

Medical Policy



**Title: **Computed Tomographic Angiography (CTA) and
Magnetic Resonance Angiography (MRA) of the Chest
(excluding the heart)****

See also: CTA and MRA of the Head, Neck, Abdomen, Pelvis, and Extremities

Professional

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DESCRIPTION

Computed tomographic angiography (CTA) is a less invasive technique than standard angiography for imaging blood vessels. This technology uses 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. The radiographic computerized techniques used to manipulate the captured images vary from simple assessment of images in a single or two planes, to complex computer reconstruction in three dimensions. Radiation exposure should be taken into account when considering the use of this technology.

Magnetic resonance angiography (MRA) is the general term used to describe magnetic resonance 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 large- and medium-sized vessels such as the thoracic aorta and major aortic branch vessels or the larger caliber central veins. MRA of the chest has the potential to replace angiography for some indications, thus eliminating its associated risk. In addition, MRA offers the unique ability to provide cross-sectional and projectional images of the vasculature in predictable orientations and easy-to-understand display formats without the use of contrast materials. This capability can facilitate planning of complex surgical procedures by simultaneously demonstrating the vascular anatomy of interest and displaying the anatomic interrelationships of these structures in three dimensions.

CTA or MRA applications in the thorax can be subdivided into the following categories:

- Acquired disease of the thoracic aorta
- Developmental anomaly of the thoracic vasculature
- Systemic venous thrombosis or occlusion
- Pulmonary embolism

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

CTA or MRA of the chest is may be considered medically necessary in patients with the following indications in whom conventional angiography / venography would otherwise be indicated and in whom the result of CTA or MRA could obviate the need for conventional angiography / venography:

1. Acquired disease of the thoracic aorta (i.e., aortic dissection, aneurysm occlusive disease, and aortitis)
 - a. Developmental anomaly of the thoracic vasculature; or
 - b. Systemic venous thrombosis or occlusion.
2. Primary diagnosis of pulmonary embolism.
3. Pulmonary venous and left atrial evaluation, pre and post radiofrequency ablation for atrial fibrillation.
4. As an alternative to angiography for evaluation of pulmonary embolus in patients who have a contraindication to the use of IV iodinated contrast material (e.g., a history of severe contrast media allergy, such as anaphylactic shock or a cardiac arrest; or high risk of contrast-induced renal failure such as in diabetic patients with moderate renal insufficiency).

Investigational applications of MRA of the chest include, but are not limited to the following:

1. Evaluation of pulmonary emboli in patients without contraindications to the use of IV iodinated contrast agents.

RATIONALE

The above policy is based on a series of 1997 TEC Assessments (1-4), which concluded that, compared to angiography, MRA provides a reliable diagnostic assessment of acquired thoracic aortic diseases, vascular anomalies involving the great thoracic arteries and veins, and evaluation of the thoracic, systemic, and central veins for the diagnosis of thrombo-occlusive disease. However, the evaluation also concluded that diagnostic performance is not sufficiently accurate to allow replacement of pulmonary angiography in the diagnosis of pulmonary embolism (PE) in patients who have no contraindications to receiving IV iodinated contrast material. In this setting, MRA may be an acceptable alternative to angiography in patients who are allergic to or who have other contraindications (e.g., renal insufficiency) for iodinated contrast media. It should be noted that in all applications, MRA is considered an alternative to angiography. A 2003 review did not identify any published articles that addressed the limitations noted in the series of TEC Assessments; therefore, the policy statement is unchanged. Specifically, the appropriateness criteria of the American College of Cardiology (ACC) are consistent

with the conclusions of the TEC Assessment. (5) For example, the ACR appropriateness criteria offer the following statement regarding MRA in a patient with suspected pulmonary embolism. "MRA is not indicated in the routine evaluation of patients with suspected pulmonary embolism...currently it is mainly used in certain centers with particular interest and expertise, and in patients in whom contrast administered for helical CT scans or even for pulmonary angiography is thought to be contraindicated...."

2005 Update

The literature was searched for the period of 2003 through November 2004, with a particular focus on MRA of the chest to detect pulmonary emboli. No published studies were identified that would prompt reconsideration of the policy statement, which remains unchanged. Published studies do suggest that spiral CT scanning using multidetector CT has emerged as a noninvasive alternative to diagnostic pulmonary. Spiral CT scanning is widely available, and therefore, as noted in the policy statement, MRA would only be indicated in the subset of patients that have a contraindication to contrast media.

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

71260	Computed tomography, thorax; with contrast material(s)
71270	Computed tomography, thorax; without contrast material, followed by contrast material(s) and further sections
71275	Computed tomographic angiography, chest (noncoronary), with contrast material(s), including noncontrast images, if performed, and image postprocessing
71555	Magnetic resonance angiography, chest (excluding myocardium), with or without contrast material (s)
C8909	Magnetic resonance angiography with contrast, chest (excluding myocardium)
C8910	Magnetic resonance angiography without contrast, chest (excluding myocardium)
C8911	Magnetic resonance angiography without contrast followed by with contrast, chest (excluding myocardium)

ICD-9 DIAGNOSIS

441.01	Dissecting of aorta, thoracic
441.1	Thoracic aneurysm, ruptured
441.2	Thoracic aneurysm without mention of rupture
447.6	Arteritis, unspecified
447.9	Unspecified disorders of arteries and arterioles
453.9	Other venous embolism and thrombosis of unspecified site
593.9	Unspecified disorder of kidney and ureter
747.60	Anomaly of the peripheral vascular system, unspecified site
V15.0	Allergy, other than to medicinal agents

REVISIONS

12-12-2008	The CTA and MRA of the Chest (excluding heart) 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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REFERENCES

1. 1997 TEC Assessment ; Tab 8, MRA of the Chest-part I: Acquired Disease of the Thoracic Aorta.
2. 1997 TEC Assessment; Tab 9, MRA of the Chest-part II: Developmental Anomalies of the Thoracic Vasculature.
3. 1997 TEC Assessment; Tab 10, MRA of the Chest-part III: Systemic Venous Thrombosis of Occlusion.
4. 1997 TEC Assessment; Tab 11, MRA of the Chest-part IV: Pulmonary Embolism.
5. www.acr.org/dyna/?doc=departments/appropriateness_criteria/toc.html
6. Brenner DJ, Hall EJ. Computed tomography--an increasing source of radiation exposure. N Engl J Med. 2007; 357(22):2277-2284.
7. Einstein AJ, Henzlova MJ, Rajagopalan S. Estimating risk of cancer associated with radiation exposure from 64-slice computed tomography coronary angiography. JAMA. 2007; 298(3):317-323.