Facet Neurotomy

ACG: A-0218 (AC)
Link to Codes

MCG Health
Ambulatory Care
30th Edition

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Clinical Indications

- Facet neurotomy (rhizotomy) may be indicated when **ALL** of the following are present(1)(2)(3)(4):
  - Chronic cervical or lumbar spinal pain (at least 3 months' duration) originating from **1 or more** of the following:N
    - Cervical spine (eg, following whiplash injury)(5)
    - Lumbar spine
  - Failure of nonoperative management, as indicated by **1 or more** of the following(23):
    - Exercise program
    - Pharmacotherapy[A]
    - Physical therapy or spinal manipulation therapy
  - Imaging studies and physical examination have ruled out other causes of spinal pain (eg, disk herniation with concordant radicular pain, spinal stenosis with neurogenic claudication, fracture, tumor).
  - Planned procedure, as indicated by **1 or more** of the following:

- Initial facet neurotomy when both initial and secondary diagnostic (dual diagnostic blocks are necessary to diagnose facet pain) fluoroscopically guided controlled local anesthetic blocks of medial branches of dorsal spinal nerves, or intra-articular facet joint injections, achieve at least 80% pain relief from baseline pain scores(5)(25)(26)
- Repeat facet neurotomy at same spinal level(s) when there is prior history of successful facet neurotomy (50% or more reduction in pain documented for at least 3 months)[B]

- No coagulopathy(27)
- No current infection

Alternatives

- Nonoperative management may include(1)(2)(28):
  - Cognitive behavioral therapy
  - Exercise program
  - Pharmacotherapy[A](29)
  - Physical therapy. See Spine Soft Tissue Dysfunction Rehabilitation AC for further information.
  - Spinal manipulation therapy. See Spinal Manipulation Therapy (SMT), Chiropractic and Other AC for further information.

Evidence Summary

Background

A potential source of spinal pain is the posterior zygapophysial joint (facet, Z joint), which adjoins adjacent vertebrae. Damage or inflammation at this joint may cause back pain, and facet joint neurotomy is intended to alleviate this pain by thermocoagulation of the medial branches of the dorsal spinal nerve that course externally around the facet joint space.(2) **(EG 2)**

There is no single history or physical examination finding considered pathognomonic for Z joint syndrome. Diagnosis of facet joint pain can be made when controlled local anesthetic blockade of the medial branches of the posterior rami of the spinal nerves that supply the putative painful joint(s), or anesthetic delivered via facet joint injection, provides relief of the target pain. In controlled diagnostic testing, the patient receives an injection of a short-acting anesthetic agent (lidocaine), and those patients who have at least 80% short-term pain reduction from baseline pain scores are then injected with a longer-acting agent (bupivacaine). Patients with at least 80% pain reduction from baseline pain scores after injection of the longer-acting anesthetic agent are considered to be candidates for facet neurotomy.(1)(5)(6)(7) **(EG 2)**

Radiofrequency neurotomy is performed using percutaneous introduction of an electrode under fluoroscopic guidance to thermocoagulate medial branches of the dorsal spinal nerves.(8)(9)(10) **(EG 2)**

Criteria

The evidence for the clinical indications found in this guideline includes 26 published peer reviewed articles and 1 Cochrane systematic review.

For chronic nonradicular cervical or lumbar spinal pain of at least 3 months' duration, evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** A specialty society practice guideline recommends cervical or lumbar radiofrequency neurotomy for patients who have failed conservative management, who lack evidence of other spinal pathology (eg, herniated disk), and who experience greater than or equal to 80% pain relief from baseline with controlled diagnostic local anesthetic blockade of the medial branches of the posterior rami of

the spinal nerves that innervate the putative painful joint(s).(1) **(EG 2)** A systematic review and single-arm meta-analysis of 20 studies (5 randomized controlled trials and 15 observational studies) evaluating the effectiveness of cervical facet neurotomy for cervicogenic headache and neck pain (as measured by the visual analog scale, numeric rating scale, or patient-reported improvement by 50%) concluded that, overall, facet neurotomy provided similar improvements in neck pain and headache compared with control treatments; the authors concluded that while there is modest evidence to support facet neurotomy for treatment of neck pain, the evidence remains poor for cervicogenic headache.(14) **(EG 1)** A systematic review of one randomized sham-controlled and 5 observational studies found fair evidence supporting the use of cervical radiofrequency neurotomy for facet joint pain.(15) **(EG 1)** A systematic review determined that the average duration of greater than 50% pain relief was approximately 7 to 9 months for initial cervical radiofrequency neurotomy; repeat neurotomy was successful 67% to 95% of the time when the first procedure was successful.(16) **(EG 1)** A systematic review evaluating the efficacy of medial branch radiofrequency neurotomy for treatment of chronic cervical Z joint pain reported pain-free ranges of 46% to 70% at 6 months and 26% to 51% at 12 months.(17) **(EG 1)** A systematic review of 12 randomized controlled trials that evaluated the efficacy of radiofrequency denervation for suspected lumbar facet joint pain found, as compared with placebo, moderate evidence to support its use to improve pain over the short term, and low-quality evidence to support its use to improve functional status over the short term and long term. In addition, there was very-low-quality to low-quality evidence that radiofrequency denervation is more effective than steroid injection for pain relief in the short term, intermediate term, and long term. Additional high-quality randomized controlled trials with larger patient populations were recommended.(18) **(EG 1)** A systematic review and meta-analysis of 6 randomized controlled trials (180 patients) evaluating change in visual analog scale pain scores 6 months after radiofrequency denervation found that radiofrequency denervation resulted in a significant improvement in pain scores compared with controls. The authors report that the analysis was limited by heterogeneous study designs and outcome measures.(19) **(EG 1)** A systematic review determined that the average duration of greater than 50% pain relief was approximately 9 months for initial lumbar radiofrequency neurotomy; repeat neurotomy was successful 33% to 85% of the time when the first procedure was successful, with an average duration of pain relief of 12 months.(16) **(EG 1)** Three combined randomized controlled clinical trials of 681 patients with chronic low back pain treated with radiofrequency denervation compared with an exercise program and psychosocial support found, at 3-month follow-up, that of the 251 patients with a positive diagnostic block at the facet joints, radiofrequency nerve denervation was not associated with a significant decrease in pain intensity as assessed with a numerical rating scale.(20) **(EG 1)** A review of radiofrequency neurotomy for lumbar Z joint pain determined that if there is poor localization of the Z joint and failure to control for false-positive test blocks, final outcomes will be confusing and often negative, as is frequently reported in the literature. When accurate technique and a control were used, 60% of patients were shown in an earlier randomized controlled study to obtain at least 80% relief lasting at least 12 months after treatment.(8) **(EG 2)** An evidence-based guideline states that there is moderate evidence that the diagnosis of lumbar facet-mediated back pain can be established with use of a median nerve double-injection technique that results in a greater than 80% pain improvement threshold; the results are predictive of a good response to facet neurotomy.(21) **(EG 2)** An evidence-based clinical practice guideline evaluating the effectiveness of interventional procedures for chronic (ie, 3 months or more) cervical and lumbar pain strongly recommends against the use of therapeutic facet corticosteroid injections and facet neurotomy based on a lack of strong supporting evidence and poorly reported patient-important outcomes.(22) **(EG 2)**

Inconclusive or Non-Supportive Evidence

For cervicogenic headache, evidence is insufficient, conflicting, or poor and demonstrates an incomplete assessment of net benefit vs harm; additional research is recommended. **(RG B)** A clinical review identified 3 studies that demonstrated lack of efficacy regarding use of facet neurotomy for treatment of cervicogenic headache. Structural limitations of the studies included patient selection by clinical criteria rather than by diagnostic block, nonvalidated neurotomy techniques, and treatment of multiple cervical levels not implicated as the source of cervicogenic headaches.(11) **(EG 2)** A systematic review of 9 studies did not find any high-quality evidence to support the use of radiofrequency ablation for cervicogenic headache.(12) **(EG 1)**

For thoracic spinal pain, evidence is insufficient, conflicting, or poor and demonstrates an incomplete assessment of net benefit vs harm; additional research is recommended. **(RG B)** A systematic review identified only 2 studies of thoracic spine radiofrequency neurotomy (total 68 patients), both of which reported 64% pain relief at 12-month follow-up. The authors concluded that there was limited evidence supporting the use of thoracic spine radiofrequency neurotomy.(13) **(EG 1)** A specialty society practice guideline makes a weak to moderate-strength recommendation for radiofrequency ablation for the treatment of thoracic facet joint pain; however, the authors noted that the recommendation is based on low-level to moderate-level or nonrandomized trials.(1) **(EG 2)** Another specialty society practice guideline states that thoracic medial branch radiofrequency neurotomy may be used for the treatment of thoracic facet joint pain; however, the authors noted a lack of high-quality literature and recommended further research.(4) **(EG 2)**

Rationale

Use of this MCG care guideline helps the clinician determine if a particular treatment, medication, or service might be appropriate for a specific patient, taking into account their unique health complexities.

Use of these evidence-based clinical criteria to support decision making benefits the patient by identifying patient-specific complex clinical factors and conditions, promoting personalized treatment. Utilizing evidence-based clinical criteria promotes patient safety by helping ensure that potential patient benefits outweigh the risks. In addition, the use of evidence-based guidelines can increase consistency in treatment thresholds, leading to less variation in care and promoting equitable treatment among patients.

Related CMS Coverage Guidance

This guideline supplements but does not replace, modify, or supersede existing Medicare regulations or applicable National Coverage Determinations (NCDs) or Local Coverage Determinations (LCDs).

Code of Federal Regulations (CFR): 42 CFR 419.22(30); 42 CFR 422.101(31)

Internet-Only Manual (IOM) Citations: CMS IOM Publication 100-02, Medicare Benefit Policy Manual, Chapter 14 - Medical Devices(32); CMS IOM Publication 100-02, Medicare Benefit Policy Manual, Chapter 15 - Covered Medical and Other Health Services(33); CMS IOM Publication 100-02, Medicare Benefit Policy Manual, Chapter 16 - General Exclusions from Coverage(34)

Medicare Coverage Determinations: Medicare Coverage Database(35)

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Footnotes

[A] There is some evidence to support the short-term benefit of opioids for mild to moderate pain, but the evidence for improvement in function is inconsistent. Given that chronic opioid therapy for noncancer pain often begins with acute opioid prescriptions, clinicians should provide the lowest effective dose for the shortest duration necessary (eg, 2 to 3 days) to alleviate pain when giving prescriptions for acute pain; limiting the duration of opioid therapy can minimize the need to taper to prevent withdrawal symptoms at the end of the course of opioids and limit unused opioids.(24) [A in Context Link 1, 2]

[B] Expert consensus and specialty society guidelines recommend repeating radiofrequency ablation in individuals who experience 3 to 6 months of successful pain relief (defined as 50% or greater relief) no more frequently than every 6 months.(1)(2)(3)(4) [B in Context Link 1]

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