

Subject: Lysis of Epidural Adhesions**Document #:** SURG.00072**Status:** Reviewed**Publish Date:** 04/10/2024**Last Review Date:** 02/15/2024

Description/Scope

This document addresses lysis of epidural adhesions, which refers to the disruption of fibrous tissue in the epidural space of the spine. Epidural adhesions are similar to scar tissue and are most commonly observed following invasive procedures, such as spinal surgery, catheter placement, or injections. This procedure is also known as the RACZ procedure or epidural neurolysis. During the procedure, a special epidural catheter is inserted into the epidural space and lysis of the adhesions is conducted. Methods of lysis most commonly involve manipulation of the catheter to disrupt the adhesions, injection of a chemical lytic agent, such as hypertonic saline, with or without other agents, mechanical cutting, balloon dissection, and radiofrequency ablation.

Note: Please see the following related document for additional information:

- [SURG.00073 Epiduroscopy](#)

Position Statement

Investigational and Not Medically Necessary:

Lysis of epidural adhesions by any means, including but not limited to, use of hypertonic saline injections, mechanical catheter manipulation, hyaluronidase, whether done with or without steroids or analgesics, is considered **investigational and not medically necessary**.

Rationale

In 2004, Manchikanti reported on a double-blind, placebo controlled trial that examined the role of mechanical epidural lysis of adhesions with or without additional hypertonic saline compared to placebo. A total of 75 participants were randomized to one of three groups: (1) a control group with catheterization without adhesiolysis followed by injection of local anesthetic, normal saline and steroid; (2) catheterization and adhesiolysis followed by injection of local anesthetic, normal saline and steroid; (3) adhesiolysis followed by injection of local anesthetic, hypertonic saline and steroids. Repeated treatments within the assigned group were permitted for up to 3 months. Beyond that time, unblinding was permitted if requested. After 12 months, all participants were unblinded. Outcome measures at 3, 6, and 12 months included Visual Analog Score (VAS) pain scale, Oswestry Disability Index (ODI), work status, opioid intake, range of motion exercises and psychological evaluation. At 3 months, when all participants remained blinded, the authors reported significant improvement in all outcome measures in the two active treatment groups compared to the control group. The treatment effect was quite strong, for example in both adhesiolysis groups, the mean VAS score dropped from 8.8 at the start of the study to between 4.7 and 4.8 at 3 months. Similarly, the ODI dropped from 37 to between 26 and 24. The proportion of participants using opioids dropped from 72% to 16%. This dramatic response in a small number of individuals raises questions about the reproducibility of results. In addition, while the participants and physical therapist were blinded to the treatment group, it is not clear if the treating physician was blinded. The protocol states that the treatment assigned was blinded to the "reviewing physician," but it is not clear who this physician is. For example, additional treatments were permitted "based on response," and it is unclear if this assessment was done in a blinded manner. The same group of investigators reported on an unblinded study of 45 participants who were randomly assigned to either a control group (n=15) who were treated conservatively, or to an active treatment group (n=30) treated with adhesiolysis. The participants were evaluated over 1.5 to 3 years. The treatment group reported increased improvement in terms of pain and function and other outcome measures compared to the control group. However, the small number of participants and lack of a placebo control group limits the interpretation of these results. It should also be noted that the majority of studies addressing adhesiolysis are authored by the same group of investigators, raising questions about the reproducibility of results (Manchikanti, 2001).

Veihelmann (2006) studied 99 participants with chronic low back pain who were randomly assigned to receive either physiotherapy (n=52) or epidural neurolysis (n=47) using ropivacaine, triamcinolone and 10% saline injected via catheter. Participants were assessed before treatment and after 3, 6, and 12 months post treatment by a blinded investigator. This trial did not include a placebo control. After 3 months, the VAS score for back and leg pain was significantly reduced in the epidural neuroplasty group, and the need for pain medication was reduced in both groups. Furthermore, the VAS for back and leg pain as well as the Oswestry disability score were significantly reduced until 12 months after the procedure in contrast to the group that received conservative treatment. Although the researchers concluded that epidural neuroplasty results in significant alleviation of pain and functional disability in participants with chronic low back pain, they also acknowledged that further prospective randomized double-blind studies should be performed to prove the effectiveness of epidural neuroplasty in comparison to placebo and to open discectomy procedures.

Chun-jing et al (2012) reported on a single-center, double-blind population of 92 Chinese individuals with FBSS who received lysis of epidural adhesions. The participants were randomly divided into two groups, a control group of 46 participants and a treatment group of 46 participants. The control group received an epidural injection of dexamethasone, while the treatment group received lysis of epidural adhesions followed by epidural injection of dexamethasone. Participants were evaluated prior to the procedure, at 7 days, 1 month, and 6 months following the procedure. All participants completed VAS questionnaires. VAS score for the control group before operation was 7.03, 5.47 at 7 days, 6.00 at 1 month and 6.21 at 6 months. VAS for the treatment group before operation was 6.95, 3.50 at 7 days, 3.55 at 1 month and 3.71 at 6 months. Six participants in the treatment group failed lysis and did not show any change in VAS scores. Sixteen of the 92 participants were lost to follow-up. The authors concluded that the decrease in VAS scores in the control group may have been attributed to the use of dexamethasone. Although the VAS scores for the treatment group were lower than the control group, this is a small group of participants and there was no long-term follow-up.

Manchikanti and colleagues (2012) reported on the 2-year outcomes of a randomized, controlled trial in which 120 participants were randomly assigned to either the control group which consisted of caudal epidural injections with catheterization (n=60) or the intervention group (n=60) which consisted of percutaneous adhesiolysis with lidocaine, hypertonic sodium chloride and betamethasone. The participants were post lumbar surgery at least 6 months prior to enrollment and all had failed conservative management. The outcome measures used were Numeric Rating Scale (NRS), the ODI 2.0, opioid use and employment status.

Assessments were carried out at 3, 6, 12, 18, and 24 months post-treatment. At 2 years, 8 participants in the control group were available for follow-up and 52 participants had been unblinded, compared to the intervention group in which 54 participants were available for follow-up and 4 participants were unblinded. Pain relief and improvement in functional status were noted in 70% of the participants in the intervention group at the end of 1 year and 82% at the end of 2 years, compared to 5% at the end of years 1 and 2 in the control group. There was no change in employment status. Opioid use was decreased from the baseline, but there were no significant differences between the groups. The authors acknowledged that, given the subjective outcome of pain relief, an equivalence study with no placebo/sham control is difficult to interpret; secondly, there was a large control group dropout rate (n=43 in control group; n=3 in intervention group) at 12 months.

Rapcan (2017) published a randomized, multicenter, double-blind, parallel pilot study comparing the efficacy of drugs (hyaluronidase and corticosteroid DEPO-Medrol) administered into the epidural space during epiduroscopy and mechanical adhesiolysis. Before epiduroscopy, 48 participants were randomized into either Group A (mechanical adhesiolysis) or Group B (hyaluronidase and corticosteroid DEPO-Medrol). At the 6-month and 12-month double-blinded postoperative examinations, primary outcomes, which were pain intensity spreading in the back and legs and evaluation of the Oswestry Disability Index (ODI), were assessed. The authors found that the ODI score significantly improved in both groups at the 6-month appointment ($p<0.05$), but returned to baseline at the 12-month appointment for both groups. Also, results were similar with back and leg pain in that they were significantly improved in both groups at the 6-month appointment ($p<0.05$), but the improvement diminished by the 12-month appointment for Group A back pain and leg pain for both groups ($p>0.05$). Based on these results, mechanical adhesiolysis and adhesiolysis with corticosteroid and hyaluronidase administration both do not have long-term benefits.

Gerdesmeyer (2021) published the 10-year follow-up results of a randomized, sham-controlled trial assessing the efficacy of lumbar epidural lysis of adhesions in individuals with chronic radicular pain. The initial study involved 90 participants who were randomly assigned to receive percutaneous epidural lysis of adhesions with bupivacaine, hyaluronidase, and hypertonic saline or placebo with concealed allocation. The primary outcomes were a mean change of the ODI scores and VAS at 1 and 10 years after intervention. A 50% improvement in ODI and VAS scores was considered clinically relevant. At 1 year, 34% of the placebo group and 90% of the intervention group met the benchmark for clinically relevant improvement in ODI scores ($p<0.01$). Regarding VAS scores, 69% of the placebo group and 93% of the intervention group met the clinically relevant benchmark ($p<0.032$). Both groups had sustained clinically relevant improvement 10 years after the intervention. The statistical difference of the ODI and VAS scores between the treatment and control groups remained significant at the 10-year follow-up (ODI, $p=0.001$; VAS, $p=0.001$). However, there was a large loss to follow-up in both groups. Of the 44 participants initially randomized to the placebo group, 42 completed the 3-month assessments, 26 completed the 12-month, and only 23 completed the 10-year follow-up. Of the 46 randomized to the intervention group, 46 completed the 3-month assessments, 31 completed the 12-month assessments, and 29 completed the 10-year follow-up. The study is limited by several confounding elements including a large variety of unanalyzed noninvasive treatments across 10 years, a lack of participant recall of the intervention, changes in biometric status, changes in pain tolerance, and a large loss to follow-up.

In addition to these RCTs, multiple cohort and case series studies have been published describing the outcomes of lysis of epidural adhesion procedures (Cho, 2019; Donato, 2011; Funao, 2022; Gazzeri, 2023; Hong Park, 2017; Kim, 2023; Kose, 2023; Pereira, 2016; Takeshima, 2009; Vigneri, 2021). These studies include a mix of prospective and retrospective methodologies, widely varying populations sizes, follow-up periods, and use a variety of lysis methods; and all lack use of randomization and blinding. While most report favorable outcomes, due to the lack of rigorous methodologies, results do not permit reasonable conclusions concerning the effect of the lysis of epidural adhesion procedures on health outcomes.

Society Recommendations

The American Society of Interventional Pain Physicians (ASIPP) published a guideline addressing epidural interventions in the management of chronic spinal pain in 2021 (Manchikanti, 2021). That document included the following statements regarding the use of percutaneous adhesiolysis:

- The evidence for percutaneous adhesiolysis in managing disc herniation based on one high-quality, placebo-controlled RCT is Level II with moderate to strong recommendation for long-term improvement in patients nonresponsive to conservative management and fluoroscopically guided epidural injections
- The evidence for percutaneous adhesiolysis in lumbar stenosis based on relevant, moderate to high quality RCTs, observational studies, and systematic reviews is Level II with moderate to strong recommendation for long-term improvement after failure of conservative management and fluoroscopically guided epidural injections.
- For percutaneous adhesiolysis, based on multiple moderate to high-quality RCTs and systematic reviews, the evidence is Level I with strong recommendation for long-term improvement after failure of conservative management and fluoroscopically guided epidural injections.

These recommendations are based on clinical trial data from the RCTs mentioned above, as well as several review and metaanalysis documents that re-evaluated the data from those studies. As noted above, those studies included significant methodological limitations that hinder their utility and generalizability.

Summary

Overall, there is insufficient credible evidence demonstrating that procedures for the lysis of epidural adhesions result in an improvement in net health outcomes. Well designed and conducted trials with long-term follow-up are needed to assess the clinical utility of this treatment, as well as determine optimal methods of lysis, and establish patient selection criteria.

Background/Overview

Epidural fibrosis with or without adhesive arachnoiditis most commonly occurs as a complication of spinal surgery and may be included under the diagnosis of "failed back syndrome." Both conditions result from manipulation of the supporting structures of the spine and are related to inflammatory reactions that result in the entrapment of nerves within dense scar tissue. Arachnoiditis is most frequently seen in individuals who have undergone multiple surgical procedures. Lysis of epidural adhesions has been investigated as a treatment option.

Theoretically, the use of hypertonic saline in conjunction with corticosteroids and analgesics results in a disruption of epidural adhesions, thus relieving the pain caused by nerve entrapment. It may also function to reduce edema within previously scarred and inflamed nerves. Adhesions may also be disrupted by the manipulation of the catheter at the time of the injection or by catheter manipulation alone, without injected medication.

Multiple methods of adhesiolysis have been proposed, including the use of hypertonic saline, catheter manipulation, balloon dilation, and radiofrequency ablation.

Definitions

Arachnoiditis: Inflammation of the arachnoid membrane often with involvement of the subjacent subarachnoid space.

Endoscope: A usually highly flexible viewing instrument with capabilities of diagnostic (biopsy) or even therapeutic functions through special channels.

Endoscopy: The visual inspection of any cavity of the body by means of an endoscope.

Neurolysis: Destruction of nerve tissue; freeing of a nerve from inflammatory adhesions.

Radiculopathy: Any disease of the spinal nerve roots and spinal nerves. Radiculopathy is characterized by pain which seems to radiate from the spine to extend outward to cause symptoms away from the source of the spinal nerve root irritation. Causes of radiculopathy include deformities of the discs between the building blocks of the spine (the vertebrae).

Coding

The following codes for treatments and procedures applicable to this document are included below for informational purposes. Inclusion or exclusion of a procedure, diagnosis or device code(s) does not constitute or imply member coverage or provider reimbursement policy. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

When services are Investigational and Not Medically Necessary:

CPT

62263	Percutaneous lysis of epidural adhesions using solution injection (eg, hypertonic saline, enzyme) or mechanical means (eg, catheter), including radiologic localization (includes contrast when administered), multiple adhesiolysis sessions; 2 or more days
62264	Percutaneous lysis of epidural adhesions using solution injection (eg, hypertonic saline, enzyme) or mechanical means (eg, catheter), including radiologic localization (includes contrast when administered), multiple adhesiolysis sessions; 1 day
62281	Injection/infusion of neurolytic substance (eg, alcohol, phenol, iced saline solutions), with or without other therapeutic substance; epidural, cervical or thoracic [when specified as injection/infusion for lysis of adhesions]
62282	Injection/infusion of neurolytic substance (eg, alcohol, phenol, iced saline solutions), with or without other therapeutic substance; epidural, lumbar, sacral (caudal) [when specified as injection/infusion for lysis of adhesions]

ICD-10 Procedure

00NW3ZZ	Release cervical spinal cord, percutaneous approach
00NX3ZZ	Release thoracic spinal cord, percutaneous approach
00NY3ZZ	Release lumbar spinal cord, percutaneous approach

ICD-10 Diagnosis

All diagnoses

References

Peer Reviewed Publications:

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2. Chopra P, Smith HS, Deer TR, Bowman RC. Role of adhesiolysis in the management of chronic spinal pain: A systematic review of effectiveness and complications. *Pain Physician.* 2005; 8:87-100.
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4. Donato A, Fontana C, Pinto R et al. The effectiveness of endoscopic epidurolysis in treatment of degenerative chronic low back pain: a prospective analysis and follow-up at 48 months. *Acta Neurochir Suppl.* 2011; 108:67-73.
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16. Manchikanti L, Knezevic NN, Sanapati MR, et al. Effectiveness of percutaneous adhesiolysis in managing chronic central lumbar spinal stenosis: a systematic review and meta-analysis. *Pain Physician.* 2019; 22(6):E523-E550.
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Government Agency, Medical Society, and Other Authoritative Publications:

1. Manchikanti L, Knezevic NN, Navani A, et al. Epidural interventions in the management of chronic spinal pain: American Society of Interventional Pain Physicians (ASIPP) comprehensive evidence-based guidelines. *Pain Physician*. 2021; 24(S1):S27-S208.

Index

Epidural Adhesiolysis
 Epidural neuroplasty
 Lysis of Epidural Adhesions
 RACZ Neurolysis
 Trans-sacral canal plasty (TSCP)

The use of specific product names is illustrative only. It is not intended to be a recommendation of one product over another, and is not intended to represent a complete listing of all products available.

Document History

Status	Date	Action
Reviewed	02/15/2024	Medical Policy & Technology Assessment Committee (MPTAC) review. Revised Description, Rationale, Background, and References sections.
Reviewed	02/16/2023	MPTAC review. Updated Rationale and References sections.
Reviewed	02/17/2022	MPTAC review. Updated Rationale and References sections.
Reviewed	02/11/2021	MPTAC review. Updated Rationale section.
Reviewed	02/20/2020	MPTAC review. The Rationale and References sections were updated.
Reviewed	03/21/2019	MPTAC review. The References section was updated.
Reviewed	05/03/2018	MPTAC review. The document header wording updated from "Current Effective Date" to "Publish Date." Rationale and References sections were updated.
Reviewed	05/04/2017	MPTAC review. References were updated.
Reviewed	05/05/2016	MPTAC review. The Rationale and References were updated. Removed ICD-9 codes from Coding section.
Reviewed	05/07/2015	MPTAC review. The Rationale and References were updated.
Reviewed	05/15/2014	MPTAC review. Updated Rationale and References. Updated Coding section.
Reviewed	05/09/2013	MPTAC review. Rationale and References updated.
Reviewed	05/10/2012	MPTAC review. Rationale and References updated.
Reviewed	05/19/2011	MPTAC review.
Revised	05/13/2010	MPTAC review. Lysis of epidural adhesions by means of dry catheter manipulation added to investigational and not medically necessary criteria. Title changed. Rationale and References updated.
Reviewed	05/21/2009	MPTAC review. Rationale and References updated.
	01/01/2009	Updated Coding section with 01/01/2009 CPT changes; removed CPT 0027T deleted 12/31/2008.
Reviewed	05/15/2008	MPTAC review. References updated.
	02/21/2008	The phrase "investigational/not medically necessary" was clarified to read "investigational and not medically necessary." This change was approved at the November 29, 2007 MPTAC meeting.
Reviewed	05/17/2007	MPTAC review. Rationale and References updated.
Reviewed	06/08/2006	MPTAC review. References updated.
Revised	07/14/2005	MPTAC review. Revision based on Pre-merger Anthem and Pre-merger WellPoint Harmonization.

Pre-Merger Organizations	Last Review Date	Document Number	Title
Anthem, Inc.	07/27/2004	SURG.00052	Chronic Spine Pain Treatments/Procedures (Minimally Invasive)

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