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Surgery Versus Conservative Treatment for Carpal Tunnel Syndrome: A Systematic Review and Meta-Analysis

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ABSTRACT

Introduction: The necessity to establish evidence-based criteria for recommending open release surgery in the management of CTS. While conservative treatments are often the initial approach, a subgroup of patients experiences persistent or severe symptoms despite these interventions. This systematic review and meta-analysis aim to synthesize existing evidence on the indication for open release surgery in CTS.
Materials and Methods: The search methodology encompassed diverse synonyms to guarantee thorough exploration of literature across PubMed, Europe PMC, and Clinicaltrials.gov (as of April 20, 2024). This approach aimed to achieve comprehensive coverage and inclusivity in identifying relevant studies, utilizing terms such as "Carpal tunnel syndrome" or "Median nerve compression" in conjunction with "Open carpal tunnel release" or "Carpal tunnel release," as well as "Non-surgical management," "Conservative treatment," "Splinting," "Steroid injections," "Physical therapy," "NSAIDs," "Acupuncture," and "Alternative therapies." Our primary focus centered on the improvement of patient-reported function and the alleviation of symptoms. To assess function, we utilized the Boston Questionnaire, a validated instrument tailored to measure functional outcomes, while for evaluating symptoms, we employed the Carpal Tunnel Syndrome Assessment Questionnaire, specifically designed to gauge symptom severity.
Results: Our analysis encompassed data extracted from 10 research investigations, comprising a collective sample size of 966 patients, involving a total of 1,028 wrists, with 148 of these representing male subjects. We found that functional outcomes were assessed at various intervals, revealing a SMD of 0.29 [-0.21; 0.80] at 3 months ($p < 0.01$), -0.44 [-0.74; -0.14] at 6 months ($p = 0.02$), and -0.28 [-0.55; -0.01] at 12 months ($p = 0.17$).
Conclusion: Open release surgery is considered when conservative measures fail to provide adequate relief from symptoms of carpal tunnel syndrome or when specific indications suggest that surgery would be more appropriate.

Keywords: Carpal tunnel syndrome, open release, indication, symptoms

INTRODUCTION

Open release surgery, also known as open carpal tunnel release, is a surgical procedure used to treat carpal tunnel syndrome (CTS)

when conservative measures have failed to provide relief from symptoms or when specific indications suggest that surgery would be more appropriate.[1] Conservative measures for CTS may include wrist splinting, corticosteroid injections, and physical therapy. However, when these measures are ineffective, open release surgery may be recommended.[1]

During open release surgery, the transverse carpal ligament, which forms the roof of the carpal tunnel, is cut to relieve pressure on the median nerve and alleviate the symptoms of CTS.[2,3] The procedure is typically performed under local anesthesia, and the surgeon makes an incision in the palm of the hand to access the transverse carpal ligament. Once the ligament is divided, the increased space within the carpal tunnel reduces pressure on the median nerve, thereby alleviating symptoms such as pain, numbness, and tingling in the hand and fingers.[3]

The necessity to establish evidence-based criteria for recommending open release surgery in the management of CTS. While conservative treatments are often the initial approach, a subgroup of patients experiences persistent or severe symptoms despite these interventions. For these individuals, surgical intervention may be considered to alleviate symptoms and improve functional status. However, the decision to undergo open release surgery necessitates careful consideration of factors like symptom severity and duration, functional impairment, patient preferences, and potential surgical risks. This systematic review and meta-analysis aim to synthesize existing evidence on the indication for open release surgery in CTS. By critically evaluating findings from relevant studies, including randomized controlled trials and observational studies, this study aims to provide comprehensive insights into the efficacy and safety of open release surgery compared to conservative treatments. Ultimately, the study's findings can inform clinical practice guidelines and enhance decision-making in the management of CTS.

MATERIALS & METHODS

The study was not registered in the PROSPERO database for systematic review, although adherence to the PRISMA guidelines was maintained throughout the research process. No financial support was received for this study.[4] The search methodology encompassed diverse synonyms to guarantee thorough exploration of literature across PubMed, Europe PMC, and Clinicaltrials.gov (as of April 20, 2024). This approach aimed to achieve comprehensive coverage and inclusivity in identifying relevant studies, utilizing terms such as "Carpal tunnel syndrome" or "Median nerve compression" in conjunction with "Open carpal tunnel release" or "Carpal tunnel release," as well as "Non-surgical management," "Conservative treatment," "Splinting," "Steroid injections," "Physical therapy," "NSAIDs," "Acupuncture," and "Alternative therapies." Detailed search strategy was in table 1.

Table 1. The search queries utilized in every database.

Database	Search queries	Total studies retrieved
PubMed	("carpal tunnel syndrome"[MeSH Terms] OR ("carpal"[All Fields] AND "tunnel"[All Fields] AND "syndrome"[All Fields]) OR "carpal tunnel syndrome"[All Fields] OR ("carpal tunnel syndrome"[MeSH Terms] OR ("carpal"[All Fields] AND "tunnel"[All Fields] AND "syndrome"[All Fields]) OR "carpal tunnel syndrome"[All Fields] OR ("median"[All Fields] AND "nerve"[All Fields] AND "compression"[All Fields]) OR "median nerve compression"[All Fields])) AND (("Open"[All Fields] AND ("carpal tunnel syndrome"[MeSH Terms] OR ("carpal"[All Fields] AND "tunnel"[All Fields] AND "syndrome"[All Fields]) OR "carpal tunnel syndrome"[All	338

	Fields] OR ("carpal"[All Fields] AND "tunnel"[All Fields]) OR "carpal tunnel"[All Fields]) AND ("patient discharge"[MeSH Terms] OR ("patient"[All Fields] AND "discharge"[All Fields]) OR "patient discharge"[All Fields] OR "release"[All Fields] OR "released"[All Fields] OR "releases"[All Fields] OR "releasing"[All Fields])) OR (("carpal tunnel syndrome"[MeSH Terms] OR ("carpal"[All Fields] AND "tunnel"[All Fields] AND "syndrome"[All Fields]) OR "carpal tunnel syndrome"[All Fields] OR ("carpal"[All Fields] AND "tunnel"[All Fields]) OR "carpal tunnel"[All Fields]) AND ("patient discharge"[MeSH Terms] OR ("patient"[All Fields] AND "discharge"[All Fields]) OR "patient discharge"[All Fields] OR "release"[All Fields] OR "released"[All Fields] OR "releases"[All Fields] OR "releasing"[All Fields]))) AND (("Non-surgical"[All Fields] AND ("manage"[All Fields] OR "managed"[All Fields] OR "management s"[All Fields] OR "managements"[All Fields] OR "manager"[All Fields] OR "manager s"[All Fields] OR "managers"[All Fields] OR "manages"[All Fields] OR "managing"[All Fields] OR "management"[All Fields] OR "organization and administration"[MeSH Terms] OR ("organization"[All Fields] AND "administration"[All Fields]) OR "organization and administration"[All Fields] OR "management"[All Fields] OR "disease management"[MeSH Terms] OR ("disease"[All Fields] AND "management"[All Fields]) OR "disease management"[All Fields])) OR ("conservative treatment"[MeSH Terms] OR ("conservative"[All Fields] AND "treatment"[All Fields]) OR "conservative treatment"[All Fields]) OR ("splinted"[All Fields] OR "splinting"[All Fields] OR "splints"[MeSH Terms] OR "splints"[All Fields] OR "splint"[All Fields]) OR (("steroidal"[All Fields] OR "steroidals"[All Fields] OR "steroidic"[All Fields] OR "steroids"[MeSH Terms] OR "steroids"[All Fields] OR "steroid"[All Fields]) AND ("inject"[All Fields] OR "injectability"[All Fields] OR "injectant"[All Fields] OR "injectants"[All Fields] OR "injectate"[All Fields] OR "injectates"[All Fields] OR "injected"[All Fields] OR "injectible"[All Fields] OR "injectibles"[All Fields] OR "injecting"[All Fields] OR "injections"[MeSH Terms] OR "injections"[All Fields] OR "injectable"[All Fields] OR "injectables"[All Fields] OR "injection"[All Fields] OR "injects"[All Fields])) OR ("physical therapy modalities"[MeSH Terms] OR ("physical"[All Fields] AND "therapy"[All Fields] AND "modalities"[All Fields]) OR "physical therapy modalities"[All Fields] OR ("physical"[All Fields] AND "therapy"[All Fields]) OR "physical therapy"[All Fields]) OR ("anti inflammatory agents non steroidal"[Pharmacological Action] OR "anti inflammatory agents, non steroidal"[MeSH Terms] OR ("anti inflammatory"[All Fields] AND "agents"[All Fields] AND "non steroidal"[All Fields]) OR "non-steroidal anti-inflammatory agents"[All Fields] OR "nsaid"[All Fields] OR "nsaids"[All Fields] OR "nsaid s"[All Fields]) OR ("acupunctural"[All Fields] OR "acupuncture"[MeSH Terms] OR "acupuncture"[All Fields] OR "acupuncture therapy"[MeSH Terms] OR ("acupuncture"[All Fields] AND "therapy"[All Fields]) OR "acupuncture therapy"[All Fields] OR "acupuncture s"[All Fields] OR "acupunctured"[All Fields] OR "acupunctures"[All Fields] OR "acupuncturing"[All Fields]) OR ("complementary therapies"[MeSH Terms] OR ("complementary"[All Fields] AND "therapies"[All Fields]) OR "complementary therapies"[All Fields] OR ("alternative"[All Fields] AND "therapies"[All Fields]) OR "alternative therapies"[All Fields]))	
Europe PMC	Carpal tunnel syndrome OR Median nerve compression AND Open carpal tunnel release OR Carpal tunnel release AND Non-surgical management OR Conservative treatment OR Splinting OR Steroid injections OR Physical therapy OR NSAIDs OR Acupuncture OR Alternative therapies	285
Clinicaltrials.gov	Carpal tunnel syndrome OR Median nerve compression AND Open carpal tunnel release OR Carpal tunnel release AND Non-surgical management OR Conservative treatment OR Splinting OR Steroid injections OR Physical therapy OR NSAIDs OR Acupuncture OR Alternative therapies	538

The study population consisted of adults aged 18 years and above, comprising both genders, diagnosed with CTS across varying severity levels. The intervention under investigation was limited to carpal tunnel release surgery, employing an open technique exclusively. This surgical approach was compared against non-surgical management strategies for CTS, including splinting, steroid injections, physical therapy, and oral medications such as NSAIDs. The primary outcome measures focused on the improvement in symptoms and functional outcomes, encompassing reductions in pain intensity, enhancements in grip strength, restoration of sensation, resumption of normal daily activities and work, and patient-reported outcomes such as treatment satisfaction and quality of life. Additionally, the study aimed to assess complications and adverse effects associated with both surgical and non-surgical interventions for comprehensive evaluation and comparison. The inclusion criteria for this systematic review and meta-analysis encompass studies that investigate the effectiveness of open release surgery as a treatment for CTS. These studies must involve a clearly defined population diagnosed with CTS, using clinical and/or electrodiagnostic criteria. Additionally, included studies should report outcomes related to symptom relief, functional improvement, or alleviation of symptoms following open release surgery. Only studies published in peer-reviewed journals and available in the English language are eligible for inclusion. Furthermore, eligible study designs include randomized controlled trials, cohort studies, case-control studies, and observational studies with comparative groups. To ensure robust analysis, included studies must provide sufficient data for the calculation of effect sizes and be amenable to inclusion in the meta-analysis.

In this systematic review, our primary focus centered on the improvement of patient-reported function and the alleviation of symptoms. To assess function, we utilized the Boston Questionnaire, a validated instrument tailored to measure functional outcomes, while for evaluating symptoms, we employed the Carpal Tunnel Syndrome Assessment Questionnaire, specifically designed to gauge symptom severity.

For the purpose of this systematic review and meta-analysis, an extensive array of variables was gathered from the included studies to comprehensively evaluate the efficacy and indications for open release surgery. These variables encompassed diverse facets, including study attributes such as design, year of publication, and geographical location. Patient-related factors, such as age and gender distribution. Detailed information concerning the surgical intervention, encompassing the type of procedure, variations in technique, and anesthesia administered, was imperative for scrutinizing procedural nuances.

We employed the Cochrane risk of bias tool version 2 (Cochrane RoB v2), a widely recognized methodological instrument utilized to systematically assess the potential sources of bias within RCTs. This tool serves as a structured framework for evaluating various domains of study design, including random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective reporting, and other sources of bias. By rigorously applying this tool, we aimed to comprehensively evaluate the methodological quality and validity of the RCTs under scrutiny, thus ensuring robustness and reliability in our analytical approach.

The meta-analysis was conducted utilizing RStudio, a statistical software environment. Continuous variables were synthesized employing the Hedges method under a random-effects model to generate the pooled Standardized Mean Difference (SMD) represented in terms of Hedges's g and its corresponding standard deviations (SDs). A restricted-maximum likelihood (REML) random-effects model was consistently applied for meta-analysis, irrespective of heterogeneity. Statistical

significance was determined by P-values below 0.05, with all tests being two-tailed and significance set at ≤0.05. Heterogeneity was evaluated through the Cochran Q test and I2 statistics, with a significance level set at $p < 0.10$ or an I2 value exceeding 50% indicating substantial heterogeneity among the studies.

RESULT

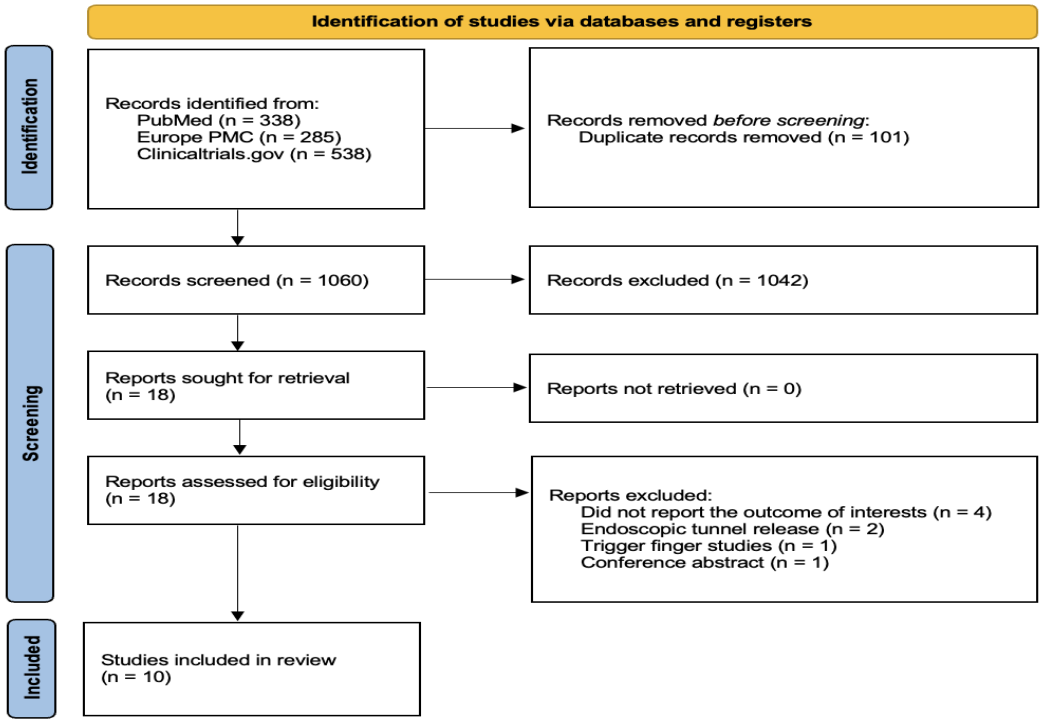

Figure 1. The PRISMA flow chart for the identification and selection of eligible studies for incorporation into this systematic review.

The study selection process was guided by the PRISMA flow chart (figure 1). Initially, potential studies were identified through searches conducted across databases and registers. A total of 1,161 records were initially sourced from PubMed (n = 338), Europe PMC (n = 285), and ClinicalTrials.gov (n = 538). Following the removal of duplicates (n = 101), 1,060 records remained for screening. Among these, 1,042 records were deemed ineligible during the screening process, resulting in 18 records for further evaluation. Subsequently, 18 reports underwent eligibility assessment, leading to the inclusion of 10 studies meeting the predefined criteria for review.[2,5–13] Exclusions during this stage were attributed to various factors, including failure to report outcomes of interest (n = 4), focus on endoscopic tunnel release (n = 2), exploration of trigger finger studies (n = 1), and the presentation of conference abstracts (n = 1).

Our analysis encompassed data extracted from 10 research investigations, comprising a collective sample size of 966 patients, involving a total of 1,028 wrists, with 148 of these representing male subjects. The incorporated studies investigated diverse age cohorts and therapeutic interventions over varying durations. Treatment modalities included steroid injections, physical therapy regimens, and splinting techniques, with efficacy evaluations conducted across intervals ranging from 3 to 18 months. Participant demographics reflected a distribution across age brackets spanning from the third to fifth decades of life, ensuring a broad representation of age groups within the study cohort. Detailed demographic population is presented in table 2.

Table 2. Demographic details from all cohort of included studies.

Study ID	Total cohort, n	Total wrist, n	Male, n	Age, years	Control details	Follow up duration
Celik 2015	100	100	11	50.8 ± 5.01 years vs. 51.4 ± 6.27 years	Steroid injection (bethamethasone 5 mg intralesional)	6 months
Ucan 2006*	57	57	4	44.50 ± 7.24 years vs 44.46 ± 8.52 years vs 45.27 ± 13.19 years	Steroid injection (methylprednisolone 20 mg intralesional)	12 months
Penas 205	120	120	0	47 ± 10 years vs. 46 ± 9 years	Physical rehabilitation (3 sessions; 30 minutes each)	12 months
Ly-Pen 2005	101	163	8	53.17 ± 13.93 years vs. 50.52 ± 10.87 years	Steroid injection (paramethasone acetonide 20 mg intralesional)	12 months
Awan 2015	116	116	17	33.4 ± 5.1 years vs. 32.2±5.1 years	Steroid injection (methylprednisolone 20 mg intralesional)	5 months
Hui 2005	50	50	2	48.2 ± 6.5 years vs. 50.8 ± 11.6 years	Steroid injection (methylprednisolone 15 mg intralesional)	5 months
Ullah 2013	40	40	11	46.9 ± 12.3 years vs. 43.8 ± 11 years	Steroid injection (methylprednisolone intralesional)	3 months
Demirci 2002	90	90	10	45.3 ± 9.9 years vs. 48 ± 8.4 years	Steroid injection (bethamethasone 6.4 mg intralesional)	6 months
Jarvik 2009	116	116	52	51.2 ± 8.9 years vs. 50.2 ± 10.3 years	NSAID (ibuprofen 200 mg three times a day orally) + physical therapy (six visits over 6 weeks)	12 months
Gerritsen 2002	176	176	33	49 ± 12 years vs. 49 ± 11 years	Splinting	18 months
All data is presented in the form of "non-surgical vs surgical"						
*Splinting vs steroid injection vs open release						

According to our meta-analysis, we found that functional outcomes were assessed at various intervals, revealing a SMD of 0.29 [-0.21; 0.80] at 3 months (p < 0.01), -0.44 [-0.74; -0.14] at 6 months (p = 0.02), and -0.28 [-0.55; -0.01] at 12 months (p = 0.17). Sensory function showed an SMD of 0.70 [0.12; 1.29] (p < 0.01). Regarding symptoms, the SMD at 1 month was -0.20 [-0.62; 0.23] (p = 0.03), -0.52 [-1.50; 0.45] at 3 months (p < 0.01), -1.10 [-2.05; -0.16] at 6 months (p < 0.01), and -0.30 [-0.58; -0.02] at 12 months (p = 0.15). Meta analysis for the outcomes of interests of this study is from figure 2-9.

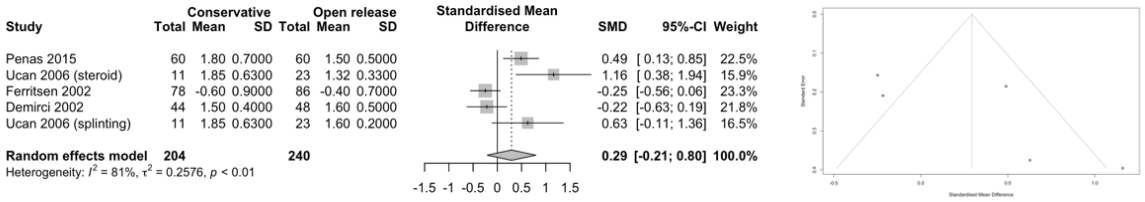

Figure 2. Meta analysis for functional outcome in 3 months.

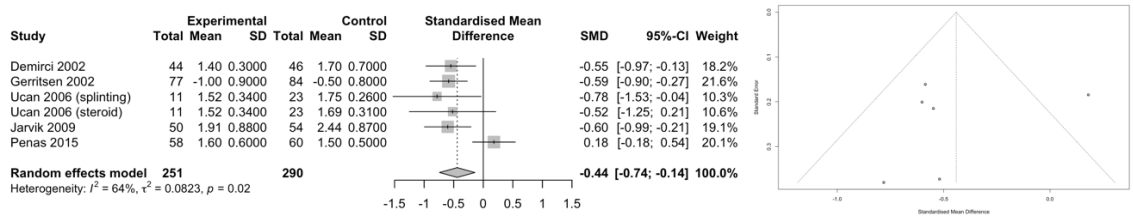

Figure 3. Meta analysis for functional outcome in 6 months.

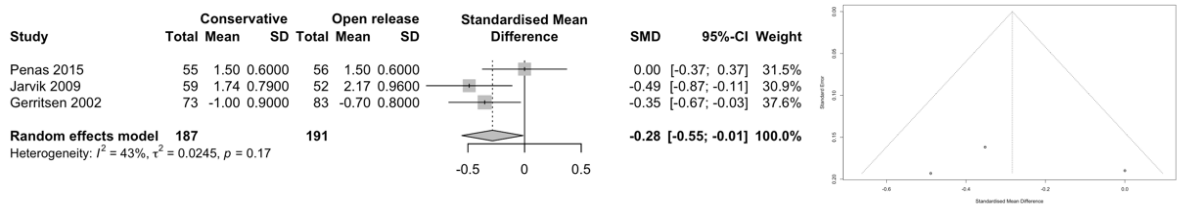

Figure 4. Meta analysis for functional outcome in 12 months.

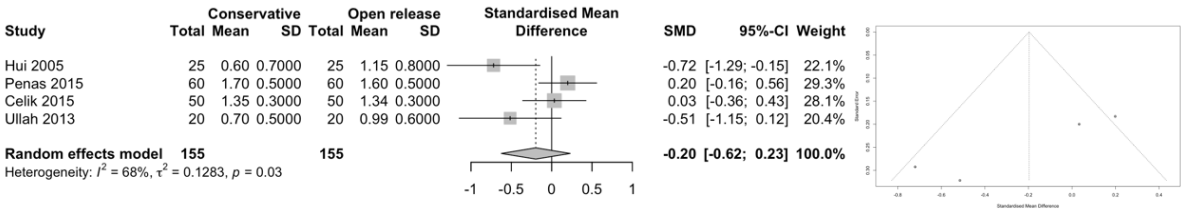

Figure 5. Meta analysis for symptoms changes in 1 month.

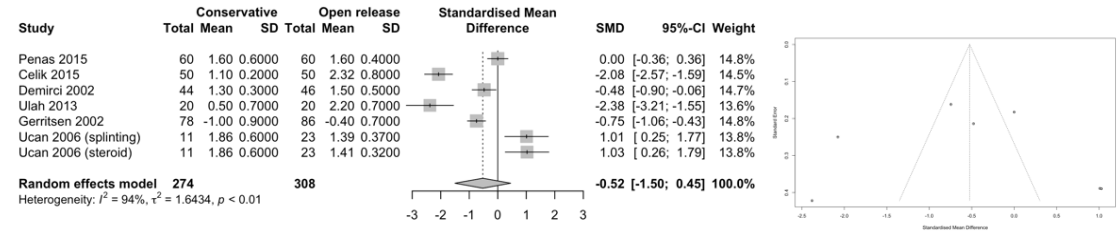

Figure 6. Meta analysis for symptoms changes in 3 months.

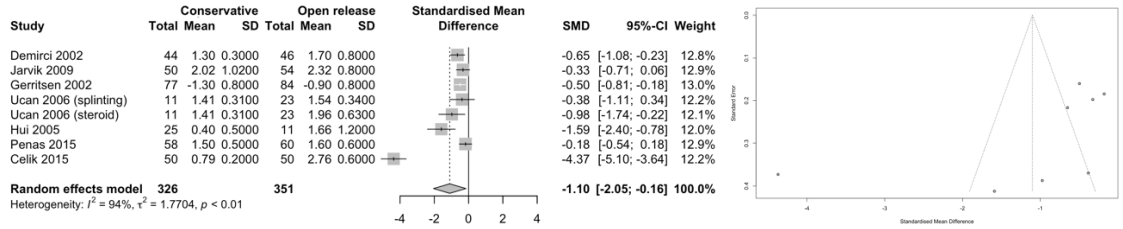

Figure 7. Meta analysis for symptoms changes in 6 months.

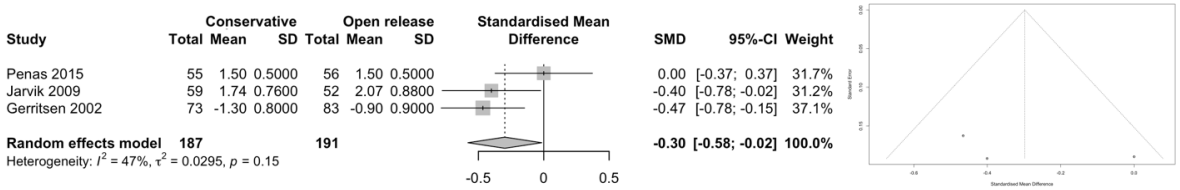

Figure 8. Meta analysis for symptoms changes in 12 months.

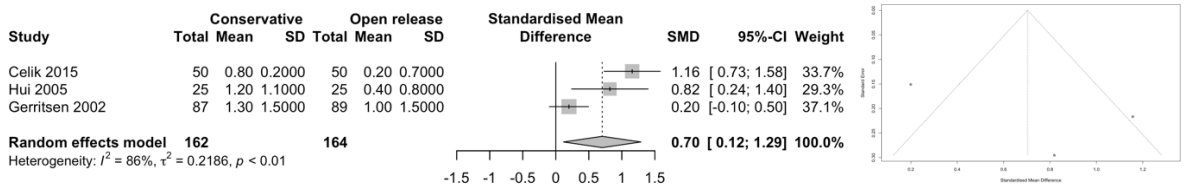

Figure 9. Meta analysis for sensory function.

From Cochran RoB v2 (figure 10), it showed a minimal risk of bias for all included studies.

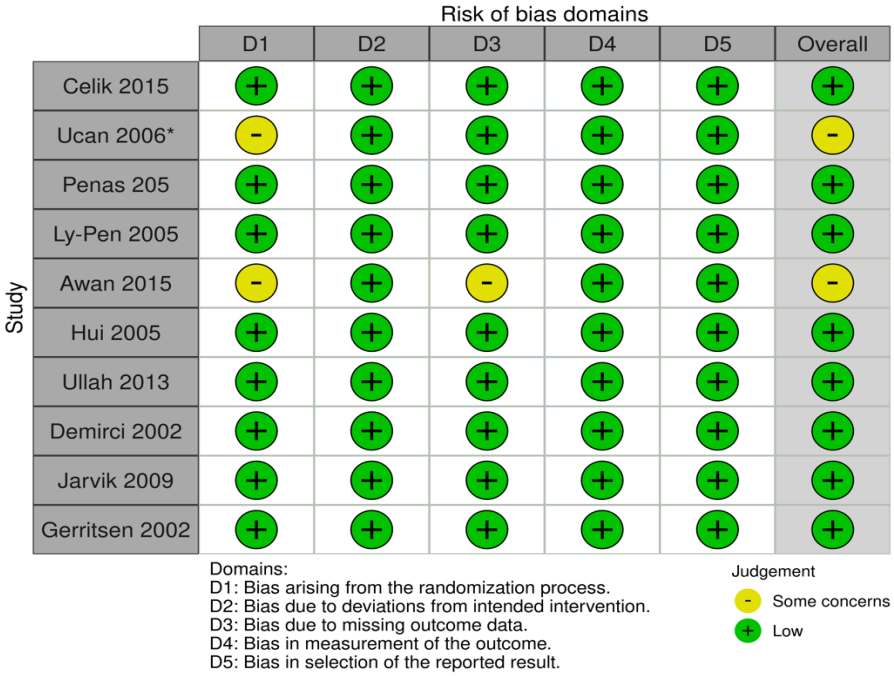

Figure 10. Assessment for risk of bias from included studies using Cochrane RoB v2

DISCUSSION

Open release surgery represents a feasible alternative for individuals suffering from carpal tunnel syndrome who have not attained satisfactory relief through non-invasive therapies. Research indicates that

this surgical intervention effectively mitigates symptoms and enhances manual dexterity, rendering it a beneficial option for those grappling with moderate to severe manifestations of the condition.[14] Nevertheless, a judicious evaluation of the prospective advantages and drawbacks is imperative when contemplating surgical intervention for the management of carpal tunnel syndrome.[1,14]

Functional outcomes following open carpal tunnel release compared to non-surgical intervention are of significant interest in managing CTS. Open carpal tunnel release, a well-established surgical procedure for CTS, has been extensively researched for its efficacy in improving functional outcomes. Turner et al. emphasized the importance of measuring patient-centered outcomes like symptom relief, enhanced function, and satisfaction post-open carpal tunnel release.[15] Meanwhile, Kang et al. introduced the mini-incision technique to enhance early open carpal tunnel release outcomes.[16] Studies by Hacquebord et al. and Mahapatra et al. concluded that open carpal tunnel release effectively alleviates CTS symptoms with comparable long-term outcomes to non-surgical and endoscopic interventions.[17,18] Conversely, non-surgical treatments such as local steroid injections and wrist splinting have shown efficacy as conservative measures. Kim et al.'s meta-analysis underscored the importance of evaluating both surgical and non-surgical approaches.[19] Additionally, there's a trend towards minimally invasive surgeries like endoscopic carpal tunnel release (ECTR), as highlighted by Verdugo et al., owing to their favorable long-term outcomes.[20] Our findings reveal a statistically significant improvement in functional outcomes three months post-treatment, with a small SMD of 0.29 (95% CI [-0.21; 0.80]; $p < 0.01$). However, there's a statistically significant decline in functional improvement by the sixth month, with an SMD of -0.44 (95% CI [-0.74; -0.14]; $p = 0.02$), followed by a slight recovery by the twelfth month, although this recovery is not statistically significant, with an SMD of -0.28 (95% CI [-0.55; -0.01]; $p = 0.17$).

The literature supports the effectiveness of both open carpal tunnel release and non-surgical interventions in relieving symptoms of carpal tunnel syndrome. Turner et al. emphasized the importance of measuring outcomes that matter most to the patient, such as relief of symptoms and improved function, while also favoring conservative nonsurgical approaches for mild to moderate cases, reserving surgical carpal tunnel release for severe symptoms or treatment failures.[15] Additionally, they concluded that surgical treatment significantly relieves symptoms better than splinting. On the non-surgical front, O'Connor et al. discussed various non-surgical treatments for carpal tunnel syndrome, excluding steroid injections, and highlighted the effectiveness of surgical interventions, particularly carpal tunnel release, in alleviating symptoms of numbness, paresthesias, and pain, corroborated by Ostergaard et al.'s findings on non-operative treatment modalities for mild to moderate cases.[21,22] Regarding surgical interventions, they suggested that endoscopic carpal tunnel release is as effective as open carpal tunnel release, with no differences in long-term outcomes, a point further supported by Bokaee's study on Contractubex phonophoresis' potential to improve postsurgical scar characteristics.[23]

Our findings revealed a varied pattern of symptom improvement over time, with statistically significant improvements at one month (SMD = -0.20, $p = 0.03$) and three months (SMD = -0.52, $p < 0.01$), followed by a significant decline at six months (SMD = -1.10, $p < 0.01$), and a slight, albeit statistically insignificant, improvement at twelve months (SMD = -0.30, $p = 0.15$), remaining below baseline.

While some studies demonstrate improvements in sensory function following surgery, others highlight the persistence of abnormal sensory function in a considerable proportion of patients. Rojo-Manaute et al conducted a randomized controlled trial

comparing ultra-minimally invasive carpal tunnel release with mini-open carpal tunnel release, finding that the former provided earlier functional return and less postoperative morbidity with the same neurologic recovery as the latter.[24] Additionally, Burnham et al reported that motor and sensory conduction velocities improved steadily over 6 months following open carpal tunnel release.[25] However, Prick et al. found that distal sensory function remained abnormal in 79% of the patients after carpal tunnel release, emphasizing the need for caution when recurrence of carpal tunnel syndrome is diagnosed in such cases.[26] Furthermore, Kanatani et al. evaluated the electrophysiological recovery after carpal tunnel release and found that the reappearance of distal motor function and sensory nerve conduction velocity were evaluated 1 year and 2 years after the surgery.[27] These findings suggest that while some improvements in sensory function may occur following carpal tunnel release, abnormal sensory function may persist in a significant proportion of patients. In contrast, non-operative treatment of carpal tunnel syndrome may be suitable for some patients, as indicated by Ostergaard et al., who suggested that many patients with moderate to severe carpal tunnel syndrome are best treated with earlier surgical release.[22] Additionally, El-Hajj & Tohme reported that endoscopic carpal tunnel release is effective in improving symptoms and function in patients with carpal tunnel syndrome and severe sensory deficit, with a good prognosis for sensory recovery.[28]

Our systematic review has several limitations that warrant consideration. Firstly, there is variability in treatment protocols among the included studies, encompassing interventions such as steroid injections, physical therapy regimens, and splinting techniques. This variability in protocols within each intervention category may introduce heterogeneity into our meta-analysis, potentially impacting result consistency. Secondly, while the Cochran RoB v2 assessment indicates minimal risk of bias, there are shortcomings in data reporting across studies, including incomplete reporting of participant demographics, treatment protocols, and outcome measures, which could hinder our ability to fully assess study quality and relevance. Additionally, inconsistencies in follow-up duration, ranging from 1 to 12 months, complicate the interpretation of findings and limit our ability to draw conclusions about long-term efficacy. Lastly, although participant demographics were broadly represented, potential confounders and effect modifiers, such as comorbidities or severity of carpal tunnel syndrome, may not have been consistently accounted for or analyzed, potentially impacting the validity and reliability of our meta-analysis results.

CONCLUSION

Open release surgery is considered when conservative measures fail to provide adequate relief from symptoms of carpal tunnel syndrome or when specific indications suggest that surgery would be more appropriate. The procedure involves cutting the transverse carpal ligament to alleviate pressure on the median nerve and has been shown to be more effective than non-surgical treatments in providing long-term relief and improving functional status in patients with CTS. Therefore, open release surgery remains an important option for the management of carpal tunnel syndrome when conservative measures are insufficient.

Declaration by Authors

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Acknowledgement: None
Source of Funding: None
Conflict of Interest: The authors declare no conflict of interest.

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