Endoscopic Carpal Tunnel Release

Advantages for athletes

– Written by Jonny K Andersson, Qatar, and Elisabet Hagert, Sweden

Endoscopic carpal tunnel release (ECTR) techniques were developed as an attempt to avoid problems occasionally experienced following Open carpal tunnel release (OCTR), namely scar tenderness and pillar pain. The advantage of ECTR is the small scar, not localized in the vola, the good visibility at the TV monitor with no need for loops, and compared with OCTR - it is less time consuming, if the surgeon and the staff are used to the procedure. The learning curve for performing ECTR is although longer than for OCTR, and the procedure should be performed by a Hand Surgeon used to arthroscopic/endoscopic techniques.

Operative technique

Popular approaches include the dual-portal technique of Chow and the single-portal technique of Agee[1,2].

Using the Chow technique, proximal and distal incisions are made deep to the transverse carpal ligament (TCL). The endoscope and blade assembly are passed from the proximal incision through the distal incision, deep to the TCL. The distal TCL is released using a probe knife. A second cut is made in the midsection of the TCL with a triangular knife and joined to the first cut using a retrograde knife. The endoscope is then repositioned and in a similar fashion the probe knife used to cut the proximal TCL. A retrograde knife is inserted into the midsection of the TCL and drawn proximally to complete the release.

In the Agee ECTR, a small transverse skin incision is made at the ulnar border of the palmaris longus tendon, midway between the flexor carpi ulnaris and radialis, and proximal to the wrist flexion creases. A distally based forearm fascia flap is elevated to reveal the proximal edge of the TCL. With the wrist in extension, the endoscopic blade assembly is inserted into the canal in line with the ring finger. The TCL is visualized and divided distally to proximally.

Endoscopic carpal tunnel release versus Open carpal tunnel release

Both OCTR and ECTR are practiced widely, with proponents of both techniques continuing to debate the merits of one over the other. A common argument in favor of ECTR over OCTR has been reduced postoperative pain and a shorter return to vocational activities. Although these findings have been borne out in some studies, three to five other studies show that any differences between techniques in patient symptoms, function, and satisfaction equalize by 1 year[6,7]. Supporters of OCTR have, in turn, cited a higher incidence of postoperative neurovascular complications as a reason to avoid ECTR[8]. More recent studies have failed to support this higher risk in ECTR[3,4,6,7,9]. Cost has been another factor in the debate between OCTR and ECTR. A 1998 cost-effectiveness analysis comparing the two techniques concluded that ECTR is cost-effective provided major complications occur 1% less often than in OCTR[10]. In a recent publication on the cost-effectiveness of ECTR, it was found that ECTR is beneficial from a societal standpoint, in that it leads to faster return to work and higher quality-adjusted life years (QALY).

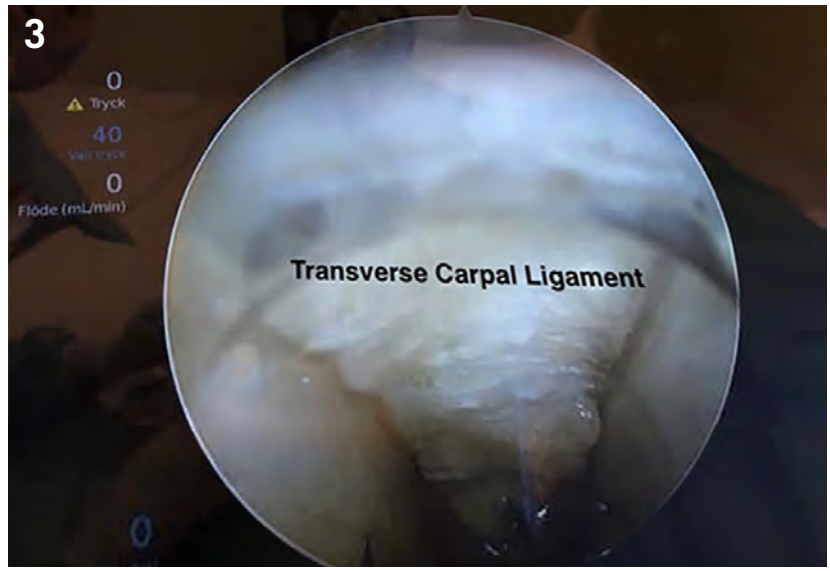
A transverse 1 cm long incision at the ulnar side of wrist, leading to an almost invisible scar and low incidence of pillar pain, as well as leading to equal, perhaps greater, functional outcome for the patients, is in our opinion reasons enough to recommend ECTR as compared with an open procedure. It is, of course, of essence that the surgeon has good experience and command of the endoscopic technique.

Endoscopic carpal tunnel release – Contraindications and relative contraindications

- Synovitis along the flexor tendons (relative contraindication).
- Reoperation of carpal tunnel syndrome (CTS).
- Concomitant distal radius fractures, carpal fractures and dislocations as well as other injuries, where open surgery is indicated.
- Malunion of distal radius fractures with abnormal alignment.
- CTS due to infection.
- Tumors in the carpal tunnel or thenar/hypothenar, e g lipoma, ganglia.
- Surgeon not used to the technique.

Sometimes, but seldom there are risks for impaired visibility during the endoscopic procedure and synovitis not expected can be found intraoperatively.

Figures 1 to 3:
Endoscopic Carpal Tunnel Release surgical procedure step-by-step.



TAKE HOME MESSAGE

The advantage of ECTR is the small scar, not localized in the vola, the good visibility at the TV monitor.

The procedure should be performed by a Hand Surgeon used to arthroscopic/ endoscopic techniques

Patients should always be informed preoperatively when the surgery is scheduled, during the informed consent process and also before the surgical procedure, that the endoscopic procedure may, if necessary, have to be converted to open surgery.

The technique is indicated for a majority of patients and many of them attending Aspetar Hospital with Carpal tunnel syndrome the last year have asked about ECTR, as they heard about the endoscopic technique, being performed abroad.

Endoscopic Carpal Tunnel Release – a wanted, convenient and rewarding method treating carpal tunnel syndrome - can now be provided to the population of Qatar, at Aspetar Hospital.

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References

Available at www.aspetar.com/journal

Jonny K Andersson M.D., Ph.D.
Professor
Senior Consultant Hand Surgeon
Aspetar Orthopaedic and Sports Medicine Hospital
Doha, Qatar

Elisabet Hagert M.D., Ph.D.
Professor
Department of Clinical Science and Education
Karolinska Institutet
Stockholm, Sweden

Contact: kent.andersson@aspetar.com