Cohere Medicare Advantage Policy - Magnetic Resonance Angiography (MRA), Upper Extremity

Clinical Policy for Medical Necessity Review

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Important Notices

Notices & Disclaimers:

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Policy Information:

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

Table of Contents

Medical Necessity Criteria

Service: Magnetic Resonance Angiography (MRA), Upper Extremity

Related CMS Documents

Please refer to the CMS Medicare Coverage Database for the most current applicable CMS National Coverage.[1-9]

- National Coverage Determination (NCD). Magnetic resonance imaging (MRI) (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) (L34865)
  - Billing and Coding: Magnetic resonance angiography (MRA) (A56805)
- Local Coverage Determination (LCD). Magnetic resonance angiography (MRA) (L34372)
  - Billing and Coding: Magnetic resonance angiography (MRA) (A57779)
- Local Coverage Determination (LCD). Magnetic resonance angiography (MRA) (L34424)
  - Billing and Coding: Magnetic resonance angiography (MRA) (A56775)

Description

Magnetic resonance angiography (MRA) of the upper extremity is typically performed without and with gadolinium contrast. Although contrast-enhanced MRA (CE-MRA) is generally preferred, non-contrast-enhanced techniques are increasingly available. These may be a good option for patients with impaired renal function or who cannot tolerate gadolinium-based contrast agents. A broad spectrum of upper extremity vascular disorders can be assessed accurately using MRA of the upper extremity.[10]

Medical Necessity Criteria

Indications

Magnetic resonance angiography (MRA), upper extremity is considered appropriate if **ANY** of the following is **TRUE**[10]:

- **ANY** of the following:
  - Arterial entrapment syndrome, when ultrasound is indeterminate or for pretreatment planning; **OR**
  - Adventitial cystic disease; **OR**
- Ultrasound is incomplete, inconclusive, or abnormal with **ANY** of the following:
  - Neoplastic conditions (including masses or mass-like conditions) when the arterial blood supply needs to be evaluated (e.g., for treatment planning, treatment response, or prognostication); **OR**
  - Neoplastic invasion of arteries or veins; **OR**
- Vascular conditions, known or suspected, including **ANY** of the following:
  - Aneurysm, seen on ultrasound or when ultrasound is nondiagnostic; **OR**
  - Intramural hematoma; **OR**
  - Dissection; **OR**
  - Clinical suspicion of acute or chronic limb ischemia, when ultrasound is inconclusive or nondiagnostic, with **ANY** of the following:
    - Acute absence of radial or ulnar pulses; **OR**
    - Acute changes in motor or sensory function; **OR**
    - Nonhealing upper extremity ulcers with abnormal or inconclusive ultrasound results (e.g., arterial Doppler); **OR**
    - Symptoms with exercise attributable to vascular etiologies such as muscle pain that resolves with rest, coolness, pallor, or fatigue; **OR**
  - Localization and characterization of vascular malformation (e.g., assessing treatment response, treatment planning) with **ANY** of the following:
    - Duplex ultrasound indeterminate or nondiagnostic; **OR**
    - High flow lesion suspected clinically or by imaging; **OR**
    - Preoperative planning; **OR**
  - Vasculitis, initial evaluation, when **ANY** of the following are **TRUE**[11]:
    - Biopsy proven; **OR**

        - Rheumatologic panel work-up including but not limited to erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) is suggestive of vasculitis; **OR**
        - The requesting clinician specializes in rheumatology and the outcome of the imaging is expected to change management and/or treatment plan; **OR**
    - Noninflammatory vasculopathies that are symptomatic such as Buerger's disease, fibromuscular dysplasia, or scleroderma; **OR**
    - Vascular (subclavian) steal syndrome of the upper extremity, is suspected, and initial imaging is needed to guide therapy[11]; **OR**
    - Hemodialysis access evaluation, if **ALL** of the following are **TRUE**:
        - Duplex ultrasound is inconclusive; **AND**
        - Fistulogram cannot be performed; **AND**
        - **ANY** of the following conditions:
            - Arteriovenous fistula (AVF) stenosis; **OR**
            - Occlusion; **OR**
            - Pseudoaneurysm; **OR**
            - Steal syndrome; **OR**
- Pre- and post-intervention evaluation when **ANY** of the following is **TRUE**:
    - Postoperative evaluation of the effectiveness of arterial or venous reconstruction or bypass; **OR**
    - Characterization of normal and variant vascular anatomy; **OR**
    - Determination of the patency, location, or integrity of grafts and other vascular devices (e.g., stents); **OR**
    - Planning autografts for musculoskeletal reconstruction.

Magnetic resonance venography (MRV), upper extremity is considered appropriate if **ALL** of the following are **TRUE**[10]:

- Ultrasound is incomplete, inconclusive, or abnormal; **AND**
- The request is for evaluation of **ANY** of the following:
    - Suspected venous entrapment syndrome; **OR**
    - Neoplastic conditions (including masses or mass-like conditions) when the blood supply needs to be evaluated (e.g., for treatment planning, treatment-response, or prognostication); **OR**
    - Neoplastic invasion of arteries or veins; **OR**
    - Initial evaluation for known venous upper extremity ulcer, when ultrasound is indeterminate or nondiagnostic; **OR**

- Known or suspected acute or chronic deep venous thrombosis, when results would change, or management and ultrasound have been completed[11]; **OR**
- Known severe post-thrombotic changes incompletely evaluated by ultrasound[12]; **OR**
- Subclavian or central venous obstruction such as subclavian vein thrombosis, Paget-Schroetter syndrome, thoracic outlet syndrome, either known or suspected clinically (e.g., edema aggravated by exercise/arm position)[12]; **OR**
- Pre- and post-intervention evaluation when **ANY** of the following is **TRUE**:
  - Postoperative evaluation of the effectiveness of arterial or venous reconstruction or bypass; **OR**
  - Characterization of normal and variant vascular anatomy; **OR**
  - Determination of the patency, location, or integrity of grafts and other vascular devices (e.g., stents); **OR**
  - Planning autografts for musculoskeletal reconstruction.

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), upper extremity 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.[13]

*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
73225	Magnetic resonance angiography (MRA), upper extremity, with or without contrast material(s)
C8934	Magnetic resonance angiography (MRA), with contrast, upper extremity
C8935	Magnetic resonance angiography (MRA), without contrast, upper extremity
C8936	Magnetic resonance angiography (MRA), without contrast followed by with contrast, upper extremity

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 of the upper extremity 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.[10,14]
- Use of gadolinium-based contrast is not recommended during pregnancy or in patients with acute or chronic kidney injury or disease.[10,14]
- 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 uncertain risk for MR imaging in pregnant patients. The decision to image in a pregnant patient should be made on an individual basis in consultation with the patient's obstetric provider.
- There is a risk of increased healthcare costs and complications from the inappropriate use of emergency services and additional treatments.[15]

The clinical benefits of using these criteria include:

- Improved patient outcomes through timely and appropriate access to the procedure. Ghouri et al (2019) describe the procedural benefits of

MRA of the upper extremity, including increasing use for semi-urgent conditions where computed tomography was previously preferred. MRA is stated to allow better soft tissue characterization without ionizing radiation exposure, as well as high accuracy and reproducibility, and simultaneous assessment of central vessels and soft tissues.[11]

- Reduction in complications and adverse effects from unnecessary procedures. According to the 2020 ACR-NASCI-SPR practice parameter for the performance of body magnetic resonance angiography (MRA), the procedure is stated to be much less invasive than standard catheter-based invasive angiography, reducing the risk of vascular injury. For patients who are unable to receive gadolinium-based contrast agents, non-contrast study techniques are available. There is no associated ionizing radiation exposure as with computed tomography studies. MRA is stated to be useful in diagnosis of vascular disease in pediatric patients, although sedation or general anesthesia may be required.[10]
- Enhanced diagnostic accuracy for complex medical conditions. Bode et al. (2012) evaluated MRA use in upper extremity vascular access planning. They stated that MRA allows examination of the entire upper extremity vascular tree compared to discrete locations from duplex ultrasound testing.[16]
- Enhanced overall patient satisfaction and healthcare experience.

Medical Evidence

Nassar et al. (2022) reviewed imaging modalities for preoperative planning. CTA and MRA can generate detailed 3D images of vascular structures and surrounding anatomy, with applications in preoperative planning for breast, head, neck, and extremity reconstructions. While MRA eliminates the need for radiation exposure, it is less precise than CTA in detecting perforators smaller than 1 mm. For assessing venous anatomy, the most effective modalities include duplex ultrasound, MRV, and the outflow phase of conventional angiography. While MR scanners and software continue to advance, the general preference is for 1.5-T scanners in reconstructive applications. Lower-strength scanners allow enhanced fat suppression, contributing to clearer imaging of vascular structures.[17]

Ghouri et al. (2019) reviewed the successes and failures of CTA and MRA of the upper extremities. These modalities were preferred over Doppler or digital subtraction angiography (DSA), especially in patients without contraindications to MRI. Soft tissue characterization was improved with MRA and did not expose the patient to radiation. Venous and neurological compression was also successfully evaluated with MRA. As imaging modalities, particularly CTA and MRA, continue to advance, the authors stressed the importance of identifying the strengths and weaknesses of different techniques to obtain the most effective imaging test.[11]

The American College of Radiology, the North American Society for Cardiovascular Imaging (NASCI), and the Society for Pediatric Radiology (SPR) developed a 2020 updated practice parameter for the performance of body magnetic resonance angiography (MRA). They stated that contrast-enhanced MRA is as effective as standard angiography in the evaluation of diseases related to the vascular system as well as the planning of treatment. MRA is less invasive than catheter-based angiography, reducing the risk of injury to the vascular system being examined. Noncontrast MRA is available to patients in whom contrast media is contraindicated. Specific extremity MRA evaluations include arterial occlusions, congenital anomalies, and aneurysms, as well as venous malformations, causes of peripheral

edema, and varicose veins. MRA is effective in planning for dialysis access placement.[14]

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Policy Revision History/Information

Original Date: September 19, 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	09/18/2025	Annual review Updated content layout to align with revised template, including repeat imaging criteria