



# CARPAL TUNNEL SYNDROME

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## INTRODUCTION

**C**arpal tunnel syndrome (CTS) is a type of compressive neuropathy of upper limb. It is one of the common condition seen at orthopaedic clinics. Common presentations of pain, numbness and tingling sensation over hand can be due to carpal tunnel syndrome. This condition is caused when one of our main nerves to the hand, the median nerve is compressed at the level of our wrist.

## ANATOMY OF CARPAL TUNNEL

Carpal tunnel is a passage or a tunnel at the level of our wrist. It is surrounded by the wrist bones at the base, and a strong tissue called transverse carpal ligament as its roof. Few structures pass through this carpal tunnel, which includes tendons which move our fingers and the median nerve. If the space or size of carpal tunnel is compromised, this will cause compression of the median nerve.

## WHAT ARE THE SYMPTOMS OF CTS

Common presentation is numbness and tingling sensation over the hand especially over the thumb, index, middle and ring finger. Initially, the numbness may present occasionally, but the

frequency of numbness may worsen as it progresses.

Symptoms may be worse at night during sleep. This is because we tend to keep our wrist bent during sleep. Symptoms of numbness or tingling sensation can be aggravated when doing things which need us to flex our wrist, for example when holding a book or

newspaper or even during driving. A lot of times, some relief is felt by shaking hands.

If left untreated, the symptoms may progress to muscle weakness where clumsiness is felt at hand. We may drop things frequently due to the weakness. In more severe cases, muscle wasting can be seen at the base of the thumb.

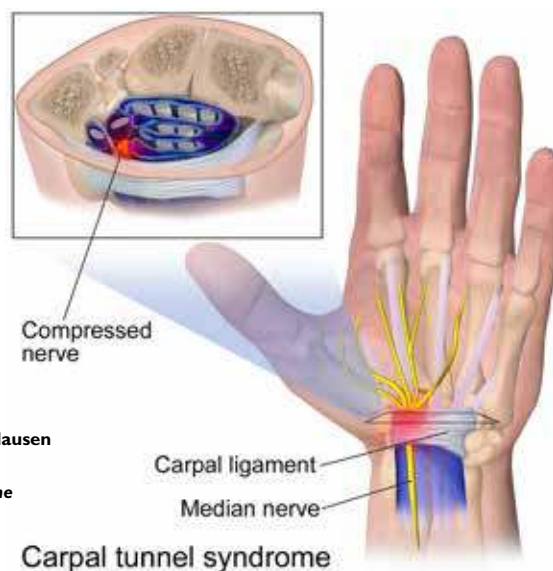


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## SYMPTOMS OF CTS

- Feeling of numbness or "pins and needles" in the fingers and gets worse at night
- Hand weakness
- Swollen feeling in the fingers
- Difficulty in gripping objects with the hand
- Burning/tingling of the thumb, index and middle fingers
- Difficulty making a fist

## Did you know

People engaged in repetitive motions throughout their day may suffer from CTS

### HOW IS CTS DIAGNOSED

The doctor will ask you a series of questions about your symptoms and the progression. During the evaluation, the doctor will examine to confirm the diagnosis as well as assess the severity of it. Assessment of the sensation of the hand will be done as well as testing the motor power of the thumb and fingers.

Following doctor's examination, a few investigations can be done to confirm the diagnosis further. The most common investigation done is nerve conduction study which measures the signals conducted by the median nerve over the forearm and hand. This can determine the severity of carpal tunnel syndrome. Other less commonly done investigations include electromyogram, x-ray and MRI.

### WHAT ARE THE TREATMENT OPTIONS?

It is important to start treatment early as the carpal tunnel syndrome worsens over time if left untreated. Initial treatment comprises of nonsurgical treatment. If early diagnosis is made and early treatment started, nonsurgical treatment generally gives good results.

#### ACTIVITY MODIFICATION

Activities and work that aggravates the symptoms need to be identified and modified. In general, an activity which keeps the wrist in the same position

for a prolonged time, or activities which keep the wrist in flexion/bend may worsen the symptoms.

Use of computers/ laptops, power tools are among the common job activities that may worsen the symptoms. Modification of the use of these tools as well as frequent rest or wrist exercises in between will benefit.

#### BRACES

Braces are usually used for a couple of weeks depending on the severity and the rate of recovery. The braces are worn to keep the wrist in a neutral position or a more relaxed position for the wrist. Braces can be worn at any time especially important to wear it at night. In some cases, by wearing even during day at work will be useful.

#### MEDICATION

Medication such as NSAIDs are often prescribed by the doctor. The medication reduces pain as well as it may relieve some of the symptoms of numbness by reducing the inflammation at the carpal tunnel.

#### INJECTION

Injection into the carpal tunnel is another method of nonsurgical treatment. Doctors usually inject a small dose of steroids. This may relieve the painful symptoms, but the effects are temporary.

#### SURGERY

Surgery is normally recommended for patients with late presentation or for patients who did not improve with nonsurgical treatment. The surgery is known as carpal tunnel release. The purpose of the surgery is to relieve the compression of the median nerve, and this is done by cutting the transverse carpal ligament which forms the roof of the carpal tunnel.



There are two common surgical techniques for carpal tunnel surgery, the open carpal tunnel release, and endoscopic carpal tunnel release.

The surgery can be done as an outpatient or as a daycare procedure. It can be performed with general anaesthesia or local anaesthesia.

In open carpal tunnel release, a small incision is made over the palm. The ligament is cut under direct visualisation before the wound is closed.

In an endoscopic release, two smaller incisions are made. Visualising with the use of endoscope/camera the ligament is cut by a special knife.

In both methods, the outcomes are the same. You should discuss with your surgeon on the benefits and risk of each technique.

### OUTCOMES

The results of carpal tunnel release are generally good. Most patients recover well from their symptoms. In cases where surgery is done late, where there is permanent damage to the median nerve, the symptoms may not be relieved completely.

In rare occasions, recurrence of symptoms may occur which may require additional treatment or surgery.

Early detection and treatment are important. When treatment is started at early stages, the outcomes are good, and most symptoms are relieved. 