

Carpal tunnel syndrome (CTS) is a common, generally treatable condition resulting from compression of the median nerve. Often associated with workplace tasks, CTS etiology also includes pregnancy, obesity, rheumatoid arthritis, thyroid dysfunction, renal dialysis (amyloid), and radial malunion. The syndrome is three to four times more common in females than in males.

Symptoms include tingling and numbness in the thumb as well as the index and middle fingers and pain, which is often nocturnal. Initially, symptoms are mild and infrequent. However, if left untreated, the syndrome will likely progress gradually to constant paresthesia, numbness, and nocturnal pain sufficient to wake the patient. Continued severe compression leads to permanent numbness and weakness and, ultimately, wasting of muscles in the thumb.

Clinical diagnosis includes the occurrence of pain or numbness and the presence of one or more of the following indicators: a positive Tinel's or Phalen's test, nocturnal worsening of symptoms, motor loss, wasting of the thumb muscles, or an abnormal nerve-conduction study.

### Treatment

Patients with mild CTS (a short history of intermittent paresthesia) are typically treated conservatively with workplace and other task modifications, nerve and tendon gliding exercises, and wrist splints. Steroid injections are appropriate for patients in the third trimester of pregnancy.

For patients whose CTS does not respond to conservative treatment, surgical carpal tunnel decompression is often effective.

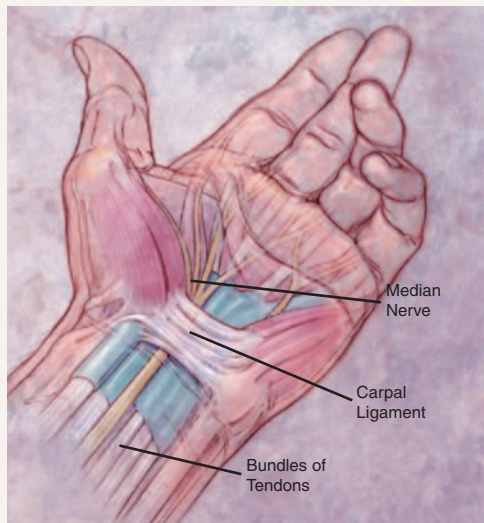


Diagram of hand and wrist showing the carpal tunnel

However, traditional surgical techniques result in significant postsurgical downtime (weeks to months) for patients regarding the use of their hands. Other possible postoperative complications include scar sensitivity, thumb pain, recurrent symptoms, and grip weakness.

### An Endoscopic Approach

Physicians have used endoscopy to release the median nerve for about 15 years. The efficacy of this technique is equivalent to open surgery, and patient satisfaction is better. In a randomized, controlled clinical trial comparing single-portal endoscopic carpal tunnel release with open release in 192 hands (147 patients), CTS symptom severity scores, CTS functional status scores, and subjective satisfaction scores were better for the endoscopic group.

# A Critical Review

## Examining Carpal Tunnel Syndrome Surgery Options

By Sanjay S. Desai, MD

The endoscopic group also had significantly ( $p < 0.05$ ) greater grip, pinch strength, and hand dexterity. In contrast, the open group experienced greater postoperative scar tissue tenderness and took longer to return to work than the endoscopic group (38 days versus 18 days). In addition, there was no significant difference in the rate of complications or cost of surgery between the two groups.

Endoscopy gives physicians a better anatomical view, and patient recovery time is shortened because the incision(s) are small and do not require splints. Endoscopy also results in fewer postoperative complications, such as scar-tissue development, sensitivity, and nerve-tissue adhesions.

The procedure is contraindicated for patients who had previous median nerve release surgery, have rheumatoid arthritis, or have ganglion cysts or other growths in the wrist. Although the procedure can

be performed in the physician's office, some insurance plans prefer to have it done in a hospital.

Surgeons use a one- or two-portal approach. The former reduces the risk of postoperative problems. Decompression consists of releasing the transverse carpal ligament and closing the portal(s), often with a single suture or surgical adhesive. The procedure requires approximately 15 to 20 minutes per hand.

### Recovery and Results

Rates of postoperative complications are low: 2% for recurrence and less than .01% for injury to the nerves or blood vessels. It is not unusual for patients to have mild pain at the base of the thumb, but this should resolve within two months. In addition, the incision is often tender, although less so than after open surgery because the incision is not in the palm.

Advantages of minimally invasive endoscopic surgery for CTS include less postoperative scar-tissue sensitivity and shorter time for patients to gain full use of their hands. In turn, these advantages increase patient satisfaction with the procedure. 🌟



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