

Medical Coverage Policy | Thermal Capsulorrhaphy as a Treatment of Joint Instability



EFFECTIVE DATE: 02|03|2015

POLICY LAST UPDATED: 5/18/2022

OVERVIEW

Thermal capsulorrhaphy uses thermal energy to restructure collagen in the capsule or ligaments to reduce the capsule size. This procedure has primarily been evaluated for shoulder joint instability but may also be proposed to treat capsular laxity in other joints.

MEDICAL CRITERIA

Not applicable

PRIOR AUTHORIZATION

Not applicable

POLICY STATEMENT

Medicare Advantage Plans

Thermal capsulorrhaphy is not covered as a treatment of joint instability, including, but not limited to the shoulder, knee, and elbow as the evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

Commercial Products

Thermal capsulorrhaphy is considered not medically necessary as a treatment of joint instability, including, but not limited to the shoulder, knee, and elbow as the evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

COVERAGE

Benefits may vary between groups and contracts. Please refer to the appropriate section of the Benefit Booklet, Evidence of Coverage, or Subscriber Agreement for applicable not medically necessary/not covered benefits/coverage.

BACKGROUND

Shoulder instability is a relatively common occurrence, reported in between 2% and 8% of the population. The condition may arise from a single traumatic event (i.e., subluxation or dislocation), repeated micro-trauma, or constitutional ligament laxity, resulting in deformity and/or damage to the glenohumeral capsule and ligaments. Shoulder instability may be categorized according to the movement of the humeral head (ie, either anterior, posterior, inferior, or multidirectional instability). Multidirectional instability most frequently consists of anterior and inferior subluxation or dislocation. Inferior movement is also classified as multidirectional.

Initial treatment of shoulder subluxation or dislocation is conservative in nature followed by range of motion and strengthening exercises. However, if instability persists, either activity modifications or surgical treatment may be considered. Activity modification may be appropriate for patients who can identify a single motion that aggravates instability, such as overhead throwing motions. Surgical treatment may be considered in those who are unwilling to give up specific activities (ie, related to sports) or when instability occurs frequently or during daily activities.

Surgery consists of inspection of the shoulder joint with repair, reattachment, or tightening of the labrum, ligaments, or capsule, performed either with sutures or sutures attached to absorbable tacks or anchors. While arthroscopic approaches have been investigated over the past decade, their degree of success has been controversial due to a higher rate of recurrent instability compared with open techniques, thought to be related in part to the lack of restoration of capsular tension. Recent reports of arthroscopic techniques have described various suturing techniques for tightening the capsule, which require mastery of technically difficult arthroscopic intra-articular knot-tying.

Thermal capsulorrhaphy has been proposed as a technically simpler arthroscopic technique for tightening the capsule and ligaments. The technique is based on the observation that the use of nonablative levels of radiofrequency thermal energy can alter the collagen in the glenohumeral ligaments and/or capsule, resulting in their shrinkage and a decrease in capsular volume, both thought to restore capsular tension. Thermal capsulorrhaphy may be used in conjunction with arthroscopic repair of torn ligaments or other structures (i.e., repair of Bankart or superior labrum anterior and posterior lesion). In addition, thermal capsulorrhaphy has been investigated as an arthroscopic treatment of glenohumeral laxity, a common injury among overhead athletes, such as baseball players, resulting in internal impingement of the posterior rotator cuff against the glenoid labrum. Internal impingement is often accompanied by posterior rotator cuff tearing and labral injury. Thermal capsulorrhaphy has also been proposed as a sole arthroscopic treatment. For example, the technique may be considered in patients with chronic shoulder pain without recognized instability, based on the theory that the pain may be related to occult or microinstability. This diagnosis may be considered when a diagnostic arthroscopy reveals only lax ligaments and is commonly seen among baseball players. Finally, thermal capsulorrhaphy may be considered in patients with congenital ligamentous laxity, such as Ehlers-Danlos or Marfan syndrome.

While thermal capsulorrhaphy was initially investigated using laser energy, the use of radiofrequency probes is now more commonly employed. Devices include Oratec® ORA-50 Monopolar RF Generator (Oratec Interventions, Menlo Park, CA) and ArthroCare® (ArthroCare, Sunnyvale, CA).

The literature does not support use of thermal capsulorrhaphy. The few available comparative studies do not support that this procedure is an efficacious treatment for shoulder instability. The case series report a high rate of unsatisfactory results and complications, raising the potential for a net harm. Because of the lack of efficacy and potential for harm, this procedure is considered not medically necessary.

CODING

Medicare Advantage Plans and Commercial Products

As there is no specific CPT code available for the use of thermal capsulorrhaphy in the ankles, knees, hip, wrist, or elbow, the following unlisted code should be used:

29999 Unlisted arthroscopy procedure

The following HCPCS code is not covered for Medicare Advantage Plans and not medically necessary for Commercial Products:

S2300 Arthroscopy, shoulder, surgical; with thermally-induced capsulorrhaphy

RELATED POLICIES

Not applicable

PUBLISHED

Provider Update, July 2022

Provider Update, December 2021

Provider Update, January 2021

Provider Update, January 2020

Provider Update, September 2018

REFERENCES

1. Abrams JS. Thermal capsulorrhaphy for instability of the shoulder: concerns and applications of the heat probe. *Instr Course Lect.* 2001;50:29-36. PMID 11372327
2. Gryler EC, Greis PE, Burks RT, et al. Axillary nerve temperatures during radiofrequency capsulorrhaphy of the shoulder. *Arthroscopy.* Jul 2001;17(6):567-572. PMID 11447541
3. Mohtadi NG, Hollinshead RM, Ceponis PJ, et al. A multi-centre randomized controlled trial comparing electrothermal arthroscopic capsulorrhaphy versus open inferior capsular shift for patients with shoulder instability: protocol implementation and interim performance: lessons learned from conducting a multi-centre RCT [ISRCTN68224911; NCT00251160]. *Trials.* 2006;7:4. PMID 16542033
4. Levitz CL, Dugas J, Andrews JR. The use of arthroscopic thermal capsulorrhaphy to treat internal impingement in baseball players. *Arthroscopy.* Jul 2001;17(6):573-577. PMID 11447542
5. Savoie FH, 3rd, Field LD. Thermal versus suture treatment of symptomatic capsular laxity. *Clin Sports Med.* Jan 2000;19(1):63-75, vi. PMID 10652665
6. Chen S, Haen PS, Walton J, et al. The effects of thermal capsular shrinkage on the outcomes of arthroscopic stabilization for primary anterior shoulder instability. *Am J Sports Med.* May 2005;33(5):705-711. PMID 15722277
7. Levy O, Wilson M, Williams H, et al. Thermal capsular shrinkage for shoulder instability. Mid-term longitudinal outcome study. *J Bone Joint Surg Br.* Jul 2001;83(5):640-645. PMID 11476296
8. D'Alessandro DF, Bradley JP, Fleischli JE, et al. Prospective evaluation of thermal capsulorrhaphy for shoulder instability: indications and results, two- to five-year follow-up. *Am J Sports Med.* Jan-Feb 2004;32(1):21-33. PMID 14754720
9. Levine WN, Bigliani LU, Ahmad CS. Thermal capsulorrhaphy. *Orthopedics.* Aug 2004;27(8):823-826. PMID 15369001
10. Hawkins RJ, Krishnan SG, Karas SG, et al. Electrothermal arthroscopic shoulder capsulorrhaphy: a minimum 2-year follow-up. *Am J Sports Med.* Sep 2007;35(9):1484-1488. PMID 17456642
11. Jansen N, Van Riet RP, Meermans G, et al. Thermal capsulorrhaphy in internal shoulder impingement: a 7-year follow-up study. *Acta Orthop Belg.* Jun 2012;78(3):304-308. PMID 22822568
12. Mason WT, Hargreaves DG. Arthroscopic thermal capsulorrhaphy for palmar midcarpal instability. *J Hand Surg Eur Vol.* Aug 2007;32(4):411-416. PMID 17950196
13. Zheng N, Davis BR, Andrews JR. The effects of thermal capsulorrhaphy of medial parapatellar capsule on patellar lateral displacement. *J Orthop Surg Res.* 2008;3:45. PMID 18826583
14. Good CR, Shindle MK, Kelly BT, et al. Glenohumeral chondrolysis after shoulder arthroscopy with thermal capsulorrhaphy. *Arthroscopy.* Jul 2007;23(7):797 e791-795. PMID 17637423
15. Lubowitz JH, Poehling GG. Glenohumeral thermal capsulorrhaphy is not recommended--shoulder chondrolysis requires additional research [editorial]. *Arthroscopy.* Jul 2007;23(7):687. PMID 17637401
16. Johnson SM, Robinson CM. Shoulder instability in patients with joint hyperlaxity. *J Bone Joint Surg Am.* Jun 2010;92(6):1545-1557. PMID 20516333
17. Virk SS, Kocher MS. Adoption of new technology in sports medicine: case studies of the Gore-Tex prosthetic ligament and of thermal capsulorrhaphy. *Arthroscopy.* Jan 2011;27(1):113-121. PMID 20974526
18. American Academy of Orthopaedic Surgeons (AAOS). OrthoInfo: Thermal Capsular Shrinkage. 2010; <http://orthoinfo.aaos.org/topic.cfm?topic=a00034>. Accessed April, 2015.

CLICK THE ENVELOPE ICON BELOW TO SUBMIT COMMENTS

This medical policy is made available to you for informational purposes only. It is not a guarantee of payment or a substitute for your medical judgment in the treatment of your patients. Benefits and eligibility are determined by the member's subscriber agreement or member certificate and/or the employer agreement, and those documents will supersede the provisions of this medical policy. For information on member-specific benefits, call the provider call center. If you provide services to a member which are determined to not be medically necessary (or in some cases medically necessary services which are non-covered benefits), you may not charge the member for the services unless you have informed the member and they have agreed in writing in advance to continue with the treatment at their own expense. Please refer to your participation agreement(s) for the applicable provisions. This policy is current at the time of publication; however, medical practices, technology, and knowledge are constantly changing. BCBSRI reserves the right to review and revise this policy for any reason and at any time, with or without notice. Blue Cross & Blue Shield of Rhode Island is an independent licensee of the Blue Cross and Blue Shield Association.

