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

Clinical Guidelines for Medical Necessity Review

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Important Notices

Notices & Disclaimers:

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Other Notices:

Guideline Information:

Specialty Area: Diagnostic Imaging
Guideline Name: Cohere Medicare Advantage Policy - Magnetic Resonance Angiography (MRA), Spinal Canal

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Type: [**X**] Adult (18+ yo) | [**X**] Pediatric (0-17 yo)

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Medical Necessity Criteria

Service: Magnetic Resonance Angiography (MRA), Spinal Canal

Benefit Category

Not Applicable

Related CMS Documents

Please refer to CMS Medicare Coverage Database for the most current applicable CMS National Coverage.[1-2,17-18]

- National Coverage Determination (NCD). Magnetic Resonance (220.2)
- Local Coverage Determination (LCD). Magnetic Resonance Angiography (MRA) (L33633)
- Billing and Coding: Magnetic Resonance Angiography (MRA) (A56747)
- Local Coverage Determination (LCD). Magnetic resonance angiography (MRA) (L34424)
- Billing and Coding: Magnetic resonance angiography (MRA) (A56775)

Recommended Clinical Approach

Contrast-enhanced 3D time of flight techniques and contrast-enhanced CT angiography (CTA) is used to evaluate the spinal arteries, veins, and related pathology as a non-invasive alternative to the gold standard catheter angiography. The Adamkiewicz artery's (AKA) detection rate by MRA is 69% – 100%, but with modern equipment, both MRA and CTA detection rates should approach 100%. Magnetic resonance angiography (MRA) may be appropriate when CTA is contraindicated. CTA has the advantage over MRA in providing greater spatial resolution, imaging the entire spine during one contrast bolus, and providing a faster exam time and less prone to motion artifact. A limitation of MRA is a finite field of view, typically less than or equal to 50 cm. MRI has the advantage over CT in detecting areas of ischemia via diffusion-weighted imaging. Mathur et al. showed a 100% sensitivity in detecting recurrent spinal arteriovenous fistulas post-treatment.

Evaluation of Clinical Harms and Benefits

Cohere Health uses the criteria below to ensure consistency in reviewing the conditions to be met for coverage of magnetic resonance angiography (MRA), spinal canal. This process helps prevent incorrect denials and inappropriate approvals of medically necessary services. Specifically, limiting incorrect approvals reduces the risks associated with unnecessary procedures, such as complications from surgery, infections, and prolonged recovery times.

The potential clinical harms of using these criteria may include:

- There is a risk of malfunction of implanted medical devices (e.g., implanted pacemakers, cochlear implants).
- A potential exists for allergic reactions to contrast material if used in the study. The MRI department staff will monitor the patient for an allergic reaction and treat as recommended by a physician.[3-5]
- The use of gadolinium-based contrast is not recommended during pregnancy or in patients with acute or chronic kidney injury or disease.[3-5]
- If sedation is used for the study (for anxiety or claustrophobia), there is a risk of over-sedation. The patient will be monitored during the procedure to reduce this risk.
- There is a certain risk for MR imaging in pregnant patients. The decision to image a pregnant patient should be made on an individual basis in consultation with the patient's obstetric provider.[6]
- There is a risk of increased healthcare costs and complications from the inappropriate use of additional interventions.[7]
- Increased healthcare costs and complications from the inappropriate use of emergency services and additional treatments.

The clinical benefits of using these criteria include:

- Non-Invasive: An 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.[8-10] 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.[8]
- Quick and Accurate: Magnetic resonance angiography can produce timely and highly accurate assessments of arterial disease in the lower extremity, with high levels of clarity and fidelity.[11] Compared to conventional angiography, MRA provides more sensitive visualizations of blood vessel pathology.[10]
- Enhanced overall patient satisfaction and healthcare experience.

This policy includes provisions for expedited reviews and flexibility in urgent cases to mitigate risks of delayed access. Evidence-based criteria are employed to prevent inappropriate denials, ensuring that patients receive medically necessary care. The criteria aim to balance the need for effective treatment with the minimization of potential harms, providing numerous clinical benefits in helping avoid unnecessary complications from inappropriate care.

In addition, the use of these criteria is likely to decrease inappropriate denials by creating a consistent set of review criteria, thereby supporting optimal patient outcomes and efficient healthcare utilization.

Medical Necessity Criteria

Indications

➔ **Magnetic resonance angiography (MRA), spinal canal** is considered appropriate if **ANY** of the following is **TRUE**:
- ◆ Initial assessment of a previously inconclusive finding on a prior imaging report that necessitates additional clarification; **OR**
- ◆ Vascular conditions, known or suspected, including **ANY** of the following:
  - Thrombosis of spinal arteries is suspected on prior imaging or clinically and would change management; **OR**
  - For the evaluation of known or suspected vertebral artery injury when there is also a concern for vascular compromise to the spinal canal and its contents (otherwise, neck MRA or CTA is sufficient to evaluate vertebral artery injury)[3-5]; **OR**
- ◆ Preoperative, postoperative, or pre-treatment evaluation for **ANY** of the following:

- Localization of the spinal arteries before complex spinal surgery; **OR**
- Aortic aneurysm repair; **OR**
- For characterization of suspected vascular lesions, including tumors or masses of the spinal canal and its contents[5]; **OR**
- To guide a subsequent digital subtraction angiography meant to assess for a spinal arteriovenous malformation or fistula; **OR**

◆ As a follow-up study for **ANY** of the following:
- Known arteriovenous malformation (AVM)[6-7]; **OR**
- Known spinal arteriovenous fistula (AVF)[8]; **OR**
- To evaluate the patient's post-treatment, post-procedure, or post-surgical progress[8]; **OR**
- A single follow-up examination for a prior MR/CT finding initially deemed indeterminate, aimed at ensuring no suspicious interval changes have occurred; **OR**

◆ For evaluation of **ANY** of the following congenital or acquired conditions:
- Myelopathy when MRI demonstrates an underlying vascular malformation as a follow-up to demonstrate abnormal vasculature (may be used to guide spinal arteriography and intervention)[9]; **OR**
- Spinal arteriovenous malformation (AVM)[5,8,10-13]; **OR**
- Spinal arteriovenous fistula (AVF), including vascular flow voids on MRI Spine that are suspicious for spinal AVF; **OR**

◆ Repeat imaging (defined as repeat request following recent imaging of the same anatomic region with the same modality), in the absence of established guidelines, will be considered reasonable and necessary if **ANY** of the following is **TRUE**:
- New or worsening symptoms, such that repeat imaging would influence treatment; **OR**
- 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**:
  - ◆ If contrast is used, history of anaphylactic allergic reaction to gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**
  - ◆ The patient has metallic clips on vascular aneurysms; **OR**
  - ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
  - ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern.

*NOTE: MRI in patients with claustrophobia should be requested at the discretion of the ordering provider.
**NOTE: MRI in pregnant patients should be requested at the discretion of the ordering provider and obstetric care provider.

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 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.

Medical Evidence

Raman et al. (2022) performed a systematic review comparing digital subtraction angiography (DSA) with magnetic resonance angiography (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.[14]

Sharma et al. (2019) compare 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 review anatomic variations and potential mimics. Early detection is crucial, and prompt initiation of therapy can significantly reduce the risk of associated strokes.[15]

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.[16]

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Clinical Guideline Revision History/Information

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