



Dr. Bernard Lallemand

HAND AND UPPER LIMB SURGEON

Carpal Tunnel Syndrome

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These informations serve as a general guide. Specific details may differ according to your particular situation and should be determined by the professional judgement of your surgeon.

Condition

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Definition

Carpal Tunnel Syndrome (CTS) occurs when the median nerve is compressed within a narrow passage in the wrist called the carpal tunnel. This tunnel, bordered by wrist bones and a tight ligament known as the transverse carpal ligament, contains flexor tendons and the median nerve, which controls sensation in the thumb, index, and middle fingers.

CTS is the most common nerve entrapment of the upper limb.

Causes

CTS can arise from various factors that make the carpal tunnel tighter. Common causes include injuries or swelling around the wrist, arthritis, diabetes, and pregnancy-related changes. It is more frequently seen in women, likely due to a naturally smaller carpal tunnel.

Signs and Symptoms

Typical symptoms of Carpal Tunnel Syndrome include numbness or tingling affecting the thumb, index and middle fingers, often becoming worse at night or during repetitive tasks like driving. Wrist discomfort or pain can also radiate upward along the forearm. Gradually, grip strength may decrease, causing difficulty holding objects or performing precise movements such as buttoning clothes. Without treatment, severe cases may result in persistent and irreversible numbness.

Diagnosis

Diagnosis of CTS generally involves a thorough physical examination combined with a detailed evaluation of symptoms. Specific clinical tests can identify signs of nerve compression. In certain cases, additional assessments such as nerve conduction studies, electromyography (EMG) or ultrasound might be required to confirm the diagnosis and rule out other conditions.

Treatment

Treatment for Carpal Tunnel Syndrome (CTS) typically begins with conservative methods, including resting the wrist and wearing a removable splint, especially at night, to relieve pressure on the median nerve. Physiotherapy can also play a beneficial role by teaching patients nerve-gliding exercises, improving wrist strength, and reducing symptoms.

Corticosteroid injections may temporarily reduce inflammation and alleviate discomfort. If conservative treatments are insufficient, carpal tunnel release surgery, performed under local anesthesia, effectively relieves nerve compression by cutting the transverse carpal ligament. Although some residual numbness may remain, tingling and nighttime symptoms usually improve considerably following surgery.

Dr. Bernard Lallemand will guide you through the best treatment options tailored to your specific case.

Surgery

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Indications

Surgery is necessary to relieve pressure on the median nerve and to prevent long-term damage that could impair hand function. Surgery may be considered if you frequently experience bothersome symptoms that disrupt your daily activities or if you have persistent numbness in the fingertips, which could indicate the onset of permanent nerve damage.

Surgery Procedure

Carpal Tunnel Release (CTR) is a day case procedure, which means you can go home the same day. It is usually performed under local or regional anesthesia, so only the area being operated on will be numb.

Once the anesthesia is in place and the area is disinfected, the surgeon will make a small skin incision of about 2-3 cm to access and divide the transverse carpal ligament under direct vision, using magnifying surgical loupes for enhanced precision.

At the end of the surgery, the surgeon will close the skin with absorbable stitches.

A complementary anaesthetic will be given at the end of the procedure with Ropivacaine to keep the operated area numb for 12 to 24 hours, allowing better management of post-operative pain.

A dressing and padded bandage will be applied upon leaving the operating room.

After the Surgery

You don't need to immobilize your fingers, and you will be able to move them quickly to prevent the tendons from sticking together or to the skin. This helps in better recovery and prevention of adhesions.

Risks

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What Are the Main Risks of This Operation?

Swelling, Stiffness, & Scar Pain

After the operation, you might experience swelling, stiffness, and pain around the scar. Keeping your arm elevated and moving your fingers as soon as possible can help reduce these symptoms. Local swelling around the surgical site can last for several months.

In rare cases, some patients may experience more swelling and stiffness than usual, sometimes due to complex regional pain syndrome (CRPS), which affects less than 1% of cases.

Infection

Infections after this operation are rare (less than 1% of cases).

Local wound infections can usually be treated with oral antibiotics. In rare instances, deeper infections may occur, requiring hospital readmission, intravenous antibiotics, and sometimes additional surgery.

Nerve Injury

The nerves most susceptible to injury during this procedure are small branches that supply the skin near the scar. Occasionally, the ends of these nerves may feel tender after surgery, but this usually improves with time.

Significant damage to the median nerve or its main branches is very rare if performed by an experienced hand surgeon. In rare cases, some local anesthetic may accidentally enter the median nerve, potentially causing temporary damage. This can lead to increased numbness in the fingertips for a few weeks after surgery.

Wrist Pain, also called "Pillar Pain"

Some patients experience aching discomfort on either side of the wrist for a few weeks following surgery, known as "pillar pain." This is likely due to the wrist bones adjusting to a new resting position after the transverse carpal ligament is cut, but it typically resolves within a few weeks.

Patients with pre-existing arthritis in the thumb joints may notice an increase in pain after carpal tunnel surgery; however, this discomfort usually diminishes after a few weeks as well.

Weakness

It is common to experience temporary weakness in grip strength following Carpal Tunnel Release, which gradually improves with time and physiotherapy.

Residual Symptoms

If your fingertips were permanently numb before surgery, sensation may not return immediately, and recovery can take up to two years, with some individuals never regaining full feeling.

Pain and tingling from nerve pressure usually get better soon after surgery. But if these symptoms continue, it might mean the ligament pressing on the nerve wasn't fully released during the operation.

If symptoms reappear years later, it might mean the ligament has regrown and is compressing the nerve again, possibly requiring further surgery.

By understanding these potential risks, you can be better prepared for the recovery process. Always follow Dr. Bernard Lallemand's advice and report any unusual symptoms immediately.

Preoperative course

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Medical Check-Up and Tests

Health History: Share your medical conditions, allergies and past surgeries.

Medications: Inform your doctor about all medications, especially blood thinners.

Tests: Ensure to bring all tests, such as X-rays, MRI or CT scans.

Understanding your Surgery

- **Know the Purpose** of the surgery and what it aims to achieve.
- **Ask your doctor** about the steps, risks, benefits, and alternatives.
- **Give your informed Consent** after understanding the procedure.

Pre-Anesthesia Consultation (PAC)

You will meet with the anesthetist to discuss your health and the anesthesia options.

If you have any existing health issues, additional checks may be required to ensure everything is safe for the anesthesia.

Emotional and Practical Preparation

- Arrange for someone to assist you after surgery.
- If you're anxious, discuss support options

with your doctor.

- Also, stop smoking and limit alcohol intake before surgery to support healing.

2 Days before Surgery

Wash the Surgery Site area twice a day with regular soap (unless you have a cast) and follow any additional instructions from your doctor for cleaning the area.

Night before Surgery

You should **not eat nor drink anything** after **midnight** or generally **6 to 8 hours before surgery** unless your doctor advises otherwise.

Take a bath or shower, wash your hair, and ensure your nails are clean and free of polish.

Day of the Surgery

Be sure to arrive 3 hours in advance for your surgery, and bring your ID (Emirates ID or passport) and insurance card.

- **Wear loose clothing** that can easily fit over dressings or a cast
- **No Makeup or Jewelry:** Remove all jewelry, piercings, and skip eye makeup for the day.
- **Take Your Medications:** Follow your doctor's instructions for taking your medications.
- **Bring Essentials:** If you wear glasses, contact lenses, or hearing aids, make sure to bring them along.

Postoperative course

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Day 1

- After the operation, a dressing and padded bandage will be applied.
- Keep these dressings clean and dry.
- To reduce swelling, keep your arm elevated in a sling or on pillows.
- Start moving all the unaffected joints immediately after the operation to prevent stiffness.
- Take painkillers before the anesthetic wears off and continue as necessary.

Day 2 - 14

The padded bandage will be changed in consultation by a nurse and will be replaced by a sticking plaster over the wound to protect it. Ensure the wound stays clean and dry.

This bandage will be changed regularly according to Dr Bernard Lallemand's advice.

Continue gently exercising your hand and wrist. You can use your hand for light activities but avoid heavy lifting and prolonged periods with your hand hanging down below your waist.

2 - 6 Weeks

A wound check and removal of the stitches should occur between 10 and 14 days after your surgery. The details will be arranged on the day of your first visit.

Gradually increase activities with your hand and wrist as comfort allows.

Once the wound is completely healed, a daily session of 10 minutes massaging the scar with moisturized hand cream is often useful to reduce swelling of the scar

After 6 Weeks

Most people return to normal activities by this stage, although scar massage may still be beneficial.

Driving

You may drive when you feel confident to control the car, even in an emergency.

Time Off Work

The amount of time needed off work will vary depending on the nature of your job. For light office Job, you may only need a few days off work. For heavier Job, you may need a longer period off work. Discuss your individual case with your surgeon.

Post Operative Difficulties

Contact Dr Bernard Lallemand's service if your fingers are more swollen, stiffer or painful than expected, and if you see any discharge, wetness, or detect any unpleasant odours under your dressing. Outside normal working hours, you may need to attend Emergency Department for help with these issues.

Postoperative physiotherapy

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Immediate Postoperative Period (Day 0–Week 2)

- Dressings: Keep wound clean and dry; change dressings as instructed by the surgeon.
- Pain Management: Use prescribed analgesics and elevate the hand to reduce swelling.
- Mobility Exercises: Begin gentle active range of motion (AROM) exercises.

Early Rehabilitation (Week 2–Week 6)

Wound Care: Stitches removed (if nonabsorbable); monitor for signs of infection.

Initial Evaluation: A physiotherapist will perform an initial assessment to check the hand and wrist.

Therapy Focus:

- Gentle active and passive range of motion (AROM/PROM) of the fingers.
- Scar management techniques (e.g., massage, silicone gel sheets).
- Edema control through compression or elevation.
- Gradually introduce light functional tasks to improve hand use.

Strengthening and Functional Recovery (Week 6–Week 12)

Therapy Focus:

- Progressive strengthening exercises, including grip and pinch training.
- Advanced scar desensitization if tenderness persists.

Functional Goals: Encourage participation in daily activities requiring hand dexterity.

Long-Term Maintenance (Week 12 and Beyond)

Home Program: Continue with daily exercises for strength and flexibility.

Follow-Up: Regular check-up with the surgeon and therapist to monitor recovery and address recurrence.

Lifestyle Modifications: Avoid repetitive hand trauma or stress that may contribute to recurrence.

Most patients transition through therapy without complications and typically require 6 - 10 therapy visits. Always follow your physiotherapist's instructions for the best recovery