

Endoscopic Carpal Tunnel Release

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Carpal Tunnel Syndrome (CTS) is a condition caused by increased pressure on the median nerve at the level of the wrist, specifically at the level of the carpal tunnel. This pressure may be caused by inflammation, arthritis, or fluid changes during pregnancy. Certain medical conditions (diabetes, rheumatoid arthritis, or thyroid conditions) are associated with the development of CTS also. Many times the cause is unknown.

Typical symptoms or signs of CTS include numbness, tingling, or decreased sensation in the thumb, index, long and ring fingers. Pain in the hand or fingers can be present, too. Certain activities in particular are commonly more difficult or produce more symptoms in the setting of CTS; these include sleeping, driving, typing, or those activities which require repeated or prolonged flexion or bending of the wrist. Patients may notice a weaker grip, clumsiness, or a tendency to drop things.

Initial and nonsurgical management of CTS consists of activity modification – avoiding or altering those activities or motions which produce uncomfortable symptoms – anti-inflammatories, a removable wrist splint, and injections of corticosteroid into the carpal tunnel. When indicated, surgical management involves release or division of the transverse carpal ligament – the inflexible structure just above the median nerve which increases the pressure on the nerve. This release can be performed through a traditional open technique – where the ligament is directly visualized through an incision above or near the ligament – or endoscopically.

Endoscopic carpal tunnel release (E-CTR) involves a minimally invasive approach to surgical treatment of CTS. A small incision is made in the distal forearm, just above or proximal to the crease where the wrist flexes. The surgeon dissects down to the carpal tunnel and enters it. The inflammatory tissue around and under the ligament is cleared off to allow visualization of the white transverse fibers of the ligament. An endoscope is then inserted; this endoscope has a camera and light source attached to it along with a small endoscopic knife blade that is controlled by the surgeon. The surgeon can slide and move the endoscope back and forth within the carpal tunnel, which is a space bounded by bones on either side, and by the transverse carpal ligament above. Once the synovial (inflammatory) tissue is removed from the undersurface of the ligament using instruments, and the surgeon has clear visualization of the ligament (and not the nerve), the ligament may be slowly and safely divided or cut in small increments. This takes pressure off the median nerve by functionally lengthening the ligament after it is divided. Typically the wound is then washed or irrigated and closed with 2-3 sutures. The whole surgery may take less about ten minutes.

Some of the proposed advantages of the endoscopic carpal tunnel release, when compared to the open technique, are potentially a smaller incision, an incision away from the palm (which can be sensitive when cut), and faster recovery or return to work times by a few days. Postoperative courses may vary slightly amongst surgeons, but in general, a soft bandage is worn for about 5 days. No cast or splint is routinely provided. The sutures are removed after 10-14 days. Light activity, such as using a phone, keyboard, eating utensils, toothbrush, and even driving, can be permitted as tolerated after surgery.