



MINI OPEN RELEASE OF CARPAL TUNNEL SYNDROME: AN UPCOMING TREND

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KEYWORDS :

Introduction

Carpal tunnel syndrome is a complex disorder associated with localized compression of the median nerve at the carpal tunnel. It is an important cause of pain, neurologic symptoms and functional limitation of the wrist and hand. It is considered the most common nerve compression disorder of the arm.

Carpal tunnel Syndrome is the result of compression of the median nerve within the carpal tunnel and is the most common compressive neuropathy¹. Patients present with a constellation of symptoms including numbness and tingling of the hand in the distribution of the median nerve, nocturnal parathesias as well as weakness and atrophy of the thenar muscles.

Non operative modalities is preferred in the early stages of the disease. Advanced stages with persistent clinical features need a surgical release from the compression. Surgery offers an effective way of treating the condition. Various techniques such as Standard open carpal tunnel release, limited open technique and endoscopic release have been used.

Endoscopic procedures have been widely performed to decrease post operative morbidity and to accelerate patient recovery, however it may lead to incomplete retinaculum division and showed to have increased percentage of symptom recurrence. Thus in this study we aim to evaluate the safety, effectiveness and recurrence rate of mini opening technique when compared to the open limited incision technique.

AIMS AND OBJECTIVES OF THE STUDY

The aims and objectives of the present study were as follows :

- To compare immediate post operative pain and to evaluate the short term complication of mini open versus open carpal tunnel release.
- To compare the effectiveness and long term outcome of mini open versus open carpal tunnel release.

MATERIALS AND METHODS

This was a prospective comparative study that was conducted for a period of 15 months from May 2016 to August 2017 which included 60 consenting patients who presented to the orthopedic department of Father Muller Medical College and diagnosed as having carpal tunnel syndrome.

METHOD OF COLLECTION OF DATA:

The patients included in the study were divided into 2 groups by random selection using lottery method. The patients in Group 1 underwent Mini open blind technique while the patients in Group 2 underwent open Carpal tunnel Release. The researcher who took the post operative assessment was blinded to the procedure used . Post operative pain assessment was done on day 1 performed using the Visual analog scale.

Short term complications of both techniques were evaluated including injury to median nerve assessed by physical examination. Post operative infection, skin gaping and cosmetic satisfaction of both procedures were compared. Return of physical activity and recurrence of symptoms were evaluated on 1 month and 3 month follow up.

RESULTS AND OBSERVATIONS

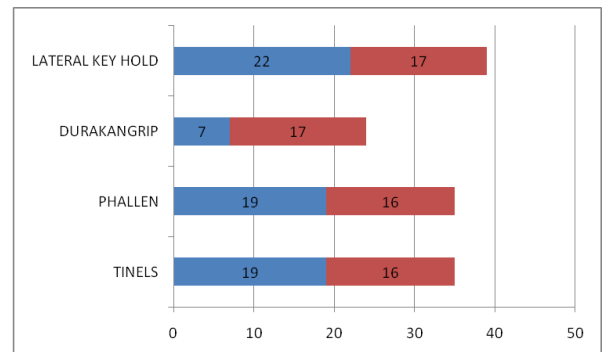
AGE AND GENDER DISTRIBUTION: In our study there was no

statistical differences in the age in the two groups hence the two groups were comparable with respect to age distribution. The overall age in our study was 49.5 years and most cases were females (47 of the 60 cases)

OCCUPATION and BMI

27 of the 60 cases studied were home makers .22 of these home makers had a history of working from home doing data entry. 47 of the 60 cases studied were either overweight or obese

CLINICAL SIGNS IN MINI VS OPEN



The above table and graph show the clinical signs in the cases at the time of pre operative surgical evaluation

The improvement in the daytime pain following surgery was evident immediately post op and in the first follow up , the improvement was significantly better in the mini group as compared to the OCTR group. But compared to pre operative, the pain was lesser significantly on the first follow up in both the groups

The improvement in the daytime numbness following surgery was significantly better in the mini group as compared to the OCTR group. But compared to pre operative the daytime numbness was not significantly decreased on the first follow up in both the groups

The improvement in the numbness at night causing the patient to awaken following surgery was evident immediately post op and in the first follow up , the improvement was significantly better in the mini group as compared to the OCTR group. But compared to pre operative, the numbness night was lesser significantly on the first follow up in both the groups

DISCUSSION

We found that the mean age of development of carpal tunnel was 49.8 years, which is comparable to Shreejith et al² which showed that the mean age was 55 years; Nathan et al noted high incidence of carpal tunnel syndrome in females. This is similar to our study. Nathan et al noted high incidence of carpal tunnel syndrome in overweight people. There was a direct relationship of BMI with that of the development of carpal tunnel syndrome in our study. Brian et al were the first to implicate occupation as a causal factor in CTS. Studies have shown a higher incidence of CTS in workers who are involved in high force and repetitive work compared to workers who are not, in our study³ There was a direct relationship of the development of carpal tunnel syndrome

with the computer use. Bilateral involvement was common in those with computer use and housewives.⁴This is in contrast to the study by Nathan et al who did not find an obvious relationship between the incidence of carpal tunnel syndrome and repetitive work.⁵

In Kendall's series of 327 patients, 313 (95.7%) reported paresthesia; 118 (38%) reported nocturnal symptoms only, 178 (58%) reported symptoms during the day and night, but worse at night, and 17 (5%) reported symptoms during the day only⁶. In the Yamaguchi et al series, 99% of the 433 surgical patients reported paresthesia⁷. In Kendall's series of 327 patients, 313 (95.7%) reported paresthesia; 118 (38%) reported nocturnal symptoms only, 178 (58%) reported symptoms during the day and night, but worse at night, and 17 (5%) reported symptoms during the day only⁶. In the Yamaguchi et al series, 99% of the 433 surgical patients reported paresthesia⁷. These are comparable to our study. Almost all cases had pain in the study the night tingling and numbness was seen only those who had severe carpal tunnel syndrome.

In our study that all parameters showed significant improvement in both the groups except for daytime numbness which improved over time. this was comparable with studies which showed similar findings like Murthy, Praveen G.et.⁸ who found significant differences between the two procedures with regard to patient rated symptom severity or functional status outcomes were found. Both techniques were demonstrated to be effective treatment options for severe CTS.

In the open group the pain related to the surgical site needing analgesia was more.

A strength of this study is that it presents a large cohort of severe CTS patients were studied

CONCLUSION

Carpal tunnel syndrome remains one of the most well known and frequent form of median nerve entrapment and this study has shown that the recent modalities in the treatment of Carpal tunnel syndrome that is minimally invasive surgery (mini open technique) has a better outcome and post operative morbidity in terms of incision site pain, post operative complications and the surgical scar when compared to open surgeries and is hence gaining fast popularity amongst surgeons in the present era.

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