.[7]

Phalen test, tunnels sign and nerve conduction study (NCS) were positive in 90%, 35% and 95% cases respectively which was similar to studies of Bruskei etal and Wee etal.[11] The significant intra operative

Finding in all patients in our study was thickening of the **transverse carpel ligament** and narrowing of the canal. These intra operative finding were observed by lee etal and karaeminoguller etal too.[12,13]

Symptomatic relief was seen in all patients after surgery. NCS is a gold standard investigation for diagnosis of CTS but negative NCS does not exclude median nerve compression. It is said that release operation can be performed in the presence of symptoms and it is not necessary to perform NCS in all patients.[14]

In this study we performed surgical decompression of the median nerve. The most common treatment in

CTS is surgery, which consist of **division** of the **transverse carpel ligaments**.[5]

American academy of neurology advises non-invasive treatment first and using **steroid injection** or open CTS release only if non-invasive treatment is ineffective.[16]

Most authors agreed on early surgical decompression, because conservative treatment gives symptomatic relief and prolongation of conservative treatment can cause further damage to the median nerve.[17] Complication are not uncommon following open or endoscopic surgical technique.[18]

Major complication in either technique includes nerve laceration, vessel lacertian and tendon laceration.[19,20] In our study these complications were not experienced. Incomplete release of carpel ligament is reported to be the most common complication of endoscopic C.T.S release.[21] Such complication in open release was not observed. Loss of grip strength and tenderness of the scar following open carpel tunnel release tend to resolve in time.[22]

Address for Correspondence:
Dr. Liaqat Ali
Consultant Neurosurgeon
Saidu Teaching Hospital Swat.
Cell: 0334-8954248

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