*National Imaging Associates, Inc.	
Clinical guideline **ABDOMEN/PELVIS CTA (Angiography)**	**Original Date: September 1997**
CPT Codes: 74174	**Last Revised Date: March 2023**
Guideline Number: NIA_CG_069	**Implementation Date: January 2024**

GENERAL INFORMATION

- *It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.*
- *Where a specific clinical indication is not directly addressed in this guideline, medical necessity determination will be made based on widely accepted standard of care criteria. These criteria are supported by evidence-based or peer-reviewed sources such as medical literature, societal guidelines and state/national recommendations.*

IMPORTANT NOTE

When vascular imaging of the aorta and both legs, i.e., CTA aortogram and runoff is desired (sometimes incorrectly requested as Abd/Pelvis CTA & Lower Extremity CTA Runoff), only one authorization request is required, using CPT Code 75635 Abdominal Arteries CTA. **This study provides for imaging of the abdomen, pelvis, and both legs.** The CPT code description is CTA aorto-iliofemoral runoff; abdominal aorta and bilateral ilio-femoral lower extremity runoff**.**

When separate requests for CTA abdomen and CTA Pelvis are encountered for processes involving both the abdomen and pelvis (but do NOT need to include legs/runoff), they need to be resubmitted as a single Abdomen/Pelvis CTA (to avoid unbundling). Otherwise, the exam should be limited to the appropriate area (i.e., Abdomen OR Pelvis) that includes the area of concern. INDICATIONS FOR ABDOMEN/PELVIS CT ANGIOGRAPHY/CT VENOGRAPHY (CTA/CTV)

For evaluation of known or suspected abdominal/pelvis vascular disease

Arterial Disease

Abdominal Aortic Aneurysm (AAA):

- For **asymptomatic** known or suspected abdominal aortic aneurysms, ultrasound should be done prior to advanced imaging. Only when the ultrasound is inconclusive, is advanced imaging needed (see Background for ultrasound screening intervals)
- For **symptomatic** known or suspected AAA (such as recent-onset abdominal pain or back pain, particularly in the presence of a pulsatile or epigastric mass, suspected dissection or significant risk factors for AAA) CTA/MRA is appropriate and generally preferred over CT/MRI. (If contrast is contraindicated or other clinical indications for abdomen and/or pelvic imaging are present, then CT/MR may be approved rather than CTA/MRA)
- If there is known complex vascular anatomy, CTA/MRA may be needed.

Other vascular abnormalities seen on prior imaging studies:

- Initial evaluation of inconclusive vascular findings on prior imaging
- Follow-up of known visceral vascular conditions (such as aneurysm, dissection, compression syndromes, arteriovenous malformations (AVMs), fistulas, intramural hematoma, and vasculitis) (pelvis may also be approved if needed based on location of abnormality)
    - Hepatic vascular abnormalities after ultrasound has been performed to clarify or further evaluate findings
- For assessment in patients with spontaneous coronary artery dissection (SCAD), can be done at time of coronary angiography [5]
- Vascular invasion or displacement by tumor (conventional CT or MRI also appropriate)[6]
- For known large vessel diseases (inferior vena cava, superior/inferior mesenteric, celiac, splenic, renal or iliac arteries/veins), e.g., aneurysm/dissection (non-aortic disease), arteriovenous malformations (AVMs), and fistulas, intramural hematoma, and vasculitis[7-9]
    - Surveillance may be done with ultrasound at intervals similar to AAA, however, CTA/MRA rather than CT/MRI may be needed for non-aortic disease when ultrasound is inconclusive[10]

Vascular ischemia or hemorrhage:

- To determine the vascular source of retroperitoneal hematoma or hemorrhage when CT is insufficient to determine the source of hemorrhage [9, 12]
- For evaluation of suspected mesenteric ischemia/ischemic colitis [11]
- Lower gastrointestinal hemorrhage: Active bleeding in a hemodynamically stable patient or non-localized intermittent bleeding as an alternative to Tc-99m RBC scan when colonoscopy did not localize the bleeding, or is contraindicated or unavailable[5, 6, 14]
- For hemodynamically unstable patients[15, 16]

For patients at increased risk for vascular abnormalities (CTA or MRA):

- For patients with fibromuscular dysplasia (FMD), a one-time vascular study of the abdomen and pelvis [13]

- For patients with vascular Ehlers-Danlos syndrome or Marfan syndrome, a one-time study of the abdomen and pelvis
- For Loeys-Dietz, imaging at diagnosis and then every two years, more frequently if abnormalities are found (Imaging may include head, neck, chest, abdomen and pelvis)[14, 20] (MRA preferred due to cumulative radiation risk)

Venous disease

- Venous thrombosis if previous studies have not resulted in a clear diagnosis
- For suspected/known May-Thurner syndrome[24, 25]
- For evaluation of venous thrombosis in the inferior vena cava (IVC)[17]
- Vascular invasion or displacement by tumor (if involves both the abdomen and pelvis (otherwise limit to either abdomen or pelvis as appropriate)
- For evaluation of suspected pelvic vascular disease or pelvic congestive syndrome when findings on ultrasound are indeterminate (MR or CT venography may be used as the initial study for evaluating pelvic thrombosis or thrombophlebitis)
- For unexplained lower extremity edema (typically unilateral or asymmetric) with negative or inconclusive ultrasound[26]

Pre-operative evaluation

- Evaluation of interventional vascular procedures for luminal patency versus restenosis due to conditions such as atherosclerosis, thromboembolism, and intimal hyperplasia
- Prior to repair of abdominal aortic aneurysm (AAA)
- For imaging of the deep inferior epigastric arteries for surgical planning (breast reconstructive surgery)[27]
- Prior to solid organ transplantation when vascular anatomy is needed

Post-operative or post-procedural evaluation

- Evaluation of endovascular/interventional abdominal vascular procedures for luminal patency versus restenosis due to conditions such as atherosclerosis, thromboembolism, and intimal hyperplasia
- Evaluation of post-operative complications, e.g., pseudoaneurysms, related to surgical bypass grafts, vascular stents, and stent-grafts in the peritoneal cavity
- Suspected complications of inferior vena cava (IVC) filters
- Follow-up for post-endovascular repair (EVAR) or open repair of abdominal aortic aneurysm (AAA)[1] or abdominal extent of iliac artery aneurysms (**CT preferred** unless MRA/CTA is needed for procedural planning or to evaluate complex anatomy)
    - Routine, baseline study (post-op/intervention) is warranted within the first month after EVAR:
        - Repeat in 6 months if type II endoleak is seen (continue every 6 months x 24 months, then annually)

        - Repeat in 12 months if no endoleak or sac enlargement is seen
        - If neither endoleak nor AAA enlargement is seen on imaging one year after EVAR, CT is needed only if US is not feasible for annual surveillance (until year 5 as below)
    - Non-contrast CT of entire aorta (Abdomen and Pelvis) is needed every 5 years after open repair of AAA or EVAR
    - If symptomatic or imaging shows increasing or new findings related to stent graft – more frequent imaging may be needed
    - For suspected complication such as: new-onset lower extremity claudication, ischemia, or reduction in ABI after aneurysm repair,

Other Indications

Further evaluation of indeterminate findings on prior imaging (unless follow up is otherwise specified within the guideline):

- For initial evaluation of an inconclusive finding on a prior imaging report that requires further clarification
- One follow-up exam of a prior indeterminate MR/CT finding to ensure no suspicious interval change has occurred. (No further surveillance unless specified as highly suspicious or change was found on last follow-up exam)

Chest CTA/Abdomen/Pelvis CTA combo

- For evaluation of extensive vascular disease involving the chest and abdominal cavities
- For pre-op or preprocedural evaluation for Transcatheter Aortic Valve Replacement (TAVR)[29, 31]
- Acute aortic dissection[32]
- Takayasu's arteritis[33]
- Marfan syndrome
- Loeys-Dietz syndrome
- Spontaneous coronary artery dissection (SCAD)
- Vascular Ehlers-Danlos syndrome
- Post-operative complications[34, 35]
- Significant post-traumatic or post-procedural vascular complications

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BACKGROUND

Body CTA is a method used to characterize vascular anatomy, diagnose vascular diseases, and plan treatment. Following contrast thin section CT acquisition is utilized and timed to coincide with peak arterial and venous enhancement. Both multiplanar and 3D reconstructions can be reformatted**.**

Bruits - blowing vascular sounds heard over partially occluded blood vessels. Abdominal bruits may indicate partial obstruction of the aorta or other major arteries such as the renal, iliac, or femoral

arteries. Associated risks include but are not limited to; renal artery stenosis, aortic aneurysm, atherosclerosis, AVM, or coarctation of aorta.

Peripheral Artery Disease (PAD) – Before the availability of computed tomography angiography (CTA), peripheral arterial disease was evaluated using CT and only a portion of the peripheral arterial tree could be imaged. Multi-detector row CT (MDCT) overcomes this limitation and provides an accurate alternative to CT and is a cost-effective diagnostic strategy in evaluating PAD. Abdominal Arteries CTA (including runoff to the lower extremities) is the preferred study when evaluation of arterial sufficiency to the legs is part of the evaluation.

Lower GI bleeding- Colonoscopy should be the initial diagnostic procedure for nearly all patients presenting with acute LGIB (strong recommendation, low-quality evidence). Hematochezia associated with hemodynamic instability should lead to consideration of a brisk UGIB source, especially in at-risk patients, such as those with a history of peptic ulcer disease or liver disease with portal hypertension and those using antiplatelet or anticoagulant medications, and an upper endoscopy should be performed. CTA is a reasonable first-line screening test if needed before angiography or emergent surgery.[5]

CTA and Abdominal Aortic Aneurysm – Endovascular repair is an alternative to open surgical repair of an abdominal aortic aneurysm. It has lower morbidity and mortality rates and is minimally invasive. In order to be successful, it depends on precise measurement of the aneurysm and involved vessels. CTA with 3D reconstruction is useful in obtaining exact morphologic information on abdominal aortic aneurysms. CTA is also used for the detection of postoperative complications of endovascular repair.

CTA and Abdominal Aortic Aneurysm – The normal diameter of the suprarenal abdominal aorta is 3.0 cm and that of the infrarenal is 2.0 cm. Aneurysmal dilatation of the infrarenal aorta is defined as diameter ≥ 3.0 cm or dilatation of the aorta ≥ 1.5x the normal diameter.[2] Evaluation of AAA can be accurately made by ultrasound. Ultrasound can detect and size AAA, with the advantage of being relatively inexpensive, noninvasive, and not requiring iodinated contrast. The limitations are that overlying bowel gas can obscure findings and the technique is operator dependent. Ultrasound is used to screen for and to monitor aneurysms*. CT is used when US is inconclusive or insufficient. When there are suspected complications, complex anatomy and/or surgery is planned, CTA/MRA is preferred. Risk factors for AAA include smoking history, age, male gender, family history of AAA (first degree relative) and personal history of vascular disease. Risk factors for rupture include female gender, large initial aneurysm diameter, low FEV, current smoking history, elevated mean blood pressure and patients on immunosuppression after major organ transplantation. The Society of Vascular Surgery recommends elective repair of AAA ≥ 5.5 cm in patients at low or acceptable surgical risk.[1]

Ultrasound screening intervals*:

- Aneurysm size 2.5–3 cm, every 10 years
- Aneurysm size 3.0–3.9 cm, every 3 years

- Aneurysm size 4.0-4.9 cm, annually[36]
- Aneurysm size 5.0-5.4 cm, every 6 months

Iliac Artery Aneurysms – Follow-up asymptomatic incidentally detected iliac artery aneurysms: The definition of an iliac artery aneurysm is dilatation to more than 1.5 times its normal diameter, in general ≥ 18 mm in men and ≥ 15 mm in women, an internal iliac artery > 8mm. Surveillance is extrapolated from AAA surveillance and can be done by Doppler ultrasound or CTA if hard to visualize by ultrasound.[4]

CTA and Thoracic Aorta Endovascular Stent-Grafts – CTA is an effective alternative to conventional angiography for postoperative follow-up of aortic stent grafts. It is used to review complications after thoracic endovascular aortic repair. CTA can detect luminal and extraluminal changes to the thoracic aortic after stent-grafting and can be performed efficiently with fast scanning speed and high spatial and temporal resolution.

MRI/CT and acute hemorrhage – MRI is not indicated and MRA/MRV (MR Angiography/Venography) is rarely indicated for evaluation of intraperitoneal or retroperitoneal hemorrhage, particularly in the acute setting. **CT is the study of choice** due to its availability, speed of the study and less susceptibility to artifact from patient motion. Advances in technology have allowed conventional CT to not just detect hematomas but also the source of acute vascular extravasation. In special cases finer vascular detail to assess the specific source vessel responsible for hemorrhage may require the use of CTA. CTA in diagnosis of lower gastrointestinal bleeding is such an example.[14] In this case, colonoscopy should be the initial diagnostic procedure.

MRA/MRV is often utilized in non-acute situations to assess vascular structure involved in atherosclerotic disease and its complications, such as vasculitis, venous thrombosis, vascular congestion or tumor invasion. Although some of these conditions may be associated with hemorrhage, it is usually not the primary reason why MRI/MRA/MRV is selected for the evaluation. A special condition where MRI may be superior to CT for evaluating hemorrhage is to detect an underlying neoplasm as the cause of bleeding.[37]

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POLICY HISTORY

Date	Summary
March 2023	• Aneurysm: specified guidance on initial imaging and screening intervals with emphasis on requiring ultrasound on initial imaging and indications for advanced imaging, specified guidance on post-repair imaging • Other vascular abnormalities: clarified indication for non-aortic vascular conditions • Transplant: added section • General Information moved to beginning of guideline with added statement on clinical indications not addressed in this guideline • Added statement regarding further evaluation of indeterminate findings on prior imaging • Aligned sections across body imaging guidelines
April 2022	• Added "(abdomen and pelvis MRA when CTA is inconclusive or cannot be performed)" to follow-up for EVAR and AAA

Reviewed / Approved by NIA Clinical Guideline Committee

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