

ENDOSCOPIC CARPAL TUNNEL DECOMPRESSION

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INTRODUCTION: There are two main nerves which supply structures in the human hand, and the one that is responsible for carpal tunnel syndrome enters the hand in front of the wrist joint and deep to a thick band-like structure which binds to the bones on either side of the tunnel through which the nerve and tendons pass. Several factors acting individually or in combinations may lead to increased pressure in the confine of this tunnel, thereby interfering with the function of the nerve by directly compressing the nerve and by compromising its blood circulation. There are multiple conditions responsible for carpal tunnel syndrome, and may be classified as anatomical (or structural abnormality) or physiological. Structural abnormalities may include abnormalities of the bones and the ligament which forms the walls of the carpal tunnel, or increase in the volume of the contents of the tunnel. The latter may be due to thickening of the nerve, benign tumors in the tunnel, abnormal muscles or the thickening of the coverings of tendons due to some inflammatory processes. Physiologic abnormalities may involve alterations in fluid balance leading to swelling in the carpal tunnel. This commonly occurs in pregnancy, chronic hemo-dialysis for kidney failure, abnormal thyroid function and various inflammatory processes. A large number of the cases are related to repeated use of the hand and wrist, such as repetitions of bending forward/backwards of the wrist as in manual labor; repetitive forceful squeezing and releasing of tools; repetitive forceful twisting motions; repetitive finger motions such as typing; exposure to vibrations; and resting the wrist in a flexed position for prolonged duration as in sleep. Conditions such as pregnancy usually cause transient carpal tunnel syndrome, as the condition resolves after pregnancy, when the fluid balance returns to normal. Most other conditions tend to cause long term symptoms.

Whether temporary or long term, the treatment of the carpal tunnel syndrome may be just observation; medical treatment addressing the basic condition responsible for the carpal tunnel syndrome; support in a brace; or interventions such as injection of cortisone in the carpal tunnel; and surgical decompression. When the condition responsible for the carpal tunnel syndrome is permanent the syndrome is likely to be persistent and may even worsen over a period of time. Symptoms may start as intermittent numbness and tingling of the hand usually involving the thumb, the fore-finger, the middle finger and part of the ring finger. These, symptoms, at the beginning, tend to wake the patient in the middle of night and often resolve with shaking of the hand. Weaknesses which may manifest with dropping cups in the morning indicate increasing severity of the condition. With the passage of time the symptoms may become continuous throughout the day and night.

COMPARING THE OPEN AND THE MINIMALLY INVASIVE CARPAL TUNNEL RELEASE

As is the case with many surgical conditions, the endoscopy of the wrist and the hand are being practiced more and more frequently. The open surgery to decompress the carpal tunnel is more commonly practiced currently. Although the outcome of this approach is generally satisfactory, the trend is now towards performing the minimally invasive surgery. Overall, there is a 98% chance of improvement in symptoms following surgery – whether conventional or minimally invasive. The outcome tends to be less satisfactory in the older population than in the younger patients. The most

common troubling complication following surgery is pain of the surgical scar. This steadily improves with passage of time, but up to 10% of patients will have some discomfort at a year following surgery. This complication theoretically should be less prominent following the endoscopic operation since the skin scar is at the level of the wrist, whereas the scar of the open procedure is in the palm. The main advantage of the endoscopic carpal tunnel release is the ability to return to work earlier than the patients who undergo open surgery. The scar of endoscopic surgery is cosmetically more acceptable although the scars of open decompression normally heal well.

Endoscopic carpal tunnel decompression will soon be available in Dr. Osman's practice.

Dr. Osman is an Orthopedic Board Certified and fellowship trained orthopedic surgeon. He performs general orthopedic surgery such as joint replacements, sports medicine procedures, orthopedic trauma surgery, hand and foot surgery, as well as innovative spine surgical procedures at Russellville Hospital.

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