Medical Policy



An independent licensee of the Blue Cross Blue Shield Association

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

Professional

Original Effective Date: December 15, 2008 Revision Date(s): February 10, 2011; January 1, 2012; February 5, 2014; January 13, 2016, October 1, 2016; November 21, 2017; October 1, 2018; Current Effective Date: January 13, 2016 Archived Date: May 24, 2021

Institutional

Original Effective Date: December 15, 2008 Revision Date(s): February 10, 2011; January 1, 2012; February 5, 2014; January 13, 2016; October 1, 2016; November 21, 2017; October 1, 2018; Current Effective Date: January 13, 2016 Archived Date: May 24, 2021

State and Federal mandates and health plan member contract language, including specific provisions/exclusions, take precedence over Medical Policy and must be considered first in determining eligibility for coverage. To verify a member's benefits, contact <u>Blue Cross and Blue</u> <u>Shield of Kansas Customer Service</u>.

The BCBSKS Medical Policies contained herein are for informational purposes and apply only to members who have health insurance through BCBSKS or who are covered by a self-insured group plan administered by BCBSKS. Medical Policy for FEP members is subject to FEP medical policy which may differ from BCBSKS Medical Policy.

The medical policies do not constitute medical advice or medical care. Treating health care providers are independent contractors and are neither employees nor agents of Blue Cross and Blue Shield of Kansas and are solely responsible for diagnosis, treatment and medical advice.

If your patient is covered under a different Blue Cross and Blue Shield plan, please refer to the Medical Policies of that plan.

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. However, the contrast agents used for conventional angiography. However, the contrast agents 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 <u>head</u> 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 <u>neck</u> 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 <u>abdomen / pelvis</u> 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 athereoslcerotic 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 who are to undergo elective repair of the aneurysm
 - d. patients requiring evaluation of the portal and/or hepatic venous system

- e. patients requiring evaluation of the systemic venous system
- 4. CTA or MRA of the <u>pelvis / lower extremities</u> may be considered **medically necessary** for the assessment of patients with the following clinical indications:
 - a. patients with suspected atherosclerotic disease of the lower extermity 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

Policy Guidelines

Head

Invasive cerebral angiography has been traditionally considered the reference standard to which the performance of noninvasive diagnostic tests is compared. Both magnetic resonance angiography (MRA) and transcranial Doppler ultrasonography (TCD) have been shown to be effective noninvasive diagnostic tests for evaluating patients suspected of having intracranial arterial steno-occlusive disease and may be used by some physicians as a replacement for invasive cerebral angiography.

In some circumstances, either MRA or TCD alone may provide adequate information to guide appropriate management; however, there are other circumstances whereby it may be necessary to obtain both noninvasive tests before management decisions can be made. For example, the initial noninvasive study may be technically limited by patient motion (particularly a problem for MRA) or by the patient having an inadequate acoustic window (a problem unique to TCD). When this is the case, diagnostic information may be sought using the alternative noninvasive imaging tool. Furthermore, the results of the initial noninvasive evaluation may be borderline or equivocal. Since CDUS and MRA use different physical and technical principles for evaluating the cerebral vasculature, the information obtained from each test can be complementary rather than duplicative in some circumstances.

Neck

Invasive angiography of the cervical carotid arteries has been used traditionally as the definitive preoperative diagnostic evaluation in patients with carotid artery bifurcation stenosis who are being considered for carotid endarterectomy (CEA). However, as recent improvements have been made in noninvasive diagnostic tests to evaluate the carotid bifurcation region, some physicians have favored a preoperative diagnostic

approach using noninvasive imaging tests such as carotid duplex ultrasonography (CDUS) and/or MRA to guide management decisions.

CDUS is most commonly used as the initial noninvasive evaluation of the carotid bifurcation as it is less expensive than MRA and generally more readily available than MRA. When the clinical suspicion for steno-occlusive disease is considered along with the results of the initial test (usually CDUS), the physician can decide whether there is sufficient information to determine subsequent management for the patient or whether additional imaging is necessary. One imaging strategy that has emerged and that is supported in the available evidence, uses both CDUS and MRA to evaluate patients prior to CEA. When both noninvasive tests agree as to the necessity of CEA, the surgical management decision is made based on noninvasive imaging alone. However, if there is discordance in the results of MRA and CDUS (e.g., 1 test suggests a severe carotid stenosis but the other test suggests only a mild-to-moderate degree of stenosis), then invasive angiography is performed to determine the management decision. Using this combination strategy, the utilization of invasive angiography for preoperative evaluation for CEA has been reported to decrease substantially.

Abdomen

A variety of abdominal vascular conditions have been proposed for evaluation with contrast-enhanced MRA. Patients who are suspected of having renal artery stenosis may benefit when MRA is used to rule out significant stenosis, thus sparing the patient from invasive angiography. Patients with positive results on MRA may require confirmatory angiography before receiving surgical or intravascular stent treatment for renal artery stenosis. However, confirmation may often be performed during the catheterization for the therapeutic procedure. Similarly, patients with suspected chronic mesenteric ischemia or suspected hepatic arterial disease may benefit from the use of MRA. Potential living renal donors may benefit by using contrast-enhanced MRA for preoperative evaluation of renal anatomy as an alternative to invasive digital subtraction angiography and or computed tomographic angiography (CTA), both of which require ionizing radiation and potentially nephrotoxic iodinated intravenous contrast agents.

Patients who are to undergo elective repair of an abdominal aortic aneurysm undergo preoperative angiographic evaluation to delineate the size and location of the aneurysm as well as its relationship with renal and other branch arteries. MRA has been proposed as a replacement for invasive angiography in this situation. Similarly, patients who are to undergo abdominal organ transplantation may require presurgical angiography and may benefit from the use of MRA. CTA is also proposed as a noninvasive alternative, though CT uses iodinated contrast agents that pose a higher risk for allergic and nephrotoxic

reactions. Patients with suspected abdominal or pelvic venous thrombo-occlusive disease may benefit by using MRA to obviate the need for invasive venography.

Pelvis

Pelvic arteriography or venography may be useful in several situations to avoid the need for invasive angiography. Patients with suspected aorto-iliac atherosclerotic disease may benefit by the use of MRA to avoid the need for invasive angiography, and this evaluation often includes arterial evaluation of the lower extremities as well in patients with suspected peripheral vascular disease (e.g., claudication). Other uses of pelvic MRA would include evaluation of renal arteries with ectopic pelvic location of the kidney and evaluation of pelvic veins for thrombo-occlusive disease.

Lower Extremity

MRA may be useful for evaluating the arterial and venous structures of the lower extremity. In patients with suspected peripheral vascular disease, MRA may be able to evaluate the extent of disease and guide therapeutic decision making without the need for invasive angiography. Furthermore, MRA may be more sensitive than conventional angiography in identifying distal runoff vessels in potential candidates for peripheral bypass surgery.

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

	<u>5</u>
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)
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)
74174	Computed tomographic angiography, abdomen and pelvis, with contrast
	materials(s), including noncontrast images, if performed, and image
	postprocessing
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
A9583	Injection, gadofosveset trisodium, 1 ml
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
- C8920 Magnetic resonance angiography without contrast followed by with contrast, pelvis

ICD-10 Diagnoses

H93.11	Tinnitus, right ear
H93.12	Tinnitus, left ear
H93.13	Tinnitus, bilateral
H93.A1	Pulsatile tinnitus, right ear
H93.A2	Pulsatile tinnitus, left ear
H93.A3	Pulsatile tinnitus, bilateral
I60.01	Nontraumatic subarachnoid hemorrhage from right carotid siphon and bifurcation
160.02	Nontraumatic subarachnoid hemorrhage from left carotid siphon and bifurcation
I60.11	Nontraumatic subarachnoid hemorrhage from right middle cerebral artery
I60.12	Nontraumatic subarachnoid hemorrhage from left middle cerebral artery
160.2	Nontraumatic subarachnoid hemorrhage from anterior communicating artery
I60.31	Nontraumatic subarachnoid hemorrhage from right posterior communicating artery
I60.32	Nontraumatic subarachnoid hemorrhage from left posterior communicating artery
I60.4	Nontraumatic subarachnoid hemorrhage from basilar artery
I60.51	Nontraumatic subarachnoid hemorrhage from right vertebral artery
I60.52	Nontraumatic subarachnoid hemorrhage from left vertebral artery
I60.6	Nontraumatic subarachnoid hemorrhage from other intracranial arteries
I60.7	Nontraumatic subarachnoid hemorrhage from unspecified intracranial artery
I63.00	Cerebral infarction due to thrombosis of unspecified precerebral artery
I63.011	Cerebral infarction due to thrombosis of right vertebral artery
I63.012	Cerebral infarction due to thrombosis of left vertebral artery
I63.013	Cerebral infarction due to thrombosis of bilateral vertebral arteries
I63.02	Cerebral infarction due to thrombosis of basilar artery
I63.031	Cerebral infarction due to thrombosis of right carotid artery
I63.032	Cerebral infarction due to thrombosis of left carotid artery
I63.033	Cerebral infarction due to thrombosis of bilateral carotid arteries
I63.09	Cerebral infarction due to thrombosis of other precerebral artery
I63.10	Cerebral infarction due to embolism of unspecified precerebral artery
I63.111	Cerebral infarction due to embolism of right vertebral artery
I63.112	Cerebral infarction due to embolism of left vertebral artery
I63.113	Cerebral infarction due to embolism of bilateral vertebral arteries
I63.12	Cerebral infarction due to embolism of basilar artery
I63.131	Cerebral infarction due to embolism of right carotid artery
I63.132	Cerebral infarction due to embolism of left carotid artery
I63.133	Cerebral infarction due to embolism of bilateral carotid arteries
I63.19	Cerebral infarction due to embolism of other precerebral artery
163.20	Cerebral infarction due to unspecified occlusion or stenosis of unspecified precerebral arteries
I63.211	Cerebral infarction due to unspecified occlusion or stenosis of right vertebral artery
I63.212	Cerebral infarction due to unspecified occlusion or stenosis of left vertebral artery

I63.213	Cerebral infarction due to unspecified occlusion or stenosis of bilateral vertebral arteries
163.22	Cerebral infarction due to unspecified occlusion or stenosis of basilar artery
I63.231	Cerebral infarction due to unspecified occlusion or stenosis of right carotid artery
I63.232	Cerebral infarction due to unspecified occlusion or stenosis of left carotid artery
I63.233	Cerebral infarction due to unspecified occlusion or stenosis of bilateral carotid arteries
I63.29	Cerebral infarction due to unspecified occlusion or stenosis of other precerebral arteries
I63.311	Cerebral infarction due to thrombosis of right middle cerebral artery
I63.312	Cerebral infarction due to thrombosis of left middle cerebral artery
I63.313	Cerebral infarction due to thrombosis of bilateral middle cerebral arteries
I63.321	Cerebral infarction due to thrombosis of right anterior cerebral artery
I63.322	Cerebral infarction due to thrombosis of left anterior cerebral artery
I63.323	Cerebral infarction due to thrombosis of bilateral anterior cerebral arteries
I63.331	Cerebral infarction due to thrombosis of right posterior cerebral artery
I63.332	Cerebral infarction due to thrombosis of left posterior cerebral artery
I63.333	Cerebral infarction due to thrombosis of bilateral posterior cerebral arteries
I63.341	Cerebral infarction due to thrombosis of right cerebellar artery
163.342	Cerebral infarction due to thrombosis of left cerebellar artery
163.343	Cerebral infarction due to thrombosis of bilateral cerebellar arteries
I63.39	Cerebral infarction due to thrombosis of other cerebral artery
I63.411	Cerebral infarction due to embolism of right middle cerebral artery
I63.412	Cerebral infarction due to embolism of left middle cerebral artery
I63.412	Cerebral infarction due to embolism of bilateral middle cerebral arteries
	Cerebral infarction due to embolism of right anterior cerebral artery
I63.421	5 ,
I63.422	Cerebral infarction due to embolism of left anterior cerebral artery
I63.423	Cerebral infarction due to embolism of bilateral anterior cerebral arteries
I63.431	Cerebral infarction due to embolism of right posterior cerebral artery
I63.432	Cerebral infarction due to embolism of left posterior cerebral artery
I63.433	Cerebral infarction due to embolism of bilateral posterior cerebral arteries
I63.441	Cerebral infarction due to embolism of right cerebellar artery
I63.442	Cerebral infarction due to embolism of left cerebellar artery
I63.443	Cerebral infarction due to embolism of bilateral cerebellar arteries
I63.49	Cerebral infarction due to embolism of other cerebral artery
I63.511	Cerebral infarction due to unspecified occlusion or stenosis of right middle cerebral artery
I63.512	Cerebral infarction due to unspecified occlusion or stenosis of left middle cerebral artery
I63.513	Cerebral infarction due to unspecified occlusion or stenosis of bilateral middle cerebral arteries
I63.521	Cerebral infarction due to unspecified occlusion or stenosis of right anterior cerebral artery
I63.522	Cerebral infarction due to unspecified occlusion or stenosis of left anterior cerebral artery
I63.523	Cerebral infarction due to unspecified occlusion or stenosis of bilateral anterior cerebral arteries
I63.531	Cerebral infarction due to unspecified occlusion or stenosis of right posterior cerebral artery
I63.532	Cerebral infarction due to unspecified occlusion or stenosis of left posterior cerebral artery
I63.533	Cerebral infarction due to unspecified occlusion or stenosis of bilateral posterior cerebral arteries
I63.541	Cerebral infarction due to unspecified occlusion or stenosis of right cerebellar artery
163.542	Cerebral infarction due to unspecified occlusion or stenosis of left cerebellar artery
I63.543	Cerebral infarction due to unspecified occlusion or stenosis of bilateral cerebellar arteries
I63.59	Cerebral infarction due to unspecified occlusion or stenosis of other cerebral artery
105.55	

I63.6	Cerebral infarction due to cerebral venous thrombosis, nonpyogenic
I63.81	Other cerebral infarction due to occlusion or stenosis of small artery
I63.89	Other cerebral infarction
I65.01	Occlusion and stenosis of right vertebral artery
I65.02	Occlusion and stenosis of left vertebral artery
I65.03	Occlusion and stenosis of bilateral vertebral arteries
I65.1	Occlusion and stenosis of basilar artery
I65.21	Occlusion and stenosis of right carotid artery
I65.22	Occlusion and stenosis of left carotid artery
I65.23	Occlusion and stenosis of bilateral carotid arteries
I65.8	Occlusion and stenosis of other precerebral arteries
I65.9	Occlusion and stenosis of unspecified precerebral artery
I66.01	Occlusion and stenosis of right middle cerebral artery
I66.02	Occlusion and stenosis of left middle cerebral artery
I66.03	Occlusion and stenosis of bilateral middle cerebral arteries
I66.11	Occlusion and stenosis of right anterior cerebral artery
I66.12	Occlusion and stenosis of left anterior cerebral artery
I66.13	Occlusion and stenosis of bilateral anterior cerebral arteries
I66.21	Occlusion and stenosis of right posterior cerebral artery
I66.22	Occlusion and stenosis of left posterior cerebral artery
I66.23	Occlusion and stenosis of bilateral posterior cerebral arteries
I66.3	Occlusion and stenosis of cerebellar arteries
I66.8	Occlusion and stenosis of other cerebral arteries
I67.1	Cerebral aneurysm, nonruptured
I67.2	Cerebral atherosclerosis
I71.3	Abdominal aortic aneurysm, ruptured
I71.4	Abdominal aortic aneurysm, without rupture
I71.5	Thoracoabdominal aortic aneurysm, ruptured
I71.6	Thoracoabdominal aortic aneurysm, without rupture
I71.8	Aortic aneurysm of unspecified site, ruptured
I71.9	Aortic aneurysm of unspecified site, without rupture
179.0	Aneurysm of aorta in diseases classified elsewhere
I81	Portal vein thrombosis
182.0	Budd-Chiari syndrome
I87.1	Compression of vein
P91.829	Neonatal cerebral infarction, unspecified side
Q27.30	Arteriovenous malformation, site unspecified
Q27.4	Congenital phlebectasia
Q28.0	Arteriovenous malformation of precerebral vessels
Q28.1	Other malformations of precerebral vessels Arteriovenous malformation of cerebral vessels
Q28.2 Q28.3	Other malformations of cerebral vessels
Q28.3 Q28.8	Other specified congenital malformations of circulatory system
Q20.0	other specified congenital manormations of circulatory system

REVISION	S
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.
02-10-2011	 In policy section: To clarify 4. c. added wording of "(refractory to conservative therapy – see Policy Guidelines)" to read "assessment of significant ischemia in the presence of ulcers or gangrene or symptoms of significant claudication (refractory to conservative therapy – see Policy Guidelines). Added Policy Guidelines section
01-01-2012	In Coding section: Added CPT Code: 74174
02-05-2014	Policy reviewed.
	In Coding section:
	Added ICD-10 Diagnosis (Effective October 1, 2014)
01-13-2016	Policy published 12-14-2015. Policy effective 01-13-2016.
	In Title added "Lower" to read "Computed Tomographic Angiography (CTA) and Magnetic Resonance Angiography (MRA) of the Head, Neck, Abdomen, Pelvis, and Lower Extremities"
	Description updated
	 In Policy Section: In Item 3 a added "atherosclerotic" to read, "patients suspected of having arthrosclerotic renal artery stenosis:"
	 In Item 3 c removed "or dissection" and added "who are to undergo elective repair of the aneurysm" to read, "patients with abdominal aortic aneurysm who are to undergo elective repair of the aneurysm"
	• In Item 3 removed medically necessary indications, "patients planning for renal tumor resection" and "surgical planning for kidney donor"
	• In Item 4 removed medically necessary indications, "assessment of significant ischemia in the presence of ulcers or gangrene or symptoms of significant claudication (refractory to conservative therapy – see Policy Guidelines)", "assessment of disease of large vessels: aneurysm, dissection, A-V malformation, fistulas, or vasculitis" and "arterial entrapment syndrome"
	 Removed "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" Policy Guidelines updated
	In Coding Section: • Added HCPCS Codes: A9583, C8920 • Removed CPT Codes: 73206, 73225 Removed CPT Codes: 73206, 73225
	• Removed ICD-10 Codes: I60.00, I60.10, I60.20, I60.30, I60.50, I63.139, I63.239, I65.09
	References updated

REVISIONS	
10-01-2016	In Coding section: ICD-10 Codes Effective 10-01-2016: H93.A1, H93.A2, H93.A3, I60.2, I63.013, I63.033, I63.113, I63.133, I63.213, I63.233, I63.313, I63.323, I63.333, I63.343, I63.413, I63.423, I63.433, I63.443, I63.513, I63.523, I63.533, I63.543 ICD-10 Codes Termed 09-30-2016: I60.21, I60.22
11-21-2017	 Policy reviewed with no updates to the following section: Description, Policy, Rationale, References. In Coding section: Updated nomenclature for CPT Codes (effective October 1, 2017): I63.211, I63.212, I63.22, I63.231, I63.232, I63.323, I63.513, I63.523, I63.533
10-01-2018	In Coding section: • Added ICD-10 Codes: I63.381, I63.389 • Removed ICD-10 Code: I63.8 • Revised Nomenclature on ICD-10 Codes: I63.333, I63.343
05-24-2021	Policy archived on bcbsks.com web site

REFERENCES

- 1. TEC Assessments 1997: Tab 1
- 2. TEC Assessments 1996: Tab 31
- 3. TEC Assessments 1996: Tab 32.
- 4. Yucel EK, Anderson CM, Edelman RR et al. AHA Scientific Statement. Magnetic resonance angiography: update of applications for extracranial arteries. Circulation 1999; 100(22):2284-301.
- 5. Ho VB, Corse WR. MR angiography of the abdominal aorta and peripheral vessels. Radiol Clin North Am 2003; 41(1):115-44.
- 6. Rajagopalan S, Prince M. Magnetic resonance angiographic techniques for the diagnosis of arterial disease. Cardiol Clin 2002; 20(4):501-12.
- 7. Goyen M, Ruehm SG, Debatin JF. MR angiography for assessment of peripheral vascular disease. Radiol Clin North Am 2002; 40(4):835-46.
- 8. Koelemay MJ, Lijmer JG, Stoker J et al. Magnetic resonance angiography for the evaluation of lower extremity arterial disease: a meta-analysis. JAMA 2001; 285(10):1338-45.
- 9. Baum RA, Rutter CM, Sunshine JH et al. Multicenter trial to evaluate vascular magnetic resonance angiography of the lower extremity. JAMA 1995; 274(11):875-80.
- 10. Carpenter JP, Golden MA, Barker CF et al. The fate of bypass grafts to angiographically occult runoff vessels detected by magnetic resonance angiography. J Vasc Surg 1996; 23(3):483-9.
- 11. American College of Radiology Appropriateness Criteria. www.acr.org/dyna/?doc=departments/appropriateness_criteria/toc.html
- 12. Fink C, Hallscheidt PJ, Hosch WP et al. Preoperative evaluation of living renal donors: value of contrast-enhanced 3D magnetic resonance angiography and comparison of three rendering algorithms. Eur Radiol 2003; 13(4):794-801.
- 13. Jha RC, Korangy SJ, Ascher SM et al. MR angiography and preoperative evaluation for laparoscopic donor nephrectomy. AJR Am J Roentgenol 2002; 178(6):1489-95.
- 14. Rankin SC, Jan W, Koffman CG. Noninvasive imaging of living related kidney donors: evaluation with CT angiography and gadolinium-enhanced MR angiography. AJR Am J Roentgenol 2001; 177(2):349-55.

- 15. Israel GM, Lee VS, Edye M et al. Comprehensive MR imaging in the preoperative evaluation of living donor candidates for laparoscopic nephrectomy: initial experience. Radiology 2002; 225(2):427-32.
- 16. Giessing M, Kroencke TJ, Taupitz M et al. Gadolinium-enhanced three-dimensional magnetic resonance angiography versus conventional digital subtraction angiography: which modality is superior in evaluating living kidney donors? Transplantation 2003; 76(6):1000-2.
- 17. Halpern EJ, Mitchell DG, Wechsler RJ et al. Preoperative evaluation of living renal donors: comparison of CT angiography and MR angiography. Radiology 2000; 216(2):434-9.
- 18. Hussain SM, Kock MC, IJzermans JN et al. MR imaging: a "one-stop shop" modality for preoperative evaluation of potential living kidney donors. Radiographics 2003; 23(2):505-20.
- 19. Andreoni KA, Weeks SM, Gerber DA et al. Incidence of donor renal fibromuscular dysplasia: does it justify routine angiography? Transplantation 2002; 73(7):1112-6.
- 20. Brenner DJ, Hall EJ. Computed tomography--an increasing source of radiation exposure. N Engl J Med. 2007; 357(22):2277-2284.