

Intraoperative Steroid Irrigation in Carpal Tunnel

***Sabah Hassan Naji FICMS**

Abstract

Background: Carpal tunnel syndrome (CTS) is the most common neuropathy of the upper limb due to compression of the median nerve at the wrist.

Objectives: to test the benefit of steroid irrigation of the wound to alleviate the post operative pain.

Methods: Forty patients had carpal tunnel release were divided into two groups with and without steroid irrigation.

Results: Forty patients 38 female and 2 male with forty CTS had open surgical release were studied for postoperative pain at the wrist area.

Group 1 (patients treated with surgery alone) and group 2 (patients treated with surgery and steroid). In group 1, 11 patients (55%) had persistent agonizing pain at the ulnar side of the wrist not responding to analgesic. In group 2 none of the patients experienced such type of pain.

Conclusion: Steroid irrigation has beneficial effect on post operative pain with no added drawbacks.

Keywords: carpal tunnel syndrome, steroid, neuro physiological evaluation.

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Introduction

CTS is the most common progressive neuropathy of the upper limb caused by compression of the median nerve within the carpal tunnel (CT) ^(1,2). It occurs about 3.7% in adult population ⁽³⁾. More common in women in the age group of 40-60, and may be bilateral the clinical presentation is painful parasthesia and or burning pain at the median nerve dermatome of the hand [4], with atrophy to some degree of the median nerve innervated thinner muscles in half of the patients ⁽⁵⁾. Median nerve is prone to injury and compression at wrist level because of its location within a constricting tunnel. CTS can be secondary to other conditions but idiopathic CTS are the most common modality. It can be diagnosed clinically and by neurophysiologic study which is helpful in 90% of the cases ^(6,7). Surgical release of the carpal retinaculum to decompress the median nerve underneath is the standard treatment with good results, however few patients have postoperative agonizing pain at the area of wrist in spite of successful release and disappearance of the primary symptoms; some time called pillar pain which is found in About 68% of patients following carpal tunnel (CT) decompression, this pain remained of unknown pathology ⁽¹⁾.

Local steroid injection in the carpal tunnel is alternative methods to surgery for temporary relief of symptoms, also the use of steroid in laminectomy reduce the postoperative back pain ^(8,9). Based on this information R Padua from Italy used steroid irrigation of the median nerve after release of carpal tunnel to treat post operative wrist pain with good results. The aim of this study is to test the efficacy of local steroid irrigation of median nerve to reduce the post operative pain after carpal tunnel decompression in our hands.

Methods

In our prospective study we evaluated a total number of 40 patients with CTS in AL-Wasiti Teaching Hospital from January 2009 to January 2010, 38 patients were women and 2 patients were men, Their age ranged from 25-50 years (mean age 38.5 year). All patients had open CT release, the patients were divided into two groups alternatively on presentation group 1 and group 2, in group 1 release of the flexor retinaculum were done, in group 2 release of the flexor retinaculum plus irrigation of the wound by 40mg of methylprednisolone acetate for one minute before closure of the wound.

Operative technique: All operative procedures were done under general

anesthesia and prophylactic antimicrobial single shot of cefatoxime one gram I've prior to induction was given, pneumatic tourniquet applied above elbow after exanguation. A curved skin incision ulnar and parallel to the thinner crease and extended to flexor crease of the wrist were performed and all patients underwent complete division of the ulnar side of transverse carpal ligament. After release of tourniquet complete homeostasis was done, and before skin closure in group1 the wound was irrigated with normal saline, and in group2 the wound was irrigated with methylprednisolon acetate 40mg (Depomedrol) solution for one minute, in both groups the only skin was sutured only 4-0 silk and no drain left and padded dorsal rigid splint applied on the

Post operative follow up

Patients seen at the first week for dressing change and on the second week to remove stitches and splint, then every month for six months. General condition of the patients and improvement of median nerve condition and assessment of pain at the wrist are noted and registered. neuro physiological studies of median nerve

done on the third and fifth visits. All examinations and nerve studies were done by the same team.

Results:

Forty patients 38 female and 2 male with forty CTS had open surgical release were studied for postoperative pain at the wrist area. group1 (patients treated with surgery alone) and group2 (patients treated with surgery and steroid). In group1, 11 patients (55%) had persistent agonizing pain at the ulnar side of the wrist not responding to analgesic. In group2 none of the patients experienced such type of pain. In both groups symptoms of median nerve compression were relieved and the results of neuro physiological studies returned to normal levels, and all patients in both groups had uneventful healing of the wounds with no infection or healing complication.

In our study we used a chi-square test for comparison between group1 and group2 the result was significant ($P < 0.05$), as shown in the table below:

Number of cases observed	Number of cases with pain
Group1 (20)	11
Group 2 (20)	0

Discussion

Surgical decompression of median nerve at the wrist is commonly accepted as a definitive cure for CTS⁽¹⁰⁾. We tried to evaluate our work with other studies and surprisingly the literatures were deficient in studies about steroid irrigation in CTS release. One of clear works was that of MR. Pauda 2002⁽¹⁰⁾. in which he studied 20 patients for short period follow up of two months, but in our study we evaluated 40 patients with a follow up of six months which gave us a better conclusion. As far as the post operative pain in our study as compared with R. Padua study, the results in improvement of post operative symptoms in group2 of patients who received, and there was no wound complications or any drawback in both

groups of the patients steroid irrigation, this results with the results of R. Padua study, however in a study of small group of patients by MR. Hanssen at 1989^(11,12). several wound infection were attributed to steroid irrigation in their patients who did not received prophylactic antibiotic, one of this occurred in our patients although a single dose of prophylactic antibiotic were used. In all our patients the improvement in symptoms and function of median nerve was progressively improving equally both clinically and by neurophysiologic studies.

Conclusion

Our study provides clear evidence of the benefit of steroid irrigation with carpal tunnel release in median nerve compression this to alleviate the post

operative pain at the wrist area irrespective of improvement of median nerve compression, the disappearance of pain early comfort post operatively helped in earlier regaining of hand function and without any drawbacks.

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**From the Department of m Specialist plastic and reconstructive surgeon AL-kind teaching hospital, Baghdad; Iraq*

Correspondence Address to :Dr. Sabah Hassan naji

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