

## Medical Policy



**Title: Computed Tomographic Angiography (CTA) and Magnetic Resonance Angiography (MRA) of the Head, Neck, Abdomen, Pelvis, and Extremities**

*See also: CTA and MRA of the Chest (excluding the heart)*

<b>Professional</b>	<b>Institutional</b>
Original Effective Date: December 15, 2008	Original Effective Date: December 15, 2008
Revision Date(s):	Revision Date(s):
Current Effective Date: December 15, 2008	Current Effective Date: December 15, 2008

### **DESCRIPTION**

Computed tomographic angiography (CTA) uses a computerized analysis of x-ray images (enhanced by contrast material injected into a peripheral vein) to visualize the blood flow in arterial and venous structures throughout the body. Radiation exposure should be taken into account when considering the use of this technology.

Magnetic resonance angiography (MRA) is a technique for imaging vascular anatomy and pathology that does not use ionizing radiation. MRA is performed using magnetic resonance imaging (MRI) machines, and vascular images may be generated either with or without intravenous contrast agents, depending on the clinical application. However, the contrast agents used for MRA are associated with less risk of allergic reaction or nephrotoxicity than those used for conventional angiography. MRA is the general term used to describe MR imaging of vascular structures, but when MR is used to image a vein instead of an artery, the term "magnetic resonance venography" (MRV) may be used. The technical capabilities of current MRA make it most suitable for evaluation of medium-to-large size vessels. In the head, this includes the Circle of Willis and major posterior circulation vessels, while in the body this includes the aorta and its major arterial branches such as carotid, renal, hepatic and mesenteric arteries. MRA is less suitable for providing detailed information about the small, peripheral vasculature.

### **POLICY**

**(Diagnosis alone is not sufficient documentation of medical necessity. The clinical record should provide documentation of medical necessity.)**

1. CTA or MRA of the head may be considered medically necessary for the assessment of:
  - a. patients suspected of having steno-occlusive disease of the mid or large size intracranial arteries

- b. patients suspected of having cerebral aneurysm
  - c. patients suspected of having intracranial vascular malformation
  - d. patients suspected of having cerebral venous sinus compression or thrombosis,  
or
  - e. patients with pulsatile tinnitus
2. CTA or MRA of the neck may be considered medically necessary for the assessment of :
- a. patients suspected of having carotid stenosis or occlusion, or
  - b. patients suspected of having cervicocranial arterial dissection
3. CTA or MRA of the abdomen / pelvis may be considered medically necessary for the assessment of patients with the following clinical indications in whom angiography would otherwise be indicated and in whom a negative CTA or MRA would obviate the need for angiography:
- a. patients suspected of having renal artery stenosis:
    - 1) patients with documented hypertension associated with any of the following clinical scenarios
      - a) abrupt onset
      - b) accelerated progression
      - c) onset of hypertension before age 20
      - d) refractory to at least 2 conventional medications
    - 2) renal insufficiency that is either unexplained or induced by the angiotension–converting enzyme inhibitors
    - 3) unilateral small kidney
    - 4) renal artery bruits
  - b. patients with suspected chronic mesenteric ischemia
  - c. patients with abdominal aortic aneurysm or dissection
  - d. patients requiring evaluation of the portal and/or hepatic venous system
  - e. patients requiring evaluation of the systemic venous system
  - f. patients planning for renal tumor resection
  - g. surgical planning for kidney donor
4. CTA or MRA of the pelvis / lower extremities may be considered medically necessary for the assessment of patients with the following clinical indications:
- a. patients with suspected atherosclerotic disease of the lower extremity in whom angiography would otherwise be indicated and in whom CTA or MRA would obviate the need for angiography
  - b. patients with known atherosclerotic disease of the lower extremity who are being evaluated for bypass surgery and in whom angiography fails to identify runoff vessels suitable for bypass
  - c. assessment of significant ischemia in the presence of ulcers or gangrene or symptoms of significant claudication

- d. assessment of disease of large vessels: aneurysm, dissection, A-V malformation, fistulas, or vasculitis
  - e. arterial entrapment syndrome
5. CTA or MRA of the upper extremities may be considered medically necessary for the assessment of patients with the following clinical indications:
- a. evaluation of a dialysis graft
  - b. Raynaud's syndrome
  - c. arterial entrapment syndrome
  - d. suspected aneurysm, A-V malformation, fistula, vasculitis or intramural hematoma

### **RATIONALE**

CTA or MRA of the pelvis and lower extremities has emerged as an important tool for surgical planning, particularly to identify patent distal run-off vessels when surgical revascularization is considered. (4–7) In addition, MRA has been widely used to evaluate the recurrent symptoms in patients who have undergone either angioplasty or surgical revascularization. A meta-analysis of 34 studies conducted by Koelemay et al. (8) found that MRA was accurate for identifying stenosis (>50%) or occlusions in the aorto-iliac, femoropopliteal, and infrapopliteal regions. Baum et al. (9) found that MRA is more sensitive for identifying runoff vessels compared with conventional angiography. Use of vessels visible only on MRA for bypass surgery provides an opportunity for limb salvage and when compared with bypass to angiographically visible vessels, graft-patency and limb-salvage outcomes are similar. (10) These roles of MRA are recognized by the American College of Radiology Appropriateness Criteria. (11)

Diagnostic performance of MRA of the abdomen for evaluation of renal anatomy in potential living renal donors has improved with the evolution of contrast-enhanced MRA techniques. Recent studies have shown contrast-enhanced MRA to have good sensitivity and specificity for detection of renal arterial and venous anomalies. Three studies reported sensitivity and specificity of 90% or higher for renal arterial anatomy. (12–14) One study examined the ability of contrast-enhanced MRA to detect arterial, venous, ureteral, or parenchymal anomalies during the presurgical evaluation process for laparoscopic nephrectomy. (15) This study found that preoperative MRA agreed completely with surgical findings in 21 of 28 cases (75%). In this study, the laparoscopic surgical procedure was successful in 27 of 28 cases (96%) and only 1 case required conversion to open nephrectomy, suggesting that some oversights on MRA may not be clinically significant. Furthermore, studies comparing contrast-enhanced MRA to alternatives such as computed tomographic angiography (CTA) and digital subtraction angiography have reported comparable results. (14, 16–18) However, concerns have been raised regarding the ability of MRA or CTA to detect mild or distal-moderate fibromuscular dysplasia (FMD) that can be seen on conventional renal angiography. (19) The prevalence of FMD is about 2% to 6.6% in angiographic case series, and it is unclear

what effect donor nephrectomy may have on the subsequent development of hypertension in asymptomatic potential renal donors who have silent FMD. (19)

### **CODING**

**The following codes for treatment and procedures applicable to this policy 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. 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.**

### **CPT/HCPCS**

70496	Computed tomographic angiography, head, with contrast material(s), including noncontrast images, if performed, and image postprocessing
70498	Computed tomographic angiography, neck, with contrast material(s), including noncontrast images, if performed, and image postprocessing
70544	Magnetic resonance angiography, head; without contrast material (s)
70545	Magnetic resonance angiography, head; with contrast material(s)
70546	Magnetic resonance angiography, head; without contrast material(s), followed by contrast material(s) and further sequences
70547	Magnetic resonance angiography, neck; without contrast material(s)
70548	Magnetic resonance angiography, neck; with contrast material(s)
70549	Magnetic resonance angiography, neck; without contrast material (s), followed by contrast material (s) and further sequences
72191	Computed tomographic angiography, pelvis, with contrast material(s), including noncontrast images, if performed, and image postprocessing
72198	Magnetic resonance angiography, pelvis, with or without contrast material(s)
73206	Computed tomographic angiography, upper extremity, with contrast material(s), including noncontrast images, if performed, and image postprocessing
73225	Magnetic resonance angiography, upper extremity, with or without contrast material (s)
73706	Computed tomographic angiography, lower extremity, with contrast material(s), including noncontrast images, if performed, and image postprocessing
73725	Magnetic resonance angiography, lower extremity, with or without contrast material(s)
74175	Computed tomographic angiography, abdomen, with contrast material(s), including noncontrast images, if performed, and image postprocessing
74185	Magnetic resonance angiography, abdomen, with or without contrast material(s)
75635	Computed tomographic angiography, abdominal aorta and bilateral iliofemoral lower extremity runoff, with contrast material(s), including noncontrast images, if performed, and image postprocessing
C8900	Magnetic resonance angiography with contrast, abdomen
C8901	Magnetic resonance angiography without contrast, abdomen
C8902	Magnetic resonance angiography without contrast followed by with contrast, abdomen
C8912	Magnetic resonance angiography with contrast, lower extremity
C8913	Magnetic resonance angiography without contrast, lower extremity
C8914	Magnetic resonance angiography without contrast followed by with contrast, lower extremity

- C8918 Magnetic resonance angiography with contrast, pelvis  
 C8919 Magnetic resonance angiography without contrast, pelvis

**ICD-9 DIAGNOSIS**

- 388.30- Tinnitus, code range  
 388.32  
 430 Subarachnoid hemorrhage  
 433.0- Occlusion and stenosis of precerebral arteria, code range  
 433.9  
 434.00- Occlusion of cerebral arteries, code range  
 434.91  
 437.0 Cerebral arteriosclerosis  
 437.3 Cerebral aneurysm, nonruptured  
 441.3 Abdominal aneurysm, ruptured  
 441.4 Abdominal aneurysm without mention of rupture  
 441.5 Aortic aneurysm of unspecified site, ruptured  
 441.6 Thoracoabdominal aneurysm, ruptured  
 441.7 Thoracoabdominal aneurysm without mention of rupture  
 441.9 Aortic aneurysm of unspecified site without mention of rupture  
 452 Portal vein thrombosis  
 453.0 Budd-Chiari syndrome  
 459.2 Compression of vein  
 557 Vascular insufficiency of intestine  
 571 Chronic liver disease and cirrhosis  
 747.81 Anomalies of cerebrovascular system  
 747.89 Other specified anomalies of circulatory system (Aneurysm, congenital, specified site not elsewhere classified)

**REVISIONS**

12-15-2008	The CTA and MRA of the Head, Neck, Abdomen, Pelvis, and Extremities medical policy is a new free-standing policy developed from portions of the Computed Tomographic Angiography (CTA) medical policy – effective date July 30, 2007 and the Magnetic Resonance Angiography (MRA) medical policy – effective date May 1, 2007.
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