Cohere Medicare Advantage Policy - Magnetic Resonance Angiography (MRA), Spinal Canal

Clinical Policy for Medical Necessity Review

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Important Notices

Notices & Disclaimers:

GUIDELINES ARE SOLELY FOR COHERE'S USE IN PERFORMING MEDICAL NECESSITY REVIEWS AND ARE NOT INTENDED TO INFORM OR ALTER CLINICAL DECISION-MAKING OF END USERS.

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Other Notices:

Policy Information:

Specialty Area: Diagnostic Imaging
Policy Name: Magnetic Resonance Angiography (MRA), Spinal Canal
Type: [**X**] Adult (18+ yo) | [**X**] Pediatric (0-17 yo)

Table of Contents

Medical Necessity Criteria

Service: Magnetic Resonance Angiography (MRA), Spinal Canal

Related CMS Documents

Please refer to the CMS Medicare Coverage Database for the most current applicable CMS National Coverage.[1-5]

- National Coverage Determination (NCD). Magnetic Resonance Imaging (220.2).[1]
- Local Coverage Determination (LCD). Magnetic Resonance Angiography (MRA) (L33633).[2]
  - Billing and Coding: Magnetic Resonance Angiography (MRA) (A56747).[3]
- Local Coverage Determination (LCD). Magnetic resonance angiography (MRA) (L34424).[4]
  - Billing and Coding: Magnetic resonance angiography (MRA) (A56775).[5]

Description

Magnetic resonance angiography (MRA), spinal canal is a diagnostic technique that allows for the visualization of blood vessels in the spinal canal. Typically used as an adjunct to conventional magnetic resonance imaging (MRI), it aids in diagnosing and evaluating vascular conditions, such as aneurysms, stenosis, occlusions, and vascular malformations. Unlike computed tomography angiography (CTA), MRA does not use ionizing radiation yet provides detailed images of blood vessels and surrounding tissues. It also provides an alternative for patients who do not tolerate the iodinated contrast used in CTA. MRA is less invasive than conventional radiographic digital subtraction angiography.[6]

Medical Necessity Criteria

Indications

Magnetic resonance angiography (MRA), spinal canal is considered appropriate if **ANY** of the following is **TRUE**:

- Evaluation and characterization of suspected vascular lesions when detected on prior imaging, including **ANY** of the following:
  - Spinal arteriovenous fistula (AVF), including vascular flow voids on magnetic resonance imaging (MRI) of the spine that are suspicious for spinal AVF[7]; **OR**
  - Spinal arteriovenous malformation (AVM)[7-12]; **OR**
- Diagnosis and evaluation of known or suspected vascular conditions involving the spinal vessels, including **ANY** of the following[8,13]:
  - Thrombosis; **OR**
  - Dissection; **OR**
  - Embolism; **OR**
- Preoperative, postoperative, or pretreatment evaluation for **ANY** of the following:
  - To localize the spinal arteries before complex spinal surgery or aortic aneurysm repair; **OR**
  - To characterize suspected vascular lesions, including tumors or masses of the spinal canal and its contents[14]; **OR**
  - To assess progressive myelopathy when MRI suggests an underlying vascular cause, such as an AVM[15]; **OR**
  - To guide a subsequent digital subtraction angiography meant to assess for a spinal AVM or AVF; **OR**
- For further evaluation of a previously inconclusive finding on prior imaging (e.g., MRI, digital substance angiography) that necessitates additional clarification; **OR**
- As a follow-up study for **ANY** of the following as needed to assess progression or response to treatment:
  - Known AVM[16,17]; **OR**
  - Known AVF[7]; **OR**
- Repeat imaging (defined as a repeat request following recent imaging of the same anatomic region with the same or similar modality) will be considered reasonable and necessary if **ALL** of the following are **TRUE**:
  - There are no established guidelines; **AND**

- **ANY** of the following:
  - There are new or worsening symptoms not addressed in the guidelines, such that repeat imaging would influence treatment; **OR**
  - There is need for a one-time clarifying follow-up of a prior indeterminate finding; **OR**
  - In the absence of change in symptoms, there is an established need for monitoring which would influence management.

Non-Indications

Magnetic resonance angiography (MRA), spinal canal is not considered appropriate if **ANY** of the following is **TRUE**:

- The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms[18].

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
72159	Magnetic resonance angiography (MRA) of spinal canal and contents with contrast material
C8931	Magnetic resonance angiography with contrast, spinal canal and contents
C8932	Magnetic resonance angiography without contrast, spinal canal and contents
C8933	Magnetic resonance angiography without contrast followed by with contrast, spinal canal and contents

Disclaimer: S Codes are non-covered per CMS guidelines due to their experimental or investigational nature.

Evaluation of Clinical Harms and Benefits

Clinical determinations for Medicare Advantage beneficiaries are made in accordance with 42 CFR 422.101 guidance outlining CMS's required approach to decision hierarchy in the setting of NCDs/LCDs identified as being "not fully established". When clinical coverage criteria are "not fully established" Medicare Advantage organizations are instructed to create publicly accessible clinical coverage criteria based on widely-accepted clinical guidelines and/or scientific studies backed by a robust clinical evidence base. Clinical coverage criteria provided by Cohere Health in this manner include coverage rationale and risk/benefit analysis.

The potential clinical harms of using these criteria for MRA, spinal canal may include:

- Risk of malfunction of implanted medical devices (e.g., implanted pacemakers, cochlear implants).
- Allergic reactions to contrast material if used in the study.[19-21]
- The use of gadolinium-based contrast is not recommended during pregnancy or in patients with acute or chronic kidney injury or disease.[19-21]
- Risk of over-sedation if used for the study (for anxiety or claustrophobia).
- Risk to the developing fetus in a pregnant patient. The decision to image a pregnant patient should be made in consultation with the patient's obstetric provider.[22]
- Increased healthcare costs and complications from the inappropriate use of additional interventions.[23]
- Increased healthcare costs and complications from the inappropriate use of emergency services and additional treatments.

The clinical benefits of using these criteria for MRA of the spinal canal may include:

- Avoidance of more invasive imaging modalities. MRA is a non-invasive examination that does not require sedation, catheterization, or ionized radiation, yet can be more accurate than conventional venography, offering an alternative imaging technique for patients with contrast allergies or renal dysfunction.[24-26] The non-invasive nature of MRA, which allows for examinations of vessel anatomy without ionizing radiation,

makes the imaging technique particularly suited to preoperative imagining.[24]

- Quick and accurate images. Magnetic resonance angiography can produce timely and highly accurate assessments of arterial disease in the lower extremity, with high levels of clarity and fidelity.[27] Compared to conventional angiography, MRA provides more sensitive visualizations of blood vessel pathology.[26]
- Enhanced overall patient satisfaction and healthcare experience.

Medical Evidence

Khalafallah et al. (2024) compared the diagnostic accuracy of 3D contrast-enhanced MRA to digital subtraction angiography (DSA) in the diagnosis of surgically-confirmed spinal dural arteriovenous fistulas in 27 patients.[28] They reported that both detection sensitivity and accuracy were higher for MRA compared to DSA, with reported sensitivities of 100% and 85.7% and reported accuracies of 73.3% and 69.2% for MRA and DSA, respectively. However, DSA did have a higher positive predicted value (PPV) compared to MRA (78.3% vs. 73.3%). The authors concluded that MRA may be preferable to the more invasive, riskier, and more technically difficult DSA in diagnosing SDAVFs.

Raman et al. (2022) performed a systematic review comparing DSA with MRA for the evaluation of cerebral arteriovenous malformations (AVMs). In brain AVMs, there is aberrant communication between arteries and veins, resulting in the formation of a nidus, a complex network of intertwined blood vessels. DSA is generally the preferred method due to its superior spatial resolution and hemodynamic properties, representing the current gold standard. There is a need for further research to determine whether MR studies alone could serve as a diagnostic imaging alternative to the current gold standard, DSA, for AVM diagnosis. Numerous studies have highlighted the combined use of both imaging modalities, and some have suggested that specific MR imaging techniques closely resemble the outcomes of invasive conventional scans.[28]

Sharma et al. (2019) compared computed tomography angiography (CTA) and MRA for traumatic vertebral artery injury (TVAI). The primary diagnostic approach for patients with trauma and meeting screening criteria for potential cervical vascular injury is CTA. At the same time, MRA, DSA, and Doppler duplex ultrasound have supportive roles as complementary imaging modalities. The authors also reviewed anatomic variations and potential mimics. Early detection is crucial, and prompt initiation of therapy can significantly reduce the risk of associated strokes.[29]

Mathur et al. (2017) evaluated the effectiveness of first-pass contrast-enhanced MRA in diagnosing and localizing spinal epidural AVFs with intradural venous reflux, as well as differentiating them from other types of spinal AVFs. Of the 42 patients with suspected spinal AVF, 7 patients received a diagnosis. The authors conclude that MRA can identify lesions associated with spinal dural AVFs.[7]

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Policy Revision History/Information

Original Date: October 29, 2024		
Review History		
Version 1.1	05/01/2025	Revised per CMS update for 03/27/2025. Updated Revision Date. Updated Links and References for L34424, A56775.
Version 2	10/16/2025	Annual review. Updated references to LCDs and Billing and Coding Articles. Refined description for clarity. Updated in accordance with commercial policy. Removed nonindications for contrast allergies, metallic foreign bodies, and implantable devices. No changes to procedure codes. Expanded the Medical Evidence section; added 1 citation.