Evolent Clinical Guideline 2053 for Spinal Canal Magnetic Resonance Angiography (MRA)

Guideline Number: Evolent_CG_2053	**Applicable Codes**	
"Evolent" refers to Evolent Health LLC and Evolent Specialty Services, Inc. 		
Original Date: May 2008	**Last Revised Date:** June 2025	**Implementation Date:** January 2026

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STATEMENT

General Information

- *It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.*
- *Where a specific clinical indication is not directly addressed in this guideline, medical necessity determination will be made based on widely accepted standard of care criteria. These criteria are supported by evidence-based or peer-reviewed sources such as medical literature, societal guidelines and state/national recommendations.*
- *The guideline criteria in the following sections were developed utilizing evidence-based and peer-reviewed resources from medical publications and societal organization guidelines as well as from widely accepted standard of care, best practice recommendations.*

Purpose

Magnetic resonance angiography (MRA) generates images of the blood vessels (both arteries and veins) that can be evaluated for evidence of stenosis, occlusion, or aneurysms without use of ionizing radiation. It can be used to evaluate the blood vessels of the spinal canal and allows for more effective and noninvasive screening for vascular lesions than spinal magnetic resonance imaging (MRI) alone. Spinal Canal MRA may be used for the evaluation of spinal arteriovenous malformations, as well as injuries to blood vessels supplying the spine and cord.

INDICATIONS FOR SPINAL CANAL MR ANGIOGRAPHY (MRA)

- Evaluation of spinal arteriovenous malformation (AVM) [1,2]
- Myelopathy when the suspected etiology is a compromise of blood flow or drainage to the spinal cord [3]
- Evaluation of a known disc herniation, fracture of the cervical spine, infection, or venous thrombosis where there is concern for vascular pathology (compression or thrombosis) compromising spinal cord blood flow or venous drainage [4]
- Evaluation of known or suspected vertebral artery injury when there is also concern for vascular compromise to the spinal canal and its contents (otherwise neck MRA or CTA is sufficient to evaluate vertebral artery injury) [5]
- Preoperative evaluation (e.g., localization of the spinal arteries prior to complex spinal surgery, aortic aneurysm repair, or characterization of suspected vascular lesion of the spinal canal and its contents) [6,7]
- Follow-up study may be needed to help evaluate a patient's progress after treatment, procedure, intervention, or surgery. Documentation requires a medical reason that

clearly indicates why additional imaging is needed for the type and area(s) requested. [8]

Further Evaluation of Indeterminate Findings on Prior Imaging

Unless follow up is otherwise specified within the guideline

- For initial evaluation of an inconclusive finding on a prior imaging report that requires further clarification
- One follow-up exam of a prior indeterminate MR/CT finding to ensure no suspicious interval change has occurred. (No further surveillance unless specified as highly suspicious or change was found on last follow-up exam).

CODING AND STANDARDS

Codes

72159

Applicable Lines of Business

☒	CHIP (Children's Health Insurance Program)
☒	Commercial
☒	Exchange/Marketplace
☒	Medicaid
☒	Medicare Advantage

BACKGROUND

Spinal Arteriovenous Malformations (AVMs)

Spinal dural arteriovenous (AV) fistulas are the most encountered vascular malformation of the spinal cord and are a treatable cause of progressive paraparesis. MR angiography (MRA) can record the pattern and velocity of blood flow through vascular lesions as well as the flow of cerebrospinal fluid throughout the spinal cord. [9]

Spinal Arteries/Veins

Vascular malformations, trauma, disc herniations, neoplasms, and coagulopathies or infection causing thrombosis can compromise the spinal cord blood supply and drainage.

Contraindication and Preferred Studies

- Contraindications and reasons why a CT/CTA cannot be performed may include: impaired renal function, significant allergy to IV contrast, pregnancy (depending on trimester)
- Contraindications and reasons why an MRI/MRA cannot be performed may include: impaired renal function, claustrophobia, non-MRI compatible devices (such as non-compatible defibrillator or pacemaker), metallic fragments in a high-risk location, patient exceeds wight limit/dimensions of MRI machine.

SUMMARY OF EVIDENCE

First-Pass Contrast-Enhanced MRA for Pretherapeutic Diagnosis of Spinal Epidural Arteriovenous Fistulas with Intradural Venous Reflux [(1)]

Study Design: This study was a retrospective analysis conducted at St. Michael's Hospital, University of Toronto, involving 42 consecutive patients with clinical and/or radiologic suspicion of spinal AVF (arteriovenous fistula) from 2000 to 2015.

Target Population: The study included patients with progressive myelopathy and suggestive MR imaging features such as nonresolving or progressive cord edema, cord enhancement, and intradural serpentine flow voids.

Key Factors: The study evaluated the performance of first-pass contrast-enhanced MRA (magnetic resonance angiography) in diagnosing and localizing spinal epidural AVFs with intradural venous reflux. The findings indicated that MRA is a reliable technique for initial diagnosis and localization of these lesions, distinguishing them from other spinal AVFs.

Spinal Cord Infarction Because of Spontaneous Vertebral Artery Dissection [(5)]

Study Design: This case study involved a 62-year-old man with a history of hypertension and hyperlipidemia who presented with acute onset of transient flaccid quadriplegia.

Target Population: The patient had severe neck pain radiating down both arms, elevated blood pressure, transient agonal breathing, complete flaccid quadriplegia, areflexia, and bowel/bladder incontinence.

Key Factors: The study discussed the rarity of spinal cord ischemia (SCI), accounting for 1% of all strokes, and highlighted the importance of MRI (magnetic resonance imaging) in diagnosing SCI. It emphasized the role of vertebral artery dissection in causing mid-cervical cord stroke and the utility of MRI in identifying compressive lesions and flow voids.

Spinal Cord Ischemia: Practical Imaging Tips, Pearls, and Pitfalls [(4)]

Study Design: This review article provided practical imaging tips, pearls, and pitfalls for diagnosing spinal cord ischemia.

Target Population: The study covered both pediatric and adult populations, discussing various causes of spinal cord ischemia such as cardiac malformations, trauma, atheromatosis, thoracoabdominal aneurysms, embolic disease, dissection, systemic hypotension, spinal arteriovenous malformations, and idiopathic causes.

Key Factors: The article highlighted the clinical presentation of spinal cord infarction, the importance of diffusion imaging, and the role of MR angiography in visualizing the artery of Adamkiewicz. It also discussed the pathophysiologic mechanisms of spinal cord ischemia and the differential diagnosis.

ANALYSIS OF EVIDENCE

Shared Conclusions [1,4,5]:

- All three studies emphasize the importance of advanced imaging techniques, such as MRA and MRI, in diagnosing spinal canal conditions.
- They highlight the rarity and complexity of spinal vascular conditions, such as spinal AVFs and spinal cord ischemia.
- The studies underscore the need for accurate and timely diagnosis to facilitate appropriate treatment and improve patient outcomes.

Summary [1,4,5]**:**

In summary, these articles collectively provide valuable insights into the use of MRA and MRI for diagnosing spinal canal conditions, highlighting both the shared importance of advanced imaging techniques and the unique contributions of each study to the understanding of spinal vascular pathologies.

POLICY HISTORY

Date	Summary
June 2025	• Updated references and background • This guideline replaces Evolent Clinical Guideline 046 for Spinal Canal MRA/MRV • Guideline renamed Spinal Canal Magnetic Resonance Angiography (MRA) • Added third bullet to General Information • Added Summary of Evidence and Analysis of Evidence
May 2024	• Updated references and background

	• Contraindications and preferred studies section added to the background

LEGAL AND COMPLIANCE

Guideline Approval

Committee

Reviewed / Approved by Evolent Specialty Services Clinical Guideline Review Committee

Disclaimer

Evolent Clinical Guidelines do not constitute medical advice. Treating health care professionals are solely responsible for diagnosis, treatment, and medical advice. Evolent uses Clinical Guidelines in accordance with its contractual obligations to provide utilization management. Coverage for services varies for individual members according to the terms of their health care coverage or government program. Individual members' health care coverage may not utilize some Evolent Clinical Guidelines. Evolent clinical guidelines contain guidance that requires prior authorization and service limitations. A list of procedure codes, services or drugs may not be all inclusive and does not imply that a service or drug is a covered or non-covered service or drug. Evolent reserves the right to review and update this Clinical Guideline in its sole discretion. Notice of any changes shall be provided as required by applicable provider agreements and laws or regulations. Members should contact their Plan customer service representative for specific coverage information.

Evolent Clinical Guidelines are comprehensive and inclusive of various procedural applications for each service type. Our guidelines may be used to supplement Medicare criteria when such criteria is not fully established. When Medicare criteria is determined to not be fully established, we only reference the relevant portion of the corresponding Evolent Clinical Guideline that is applicable to the specific service or item requested in order to determine medical necessity.

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