



A comparison between surgical modality versus local injection for carpal tunnel syndrome (CTS) in many cases-prospective study

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Abstract

In our research we proved that the surgical modality is a suitable method for Carpal Tunnel Syndrome (CTS) as compare with a local injection in 300 cases-prospective study. About (150 cases) were treated by surgical release compared to local injection method that represented by the use of (Xylocaine plus steroid triamcinolone 40 mg) with samples were taken from AL-Husain medical city at the period (from July 2015 to January 2023). only two cases developed to complex pain regional syndrome, two cases superficial skin infection in diabetic cases and only single case continue pain despite release, while injection cases group develop (90%) has pain relief, and (8%) has no improvement at all and go for surgical release.

Keywords: surgical modality, local injection, CTS, prospective study

Introduction

Carpal tunnel syndrome generally occurs because of the effect of pressure generated on part or all of the median nerve. The carpal tunnel define as the specific passages that is related with the bone and ligament on one side of the hands palm, and if there is pressure on the median nerve, certain symptoms appear, which are numbness and tingling, in addition to weakness in both the hand and arm together. So, the CTS is occurs by some of the anatomical features of the wrist and health problems, including constantly repetitive hand movements. Often the appropriate treatment reduces the patient's feeling of tingling and numbness and thus restores the function of the wrist and hand. The carpal tunnel syndrome is a neuropathy that occurs frequently among people, and it is its occurrence in the upper extremities that is most common among people, affecting more than 3% of the general adult population [1]. Several large cohort studies indicate that vigorous hand exertion is the most important and influencing factor in the onset of CTS and therefore its development in workers in particular [2]. The main and general symptoms appear in the form of pain and numbness in the thumb, as well as the index and middle fingers, as it happens in the thumb side of the ring finger. We can say the symptoms often start during the evening periods, and the pains develops and extends to the arm completely. Weakness occurs in the hand grip in particular, then the pain start in the muscle in the base of the thumb may atrophy. The two sides are often affected in more than half of all cases [3, 4]. Among the most important risk factors are obesity, pregnancy-case, and rheumatoid-arthritis. There are preliminary evidences that hypothyroidism increases the risks as well. It is not clear whether diabetes plays a role in this disease. While taking birth control pills cannot be considered a risk factor. Among the types of work associated with CTS is the use of computers, repetitive work with vibrating-tools, in addition to work which needs a strong-grip in its performance. The suspicion of the diagnosis is based on the salient signs and

symptoms, physical tests specified by the physicist, and may be further confirmed by electrodiagnostic tests. But if there is atrophy of the muscles at the base of the thumb, the diagnosis is most likely to be carpal tunnel syndrome [5]. Physical activity can reduce the risk of developing carpal tunnel syndrome, and symptoms can be improved and the impact of the disease reduced by wearing a wrist splint, or by using corticosteroid injections. While the use of non-steroidal anti-inflammatory drugs or gabapentin did not show any benefit in this area. Surgical treatment by transverse cutting of the carpal ligament is an effective treatment method, and its results are good compared to other non-surgical options, and there is no need to use splinting after surgery.

Methods

150 cases was treated by surgical release compared to local injection with Xylocaine plus steroid (triamcinolone 40 mg) at AL Husain medical city from July 2015 to January 2023.

Result

All surgical improved for long term result apart from 2 cases develop complex pain regional syndrome, 2 cases superficial skin infection in diabetic cases and only single case continue pain despite release, While injection cases group develop 90% 3-6 months pain relief, 8% no improvement at all and go for surgical release.

Table 1: to show the questionnaire for the distribution of cases on which the research study was conducted according to the results obtained:

All prospective study cases.	300
Surgical release treated cases.	150
Injection group developed cases.	145
Cases with developed to complex pain regional syndrome.	2
Superficial skin infection in diabetic cases.	2
Case continue pain despite release.	1

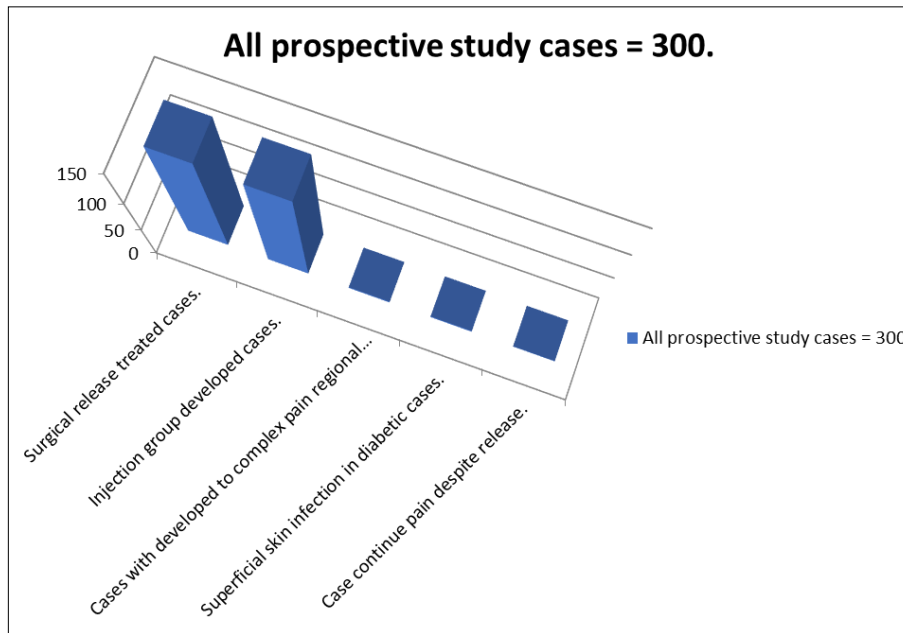


Fig 1: to show all cases, with details.

Discussion

Transverse carpal ligament release can be defined as (carpal tunnel release) surgery. This is recommended when there is a constant state of numbness (not just intermittent), and in the event of muscle weakness and atrophy, or when the night splint no longer controls or relieves symptoms. The surgery can be performed using local anesthesia without sedatives, or under the influence of general anesthesia for the patient. In general, the condition can be controlled if it is mild for a period of months, and even cases that reach a full year. But severe cases in which the symptoms are very painful and severe often need surgical treatment, so surgery is more beneficial to relieve symptoms that appear as a short-term onset for a period of up to six months from the date of wearing orthotics. On this basis, surgery and wearing a brace have the same results in relieving symptoms in the long term, which ranges from 12-18 months [6, 7, 8]. It is necessary to perform surgical intervention for such cases, and the proof of this importance is the comparison that was made between surgical intervention therapy and the use of other methods of all kinds, as shown in table no:1, which illustrates patients number that represented by 300 prospective study cases divided by: surgical release treated cases, injection group developed cases, cases with developed to complex pain regional syndrome, superficial skin infection in diabetic cases, case continue pain despite release (150, 145, 2, 2, 1) respectively. The difference between these results very clear, it show preference of surgical release treated cases related with others as shown in figure no:1. There is a caveat by practitioners that physiotherapy like myo-fascial release may take weeks of continuous applications for the effective treated of CTS. And some claim that it is one of the methods that helps to reduce the tension of the wrists, which relieves wrist-pain and pressure on it, in order to be there more comfortable for the hand [9, 10]. Most people recover from carpal tunnel symptoms with surgery, while chronic, long term CTS that usually appears in the elderly leads to permanent nerve damage, permanent, irreversible-numbness, muscle-atrophy, and weakness. It is common and known that cases that undergo carpal tunnel liberation surgery are almost twice as

likely as those that are treated non-surgically to the possibility of complications and infections in the stenotic tendon sheath in the months following the procedure. In general the results are good, and some things can participate in the results of the surgeries that are performed, especially those related to some extent to nerves, anatomy, or any type of surgery. However, some studies have shown that the effect of psychological state, as well as alcohol use, leads to poorer overall treatment outcomes [11, 12]. The recurrence of carpal tunnel syndrome after successful surgeries is rare in any case. But if a person has hand pain after surgery, it is more likely that it is not caused by carpal tunnel syndrome, but by another reason [14, 15, 16]. Carpal tunnel syndrome affects anyone of all ages, and it represents about 90% of all nerve compression syndromes that occur in general. For example, in the United States, 5% of people suffer from the effects of carpal tunnel syndrome. While Caucasians have the highest risk of developing carpal tunnel syndrome compared to other races, such as non-whites who live in South Africa. Women suffer from carpal tunnel syndrome more than men, with a ratio of 3:1, and the ages range between 45 and 60 years. Only 10% of cases occur in people younger than 30 years old. On this basis, increasing age is a risk factor [17, 18]. Sometimes other similar conditions are misdiagnosed as carpal tunnel syndrome. Here, we rely on the diagnosis of the history of the disease, and the physical examination is an indication that the condition is carpal tunnel syndrome, and patients are sometimes subjected to an electrical diagnostic test with nerve conduction testing, and electromyography as well. The aim of the electro-diagnostic test is to compare the speed of conduction in the median nerve with conduction in other afferent nerves of the hand. When the median nerve is compressed, as in carpal tunnel syndrome, conduction will be slower than normal, and slower than other nerves. There are also many electromagnetic tests that are used in diagnosis, but the most sensitive test, and the closest specialty, which can be relied upon is the common sensory indicators test (known as the Robinson index). The reliance of the electro-diagnostic on showing poor conduction of the median nerve through the carpal tunnel in the context of

normal conduction in other places [19, 20]. The pressure applied to the hand damages the myelin sheath, and this is manifested by the observed slowing of conduction velocities. So, the electro-diagnostic studies don't rule out the occurring of CTS, because the impulses must reach the threshold for nerve injury. Study results are abnormal. CTS related to the normal results of an electro-diagnostic test is very mild and unreliable in most cases. The role of (M.R.I) and ultrasound methods diagnosed of CTS aren't good, and aren't recommended methods [21, 22].

Conclusion and Recommendation

We conclude through our research that the comparison between the treating by (CTS) with surgical operations is safe and sound compared to other treatment methods, provided that the diagnosis is accurate and reliable in any case for all ages, provided that there are no other complications that negatively affect the case Doing surgeries instead of others. It should be noted that the proposed healthy habits such as avoiding repetitive stress, working with comfortable equipment (and the wrist resting place in the mouse pad may be very harmful and cause carpal tunnel syndrome), so appropriate breaks and breaks must be taken, in order to prevent the occurrence of carpal tunnel syndrome No role for taking B-Vits in prevention or treatment CTS has been demonstrated.

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