



Ultrasound-Guided Percutaneous Needle Release for the Treatment of Carpal Tunnel Syndrome

Effective: January 1, 2026

Next Review: November 2026

Last Review: December 2025

IMPORTANT REMINDER

Medical Policies are developed to provide guidance for members and providers regarding coverage in accordance with contract terms. Benefit determinations are based in all cases on the applicable contract language. To the extent there may be any conflict between the Medical Policy and contract language, the contract language takes precedence.

PLEASE NOTE: Contracts exclude from coverage, among other things, services or procedures that are considered investigational or cosmetic. Providers may bill members for services or procedures that are considered investigational or cosmetic. Providers are encouraged to inform members before rendering such services that the members are likely to be financially responsible for the cost of these services.

DESCRIPTION

Ultrasound-guided percutaneous needle release is a minimal invasive surgical treatment for carpal tunnel syndrome.

MEDICAL POLICY CRITERIA

The use of ultrasound-guided percutaneous needle release for the treatment of carpal tunnel syndrome is considered **investigational**.

NOTE: A summary of the supporting rationale for the policy criteria is at the end of the policy.

CROSS REFERENCES

None

BACKGROUND

Carpal tunnel syndrome is caused by compression of the median nerve as it passes through the carpal tunnel at the wrist. The carpal tunnel is a passageway formed by the carpal bones

and the transverse carpal ligament, and compression results from swelling or thickening of tissues within this space. When conservative treatments such as splinting, corticosteroid injections, or activity modification do not provide relief, surgical intervention may be indicated. Surgical decompression involves release of the median nerve by cutting the transverse carpal ligament typically completed with an open approach or endoscopically. Emerging minimally invasive techniques in development include ultrasound-guided percutaneous needle release (UGPNR).

EVIDENCE SUMMARY

Systematic Reviews

Chou (2023) published a systematic review examining ultrasound-guided percutaneous carpal tunnel release (USCTR) for treating carpal tunnel syndrome.^[1] The review included 20 studies with 1,772 USCTR cases, comprising three randomized controlled trials, three prospective cohort studies, and 14 case series. The overall level of evidence was very low, with seven studies having at least moderate risk of bias. Thirteen studies exceeded the minimal clinically important difference for the Boston Carpal Tunnel Questionnaire Symptom Severity Scale and Functional Status Scale, and six studies exceeded the minimal clinically important difference for the Quick Disabilities of Arm, Shoulder & Hand questionnaire. Five studies reported statistically significant improvement in functional outcome measures as early as the first week post-procedure. One major complication occurred (suspected compartment syndrome), and minor complications were reported in 24 patients. The authors concluded that early studies suggest USCTR may be effective for carpal tunnel syndrome with potential for short post-procedure recovery times, though evidence quality was very low.

Non-Randomized Studies

Ulusoy (2025) performed a comparative study of 172 patients comparing ultrasound-guided percutaneous release (Group A, n=66) with mini-open surgery (Group B, n=106).^[2] The study included 112 women and 60 men with mean ages of 61 years for female patients and 54 years for male patients. Both groups demonstrated significant improvements in Boston Carpal Tunnel Questionnaire and Quick Disabilities of Arm, Shoulder & Hand scores at all postoperative time points compared to preoperative scores ($p < 0.001$). The ultrasound-guided group showed advantages in shorter treatment duration ($p < 0.001$), lower cost ($p < 0.05$), and faster recovery time. Electrophysiological evaluations revealed faster improvements in distal motor latency and sensory conduction velocity in the ultrasound-guided group ($p < 0.05$). Ultrasound assessments indicated that both methods achieved effective release of the transverse carpal ligament. No significant differences were observed in long-term questionnaire scores between groups.

Descamps (2025) performed a retrospective analysis of 926 patients who underwent 1,256 ultrasound-guided carpal tunnel release procedures between November 2018 and May 2024.^[3] Post-procedure, significant symptom improvement was observed with paresthesia rates decreasing from 99% (620/626) to 8.5% (79/926) and pain rates from 96% (654/926) to 9% (83/926). Strength restoration was noted, and 95.8% (628/926) of patients reported positive results with the procedure. Safety was demonstrated by a low complication rate of 0.7% (10/1256). Data validation demonstrated accuracy of 96.3% and precision of 100%.

Moungondo (2024) conducted a prospective study of 30 patients divided into two groups (15 carpal tunnel syndrome, 15 trigger finger) using Sono-Instruments for percutaneous release.^[4]

In the carpal tunnel syndrome group, the average age of patients was 58.7 years. Percutaneous release of the transverse carpal ligament was effectively completed in all cases with excellent device performance and no adverse events. At one week, all patients could wash their hands, 80% could perform activities of daily living, and 80% of those working had returned to their activities. At two months, all patients had resumed all activities, though pillar pain was still present in 53.3%. The DASH score was significantly improved at two months compared to preoperative values for both groups ($p < 0.001$).

PRACTICE GUIDELINE SUMMARY

The American Academy of Orthopedic Surgeons (AAOS)

In 2024, the AAOS published an evidence-based clinical practice guideline on the management of carpal tunnel syndrome that was endorsed by the American Association for Hand Surgery (AAHS).^[5] These guidelines do not address US-guided percutaneous needle release.

SUMMARY

The evidence for ultrasound-guided percutaneous release for treatment of carpal tunnel syndrome includes one systematic review and non-randomized studies. There is not enough high-quality evidence to definitively demonstrate that ultrasound-guided percutaneous needle release can improve health outcomes for patients with carpal tunnel syndrome compared to established treatments. No clinical practice guidelines have recommended ultrasound-guided percutaneous needle release for carpal tunnel syndrome. Therefore, this procedure is considered investigational.

REFERENCES

1. Chou RC, Robinson DM, Homer S. Ultrasound-guided percutaneous carpal tunnel release: A systematic review. *Pm r*. 2023;15(3):363-79. PMID: 35254722
2. Ulusoy İ, Yılmaz M, Tantekin MF, et al. Ultrasound-Guided Percutaneous Release and Mini-Open Surgery in Carpal Tunnel Syndrome: A Comparison of Short- and Long-Term Outcomes. *Medicina (Kaunas)*. 2025;61(5). PMID: 40428757
3. Descamps J, Draznieks G, Nizard R, et al. Real-world data on efficacy and safety of 1256 consecutive ultrasound-guided percutaneous carpal tunnel release. *J Plast Reconstr Aesthet Surg*. 2025;106:11-18. PMID: 40367647
4. Mounghondo F, Van Rompaey H, Moussa MK, et al. Prospective evaluation of a novel device for ultrasound-guided percutaneous treatment of carpal tunnel and trigger finger disease. Efficacy and safety of sono-instruments®. *J Ultrasound*. 2024;27(4):873-85. PMID: 38600313
5. American Academy of Orthopaedic Surgeons. Management of Carpal Tunnel Syndrome Evidence-Based Clinical Practice Guideline. . [cited 11/04/2025]. 'Available from:' <https://www.aaos.org/globalassets/quality-and-practice-resources/carpal-tunnel/carpal-tunnel-2024/cts-cpg.pdf>.

CODES

Codes	Number	Description
CPT	64728	Decompression; median nerve at the carpal tunnel, percutaneous, with intracarpal tunnel balloon dilation, including ultrasound guidance
HCPCS	None	

Date of Origin: November 2025