

Scientific Article

Single-Portal Endoscopic Carpal Tunnel Release Compared with Open Release

A Prospective, Randomized Trial

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In support of their research or preparation of this manuscript, one or more of the authors received grants or outside funding from the Orthopaedic Research and Education Foundation, The American Society for Surgery of the Hand, and the Boeing Foundation. None of the authors received payments or other benefits or a commitment or agreement to provide such benefits from a commercial entity. No commercial entity paid or directed, or agreed to pay or direct, any benefits to any research fund, foundation, educational institution, or other charitable or nonprofit organization with which the authors are affiliated or associated.

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Background: Carpal tunnel syndrome is a common condition causing hand pain and numbness. Endoscopic carpal tunnel release has been demonstrated to reduce recovery time, although previous studies have raised concerns about an increased rate of complications. The purpose of this prospective, randomized study was to compare open carpal tunnel release with single-portal endoscopic carpal tunnel release.

Methods: A prospective, randomized, multicenter study was performed on 192 hands in 147 patients. The open method was performed in ninety-five hands in seventy-two patients, and the endoscopic method was performed in ninety-seven hands in seventy-five patients. All of the patients had clinical signs or symptoms and electrodiagnostic findings consistent with carpal tunnel syndrome and had not responded to, or had refused, nonoperative management. Follow-up evaluations with use of validated outcome instruments and quantitative measurements of grip strength, pinch strength, and hand dexterity were performed at two, four, eight, twelve, twenty-six, and fifty-two weeks after the surgery. Complications were identified. The cost of the procedures and the time until return to work were recorded and compared between the groups.

Results: During the first three months after surgery, the patients treated with the endoscopic method had better Carpal Tunnel Syndrome Symptom Severity Scores, better Carpal Tunnel Syndrome Functional Status Scores, and better subjective satisfaction scores. During the first three months after surgery, they also had significantly ($p < 0.05$) greater grip strength, pinch strength, and hand dexterity. The open technique resulted in greater scar tenderness during the first three months after surgery as well as a longer time until the patients could return to work (median, thirty-eight days compared with eighteen days after the endoscopic release). No technical problems with respect to nerve, tendon, or artery injuries were noted in either group. There was no significant difference in the rate of complications or the cost of surgery between the two groups.

Conclusion: Good clinical outcomes and patient satisfaction are achieved more quickly when the endoscopic method of carpal tunnel release is used. Single-portal endoscopic surgery is a safe and effective method of treating carpal tunnel syndrome.