National Imaging Associates, Inc.*	
Clinical guideline **ABDOMEN/PELVIS CTA** **(~~Angiograophy~~Angiography)**	**Original Date: September 1997**
CPT Codes: 74174	**Last Revised Date: ~~May~~ April 2021~~0~~**
Guideline Number: NIA_CG_069	**Implementation Date: January 2021~~2~~**

IMPORTANT NOTE: When encounter requests for Abd/Pelvis CTA & Lower Extremity CTA (Runoff) requests, these should be Abdominal Arteries CTA. Only one authorization request is required, using CPT Code 75635. This study provides for imaging of the abdomen, pelvis, and both legs and is the noninvasive equivalent to an "aortogram and run-off".

INDICATIONS FOR ABDOMEN/PELVIS CT ~~Angiography~~ANGIOGRAPHY/CT ~~Venography~~ VENOGRAPHY (MRA/MRV)~~:~~

~~**NOTE: For known or suspected abdominal aneurysm, CT/MRI should not be approvable without a contraindication to CTA/MRA (such as severe renal dysfunction, contrast allergy, or another specific reason CT/MRI is preferred).**~~

For evaluation of known or suspected abdominal/pelvis vascular disease~~:~~

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Arterial Disease~~:~~

- Evaluation of known or suspected aortic aneurysm‡ (Chaikof, 2018; Khosa, 2013; Kumar, 2017)
  - For screening, ultrasound is initial study~~.~~
  - Known or suspected abdominal ~~aoriic~~**aortic** aneurysm >2.5 cm **AND** equivocal or indeterminate ultrasound results~~;~~
  - Suspected complications of known aneurysm as evidenced by signs/symptoms such as new onset of abdominal or pelvic pain
  - Known or suspected **iliac artery aneurysm** with indeterminate or equivocal Doppler ultrasound results
  - ~~o~~ Surveillance imaging every three years for diameter 2.0-2.9 cm and annually for 3.0-3.4 cm if Doppler ultrasound is inconclusive. If >3.5 cm, <6 month ~~follow~~ follow-up (and consider intervention) (Wanhainen, 2019)

* National Imaging Associates, Inc. (NIA) is a subsidiary of Magellan Healthcare, Inc.

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- **Evidence of vascular abnormality seen on prior imaging studies.**
- For known large vessel diseases (abdominal aorta, inferior vena cava, superior/inferior mesenteric, celiac, splenic, renal or iliac arteries/veins), e.g., aneurysm, dissection, arteriovenous malformations (AVMs), and fistulas, intramural hematoma, and vasculitis (ACR, 2018; Thakur, 2018).
- ~~Evidence of vascular abnormality seen on prior imaging studies.~~
- For suspected aortic dissection (Baliga, 2014)
- Suspected retroperitoneal hematoma or hemorrhage: to determine **vascular source** of hemorrhage, in setting of trauma, tumor invasion, fistula or vasculitis, otherwise CT**/MR** abdomen and pelvis **(rather than CTA/MRA)** may be sufficient **and the modality of choice** for diagnosing hemorrhage (Ioannou, 2018)
- 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 (ACR, 2014; Clerc, 2017; Strate, 2016).
- For evaluation of suspected mesenteric ischemia (ACR, 2018; Aw-Zoretic, 2016; Bala, 2017; Thakur, 2018)
- **For patients with fibromuscular dysplasia (FMD), a one-time vascular study of the abdomen and pelvis (CTA or MRA) (Kadian-Dodov, 2016)**
- **For patients with vascular Ehlers-Danlos syndrome or Marfan syndrome recommend a one-time study of the abdomen and pelvis (CTA/MRA)**
- **For Loeys-Dietz imaging at least every two years (Chu, 2014).**
- **For assessment in patients with spontaneous coronary artery dissection (SCAD) can be done at time of coronary angiography (also approve CTA pelvis) (Crousillat, 2020)**
- **Vascular invasion or displacement by tumor (if involves both the abdomen and pelvis (otherwise limit to either abdomen or pelvis as appropriate)**

Venous disease:

- Venous thrombosis if previous studies have not resulted in a clear diagnosis.
- For May-Thurner syndrome (Ibrahim, 2012; Wan-Ling, 2012)
- For evaluation of venous thrombosis in the inferior vena cava (IVC) (Aw-Zouretic, 2016).
- **Vascular invasion or displacement by tumor (if involves both the abdomen and pelvis (otherwise limit to either abdomen or pelvis as appropriate)**
- **For diffuse unexplained lower extremity edema with negative or inconclusive ultrasound (Hoshino, 2016)**
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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) (ACR, 2017)

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) or abdominal extent of iliac artery aneurysms. Routine, baseline study (post-op/intervention) is warranted within 1-3 months (ACR, 2017; Chaikof, 2018; Uberoi, 2011).
    - If asymptomatic at 6-month intervals, for one year, then annually.
    - If symptomatic/complications related to stent graft – more frequent imaging may be needed.
    - Follow-up study may be needed to help evaluate a patient's progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested.

Other vascular indications:

- ~~For patients with fibromuscular dysplasia (FMD) a one-time study can be approved (Kadian-Dodov, 2016).~~
- ~~For patients with Vascular Ehlers-Danlos syndrome or Marfan syndrome, recommend a one-time study.~~
- ~~For Loeys-Dietz imaging at least every two years (Chu, 2014).~~
- ~~For assessment in patients with spontaneous coronary artery dissection (SCAD), can have at time of coronary angiography (Crousillat, 2020).~~
- For hemodynamically unstable patients (Saltzman, 2019)
- **Suspected retroperitoneal hematoma or hemorrhage: to determine vascular source of hemorrhage, in setting of trauma, tumor invasion, fistula or vasculitis; otherwise, CT/MR abdomen and pelvis (rather than CTA/MRA) may be sufficient and the modality of choice for diagnosing hemorrhage (Ioannou, 2018)**
- Vascular invasion or displacement by tumor (Conventional CT or MRI also appropriate) (Certik, 2015).
- **For diffuse unexplained lower extremity edema with negative or inconclusive ultrasound (Hoshino, 2016)**
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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) (Achenbach, 2012; ACR, 2017)**~~Transcatheter Aortic Valve Replacement (TAVR) (Achenbach, 2012; ACR, 2017)~~
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- Acute a~~A~~ortic dissection (Barman, 2014)
- Takayasu's arteritis (Keser, 2014)
- Marfan syndrome
- Loeys-Dietz syndrome
- Spontaneous coronary artery dissection (SCAD)
- Vascular Ehlers-Danlos syndrome
- Post-operative complications (Bennet, 2017; Choudhury, 2017)
- Significant post-traumatic or post-procedural vascular complications

- ~~**IMPORTANT NOTE: When encounter requests for Abd/Pelvis CTA & Lower Extremity CTA (Runoff) Requests, these should be Abdominal Arteries CTA. Only one authorization request is required, using CPT Code 75635. This study provides for imaging of the abdomen, pelvis, and both legs and is the noninvasive equivalent to an "aortogram and run-off".**~~

~~**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.~~**IMPORTANT NOTE: When encounter requests for Abd/Pelvis CTA & Lower Extremity CTA (Runoff) Requests, these should be a Abdominal Arteries CTA. Only one authorization request is required, using CPT Code 75635. This study provides for imaging of the abdomen, pelvis, and both legs and is the noninvasive equivalent to an "aortogram and run-off".**

BACKGROUND

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~~**Abd/Pelvis CTA & Lower Extremity CTA Runoff Requests:** 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.~~

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~~ **first** line screening test if needed before angiography or emergent surgery (Strate, 2016).

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.

Recommended intervals for initial follow-up imaging of ectatic aortas and abdominal aortas (follow-up intervals may vary depending on comorbidities and the growth rate of the aneurysm) from the white paper of the ACR Incidental Findings Committee II on vascular findings using ultrasound (Chaikof, 2018)):
2.5-2.9 cm: …….5 yr
3.0-3.4 cm:…….. 3 yr
3.5-3.9 cm:……2 yr
4.0-4.4 cm:……1 yr
4.5-4.9 cm……6 mo
5.0-5.5 cm:……3-6 mo

The Society of Vascular Surgery has different follow-up intervals for AAA (Chaikof, 2018):
>2.5 cm - <3 cm……..10 yr
3.0 - 3.9 cm……3 yr

4.0 - 4.9 cm……12 mo
5.0 - 5.4 cm……..6 mo.

The Society of Vascular Surgery recommends elective repair of AAA ≥ 5.5 cm in patients at low or acceptable surgical risk (Chaikof, 2018)

Iliac Artery Aneurysms – s: Follow-up asymptomatic incidentally detected iliac artery aneurysms: The definition of an iliac artery aneurysm is ~~dilitation~~**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 (Wainansen, 2019).

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 – e: 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 (Clerc, 2017). 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 (Abe, 2010).

POLICY HISTORY~~:~~

Date	Summary
April 2021	• No substantive changes
May 2020	• Added FMD, SCAD, Marfans, etc. • Added May-Thurner • Removed CTA for renal artery stenosis • Added combo study section
May 2019	• Added indications for vascular disease for iliac artery aneurysm; complications of known aneurysm; surveillance imaging timeline;

	hemodynamically unstable patients; evaluation of venous thrombosis in the inferior vena cava; suspected complications of inferior vena cava (IVC) filters; and for post op complications • For pre-op evaluation, added indications for prior to repair of AAA; and for imaging of the deep inferior epigastric arteries for surgical planning • Added/modified Background information and updated references

~~**Review Date:** May 2019~~
~~**Review Summary:**~~
- ~~Added indications for vascular disease for iliac artery aneurysm; complications of known aneurysm; surveillance imaging timeline; hemodynamically unstable patients; evaluation of venous thrombosis in the inferior vena cava; suspected complications of inferior vena cava (IVC) filters; and for post op complications~~
- ~~For pre-op evaluation, added indications for prior to repair of AAA; and for imaging of the deep inferior epigastric arteries for surgical planning~~
- ~~Added/modified Background information and updated references~~

~~**Review Date**: May 2020~~
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- ~~Added FMD, SCAD, Marfans, etc.~~
- ~~Added May Thurner~~
- ~~Removed CTA for renal artery stenosis~~
- ~~Added combo study section~~

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Reviewed / Approved by NIA Clinical Guideline Committee

Reviewed / Approved by M. Atif Khalid MD M. Atif Khalid, M.D., Medical Director, Radiology

GENERAL INFORMATIO

It is an expectation tha vices 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.