MEDICAL POLICY

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Subject: Magnetic Resonance Angiography (MRA) and Magnetic Resonance Venography (MRV)

Codes: 70544, 70545, 70546, 70547, 70548, 70549, 71555, 72159, 72198, 73225, 73725, 74185, C8900, C8901, C8902, C8909, C8910, C8911, C8912, C8913, C8914, C8918, C8919, C8920

Description: MRA is a non-invasive diagnostic technique that generates images of blood flow through vessels, as well as images of normal and diseased blood vessels, using magnetic resonance imaging (with or without contrast). Contrast-enhanced MRA uses Gadolinium as a contrast agent instead of iodine-based contrast agents used in conventional contrast angiography. Allergic reactions to Gadolinium are rare and it does not cause the kidney failure with iodine-based contrast agents. MRA produces very detailed two- and three-dimensional images of the blood vessels and other parts of the body by using radio waves instead of x-rays. The clinical safety and effectiveness of this procedure for all anatomical regions has not been proven.

Indications of Coverage:

MRA is considered medically necessary for the anatomical regions listed below when the specific indications for the symptoms described are met:

HEAD AND NECK

Sudden onset of **headache** (for example, explosive headache, thunderclap headache) in individuals with signs suggesting a leaking or ruptured blood vessel (for example, arteriovenous malformation (AVM) of an artery of the head or neck).

Severe recurrent **exertional headaches** including severe headaches associated with sexual activity.

Intracranial aneurysm, including aneurysms of the circle of Willis, in high risk individuals (for example, an individual with a diagnosis of polycystic kidney disease or a history of intracranial aneurysm in two first degree relatives (mother, father, sibling, child)). An MRA is considered medically necessary to evaluate a known non-ruptured intracranial aneurysm greater than 3 mm in size once a year for the first two years after diagnosis, then once every five years thereafter, while the aneurysm is clinically and radiographically stable.

Follow-up of **AVM**.

To evaluate possible **vertebrobasilar syndrome** in individuals with symptoms suggestive of vertebrobasilar syndrome (for example, binocular vision loss, double vision (diplopia), positional vertigo, irregularities in speech (slurred/slowed/limited), difficulties swallowing) to evaluate the presence of stenosis or other abnormalities of the vertebrobasilar system.

To evaluate **pulsatile tinnitus** (a noise that originates within the ear rather than from an external source usually due to irregularities in a blood vessel that

passes into or close by the inner ear) in patients with symptoms suggestive of a vascular irregularity.

Evaluation of **carotid artery abnormalities** when one of the following situations is documented:

Suspected stenosis or occlusion of the carotid arteries in individuals with symptoms consistent with carotid disease (for example, stroke, CVA, TIA), when a duplex Doppler scan is abnormal.

Suspected stenosis in an asymptomatic individual who meets criteria for carotid endarterectomy surgery (CEA) when a duplex Doppler scan is abnormal.

Dissection (separation of the arterial layers) of a carotid artery is suspected in an individual with symptoms consistent with carotid artery dissection such as a unilateral headache; head, neck, or facial pain on the same side as the suspected dissection; or Horner syndrome (decreased pupil size and drooping of the upper eyelid)

As a one-time follow-up study to a recent (within the past twelve months), previously diagnosed carotid artery dissection

CHEST

For diagnosis, treatment planning, and post-operative follow-up for cardiac shunt conditions (for example, atrial or ventricular septal defects (ASD, VSD), patent ductus arteriosus (PDA), and patent foramen ovale (PFO)) OR conditions/abnormalities of the thoracic aorta (for example, coarctation, truncus arteriosis).

For diagnosing a suspected pulmonary embolism when iodinated contrast material is contraindicated OR when VQ scan (a scan to evaluate abnormalities in the blood flow of the lungs) does not provide sufficient information for treatment decisions.

ABDOMEN

To evaluate for renal artery stenosis if one of the following is documented:

Rapid onset of hypertension (HTN, high blood pressure)

Progressive worsening of HTN that is resistant to medical therapy (diastolic blood pressure consistently greater than 100)

HTN in renal transplant patients without evidence of rejection

To assess pelvic (for example, aortoiliac) arteries for stenosis in patients with peripheral vascular disease who are being evaluated in preparation for surgery

To determine the extent of an abdominal aortic aneurysm and associated disease in patients undergoing elective repair

To evaluate for chronic mesenteric ischemia

LOWER EXTREMITY

For diagnosis and surgical planning in the treatment of peripheral vascular disease of the lower extremity.

IODINE ALLERGY

For patients with documented allergy to iodinated contrast material and accelerating hypertension or accelerating renal insufficiency.

MRV is considered medically necessary for the anatomical regions listed below when the specific indications for the symptoms described are met:

HEAD AND NECK

To evaluate the cerebral venous sinus for thrombosis, stenosis, or obstruction in a symptomatic individual (for example, seizures, excessive drowsiness, confusion).

CHEST

To rule out the presence of venous thrombosis, stenosis, or obstruction in systemic veins (for example, superior vena cava, inferior vena cava, subclavian vein)

ABDOMEN

To rule out the presence of venous thrombosis, stenosis, or obstruction in the portal or hepatic veins

Limitations of Coverage:

Review contract and endorsements for exclusions and prior authorization or benefit requirements.

If used for a condition/diagnosis other than is listed in the Indications of Coverage, deny as experimental or investigative.

If used for a condition/diagnosis that is listed in the Indications of Coverage, but the criteria are not met, deny as not medically necessary.

MRA is considered not medically necessary in any of the following situations:

For evaluation of migraine or recurrent headache when there has been a normal neurological evaluation

Chronic headache due to suspected sinusitis

Chronic headache or evaluating/monitoring a history of headache

Temporal arteritis

When both contrast angiography and MRA are performed to evaluate the same condition/anatomical region, the second test is considered not medically necessary in the absence of documentation describing a significant change in symptoms or condition warranting the second test unless one of the following situations is documented:

Previous diagnostic testing (for example, imaging and/or ultrasound) is contradictory or inconclusive

Inflow and outflow blood vessels were not identified

MRV is considered investigational for the evaluation of thrombosis, stenosis, or obstruction in the extremities as there is insufficient peer-reviewed scientific literature supporting the superior diagnostic value of MRV over conventional imaging studies (for example, ultrasound).

Documentation Required:

Office notes from referring/ordering physician

Order for the MRA (a comment in the referring/ordering physician's office notes is sufficient)

Radiology report

Rationale: Because MRA is non-invasive, its use limits possible adverse events from other more invasive forms of imaging and it reduces the individual's exposure to radiation since neither ionizing radiation nor iodinated contrast agents are used, as is the case with CT angiography. The usefulness of MRA for selected conditions has been established. However, because it does not provide superior imaging for the evaluation of all conditions, its use has been restricted to those conditions where other types of imaging are less likely to provide the needed information or where an invasive technique can be avoided. Peer-reviewed journal articles supporting the effectiveness of MRV over other venous imaging modalities, such as ultrasound and venography, are equivocal.

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