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# CARPAL TUNNEL SYNDROME

**What is carpal tunnel syndrome?**

Carpal tunnel syndrome is a common condition caused by compression of the median nerve as it passes through a tunnel into the hand.

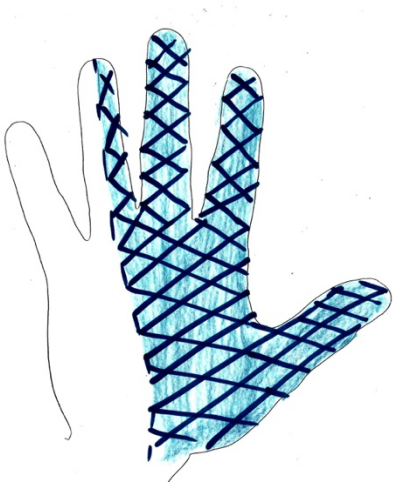
**Why does it occur?**

Normally the nerve and the tendons bending the fingers pass through a tunnel across the front of the wrist. The roof of the tunnel is made of a tight and thick fibrous ligament. Pressure on the nerve can happen several ways: swelling of the lining of the flexor tendons, called tenosynovitis; joint dislocations, fractures, and arthritis. Fluid retention during pregnancy can cause swelling in the tunnel and symptoms of carpal tunnel syndrome, which often go away after delivery. Thyroid conditions, rheumatoid arthritis, and diabetes also can be associated with carpal tunnel syndrome.

**Symptoms**

Typically, patients present with pins & needles in the hand usually affecting the thumb, index & middle fingers. These are usually worse at night, driving, holding book for long period of time.

The symptoms are often relieved by shaking of the hand. Permanent numbness and wasting of muscle are present in later stages of the condition.



**What happens if nothing is done?**

If nothing is done to the affected hand, some people's symptoms resolve especially if they come on associated with pregnancy. Most people develop gradually increasing symptoms over months to years. Most people are particularly troubled by night waking often in the early hours of the morning. If left for too long permanent numbness, muscle weakness and wasting can occur. This reduces hand function considerably.

**Diagnosis & Investigations**

In Carpal Tunnel Syndrome (CTS) the diagnosis is usually obvious after listening to and examining a patient. A detailed history and examination of the hand including the whole upper limb including may be required to rule out other

causes of tingling. Some tests may be needed which include X-rays, scans, blood tests and particularly in the hand electrical tests (known as EMG or NCS). Like all tests it is not completely reliable so it can be normal although the patient has CTS and it can be abnormal when the patient does not have CTS.

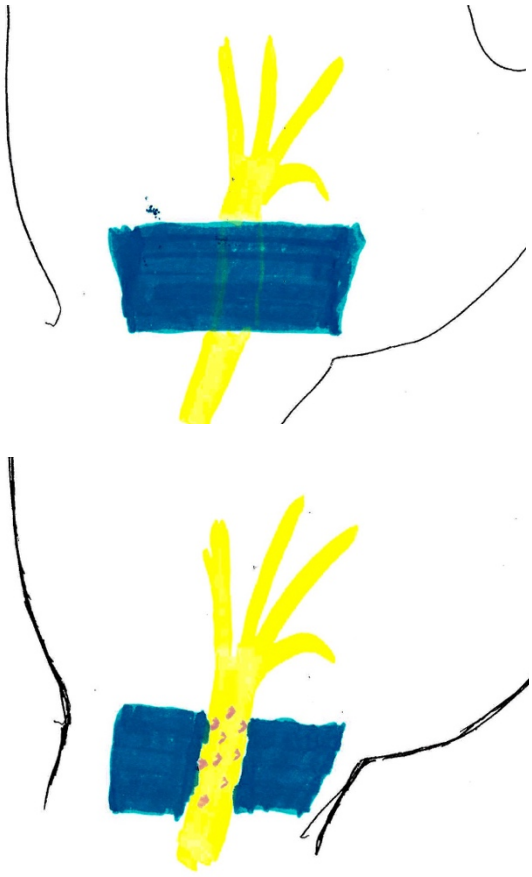
**What are the non-operative treatments?**

These include activity modification (which usually does not give much benefit or has already been tried by the patient), splints and a steroid injection. The splint is mainly worn at night to prevent waking. It stops the wrist from bending down or back too far and so helps protect the nerve from being squeezed at night. An injection of steroid and local anaesthetic can relieve the symptoms at least in the short-term in most people. Typically, the relief from injection is temporary so most surgeons do not recommend it, if the symptoms are marked and established. In cases where the clinical picture is unclear a positive response to an injection helps confirm the diagnosis.

**What does the operation involve?**

The operation is called a carpal tunnel release (CTR) or decompression (CTD). The operation is most commonly performed with a local anaesthetic, although can be done under general anaesthetic. I use a local anaesthetic with adrenaline mixed in it – this means that there is no need to use the tourniquet whilst doing the procedure.

The surgeon makes a cut over the front of the wrist. The tight tissue over the nerve is released, so that it has more space in its tunnel. The skin is then stitched up usually with non-absorbable stitches. A supportive dressing is applied and the patient's arm(s) elevated. The total time in hospital is usually 2-4 hours. CTR can be performed on both sides at once. This is a decision between the patient and the surgeon.



**What happens in the next few weeks?**

The care of the hand in the post-operative period is very important in helping to ensure a good result. It is important to keep the hand up in a sling for 48 – 72 hours after the surgery. The local anaesthetic lasts between 4 to 8 hours. Patients are encouraged to start taking painkillers before the pain starts i.e. on return home and for at least 24 hours from there. The bandage can be removed after 2-3 days, leaving a sticky dressing beneath. The patient or GP practice nurse can do this. The stitches are removed at 2 weeks on your follow up visit. Your hand can be used for normal activity after the first few days. Most patients can drive after a few days depending on the level of pain. The wound should be massaged by the patient 2 – 3 times a day with a soft cream for 3 months once the wound is well healed (typically after 2 weeks).

**Return to Work: (guide only)**

**Managerial or Supervisory: 1 – 2 weeks**

**Light Manual: 2 – 4 weeks (e.g. clerical, secretarial)**

**Medium Manual: 4 – 6 weeks (e.g. cleaner, nurse, check out)**

**Heavy Manual: 6 – 10 weeks (ground worker, labourer, HGV)**

**Custodial or rescue: 6 – 10 weeks (prison officer, fireman)**

**What are the results of the operation?**

At least 90% of patients in studies say they have a good or excellent result following this operation, with relief of the pain and tingling. Most patients have very rapid or immediate relief of their tingling. Most patients gain significant benefit in these symptoms which may improve for up to 1 year from surgery.

**Are there any risks?**

All interventions in medicine have risks. For CTD the risks are small but include:

**Scar** tenderness, in about 15 - 20% of patients. This usually improves with scar massage, over 2-3 months.

**Aching & Weakness,** especially on gripping. This occurs in about 4% of patients and also improves with time. Grip strength can take months to return to normal.

**Stiffness** may occur in particular in the fingers. This is usually short-term and only infrequently requires physiotherapy. But it is very important that it is resolved quickly to avoid permanent stiffness. This occurs rarely but can do associated with CRPS

**Numbness** over the base of the thumb, caused by damage to a branch of the nerve, happens in less than 4% of patients.

**Wound infections** occur in about <1% of cases. These usually quickly resolve with antibiotics.

**Chronic Regional Pain Syndrome (CRPS).** This is a rare but serious complication, with no known cause or proven treatment. The nerves in the hand "over-react", causing swelling, pain, discolouration and stiffness, which very slowly improve.

**Injury** to the main median nerve can occur extremely rarely, resulting in permanent numbness and weakness in the hand.

**Wasting** Patients who had numb fingers or wasting of the thumb muscles before surgery will probably never regain full nerve function. Recovery is slow over 6 – 12 months.

Any operation can have unforeseen consequences and leave a patient worse than before surgery. This is rare for CTS

**This information has been designed to help you gain the maximum benefit in the management of your condition. It is not intended to be a substitute for professional care and should be used in association with the recommendations given by your orthopaedic consultant. Individual variations needing specific instructions not mentioned here may be required.**

***Further Information***

If you have any further questions, then please ask at your clinic appointments.

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