AmeriHealth Caritas Louisiana

National Imaging Associates, Inc.*	
Clinical guidelines **ABDOMEN CTAngiography**	**Original Date: September 1997**
CPT Codes: 74175	**Last Revised Date: May 202019**
Guideline Number: NIA_CG_034-1	**Implementation Date: January 20210TBD**

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. All prior relevant imaging results, and the reason that alternative imaging (gold standard, protocol, contrast, etc.) cannot be performed must be included in the documentation submitted.

INDICATIONS FOR ABDOMEN CT Angiography/CT Venography (CTA/CTV):

For evaluation of known or suspected abdominal vascular disease:

- For known large vessel diseases (celiac, splenic, renal arteries/veins), e.g., aneurysm, dissection, compression syndromes, arteriovenous malformations (AVMs), and fistulas, intramural hematoma, and vasculitis limited to the abdomen.
- For suspected aortic dissection (approve CTA/MRA abdomen and pelvis).
- For diagnosis or follow up of visceral artery aneurysm (Ibrahim, 2018; Junternamms, 2018):
- Evidence of vascular abnormality seen on prior imaging studies and limited to the abdomen.
- For patients with fibromuscular dysplasia (FMD), a one-time vascular study of the abdomen and pelvis (also approve CTA or /MRAA pelvis) (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 Loetz-Dietz imaging at leaste 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).
- Evaluation of known or suspected aortic aneurysm (apperove CTA/MRA abdomen and pelvis) (Chaikof, 2018; Khosa, 2013, Kumar, 2017):

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    - For screening, US is initial study
    - Known or suspected aneurysm >2.5 cm AND equivocal or indeterminate ultrasound results~~; OR~~
    - Prior imaging (e.g. ultrasound) demonstrating aneurysm >2.5cm in diameter~~; OR~~
    - Suspected complications of known aneurysm as evidenced by signs/symptoms such as new onset of abdominal or pelvic pain
    - Surveillance imaging every three years for diameter 2.0-2.9cm and annually for 3.0-3.4 cm if ~~DUS~~Doppler ultrasound inconclusive. If > 3.5cm, < 6 month follow up (and consider intervention) (Wanhainen, 2019).
- For May-Thurner syndrome (include pelvic CTV) (Ibrahim 2012; Wan-Ling, 2012)
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- Suspected retroperitoneal hematoma or hemorrhage (to determine vascular source of hemorrhage in setting of trauma, tumor invasion, fistula, or vasculitis; otherwise CT (rather than CTA) is sufficient and the modality of choice for diagnosing hemorrhage).
- For evaluation of suspected mesenteric ischemia (can approve CTA/MRA abdomen and pelvis) (ACR, 2018~~2~~).
- Suspected renal vein thrombosis in patient with known renal mass or from other causes (Mazhar, 2018)
- Venous thrombosis if previous studies have not resulted in a clear diagnosis and limited to the abdomen.
- Vascular invasion or displacement by tumor in the abdomen.
- For evaluation of portal venous system (hepatic portal system) after doppler ultrasound has been performed.
- For evaluation of transjugular intrahepatic portosystemic shunt (TIPS) when Doppler ultrasound indicates suspected complications (Darcy, 2012; Dariushnia, 2016; Farsad, 2014; Raissi, 2019).
- For evaluation of known or suspected renal artery stenosis ~~(Akbeyaz, 2017; Gulas, 2018; Mohammed, 2012)~~ or resistant hypertension in the setting of normal renal function (with impaired renal function, eGFR <30, use US with Doppler) unrelated to recent medication ~~(Harvin, 2017; Whelton, 2018)~~ demonstrated by any of the following (Akbeyaz, 2017; Bailey, 2018; Gulas, 2018; Hartman, 2009; Harvin, 2017; Mohammed, 2012;~~Bailey, 2018; Hartman, 2009;~~ Tullus, 2010; Whelton, 2018):
    - Unsuccessful control after treatment with 3 or more (>2) anti-hypertensive medication at optimal dosing and one should be a diuretic.
    - Acute elevation of creatinine after initiation of an angiotension converting enzyme inhibitor (ACE inhibitor) or angiotension receptor blocker (ARB).
    - Asymmetric kidney size noted on ultrasound.
    - Onset of hypertension in a person younger than age 30 without any other risk factors or family history of hypertension**.
    - Significant hypertension (diastolic blood pressure > 110 mm Hg) in a young adult (i.e., younger than 35 years) suggestive of fibromuscular dysplasia (Kong, 2018)
    - Diagnosis of a syndrome with a higher risk of vascular disease, such as neurofibromatosis, tuberous sclerosis and Williams' syndrome.

- New onset of hypertension after age 50.
- Acute rise in blood pressure in a person with previously stable blood pressures.
- Flash pulmonary edema without identifiable causes.
- Malignant or accelerated hypertension.
- Bruit heard over renal artery and hypertension.

Pre-operative evaluation:

- Evaluation prior to interventional vascular procedures for luminal patency versus restenosis due to conditions such as atherosclerosis, thromboembolism, and intimal hyperplasia.
- For pre-transplant evaluation of either liver or kidney.
- Imaging of the deep inferior epigastric arteries for surgical planning (breast reconstruction surgery), include pelvic CTA/MRA (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.
- 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 **(CTA abdomen and pelvis should be approved)** (Chaikof, 2018; Uberoi, 2011).
    - Asymptomatic at six (6) month intervals for one (1) year, then annually.
- 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.

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)
- Acute Aortic dissection (Barman, 2014)
- Takayasu's arteritis (Keser, 2014)
- **Marfans syndrome**
- **Loetz-Dietz**
- **Spontaneous coronary artery dissection (SCAD)**
- **Vascular Ehlers-Danlos syndrome**
- Post op complications (Bennet, 2017; Choudhury, 2017)
- Significant post-traumatic or post-procedural vascular complications

BACKGROUND:

Computed tomography angiography (CTA) generates images of the arteries that can be evaluated for evidence of stenosis, occlusion, or aneurysms. It is used to evaluate the arteries of the abdominal aorta and the renal arteries. CTA uses ionizing radiation and requires the administration of iodinated contrast agent which is a potential hazard in patients with impaired renal function. Abdominal CTA is not used as a screening tool, e.g. evaluation of asymptomatic patients without a previous diagnosis.

Cross sectional imaging (liver ultrasound with Doppler, CT or MRI) should be completed no more than a month prior to the Transjugular intrahepatic Portosystemic shunt (TIPS) to assess for vascular patency and look for hepatic masses or other problems that could complicate the procedure.

Post procedure, an ultrasound of the liver a day after to assess shunt patency. Hepatic encephalopathy (HE) is the most common complication and usually occurs 2-3 weeks after insertion of TIPS. Unique complications may include intravascular hemolysis and infection of the shunt. Other complications can include capsule puncture, intraperitoneal bleed, hepatic infarction, fistula, hematobilia, thrombosis of stent, occlusion or stent migration and may require cross sectional imaging.

Follow up and maintenance imaging if complications suspected include Doppler ultrasound to assess shunt velocity. If asymptomatic sonogram performed at 4 weeks post placement, then every 6 months to a year. The gold standard for shunt patency is portal venography, usually reserved if concern for shunt occlusion.

OVERVIEW:

CTA and Renal Artery Stenosis – Renal artery stenosis is the major cause of secondary hypertension. It may also cause renal insufficiency and end-stage renal disease. Atherosclerosis is one of the common causes of this condition, especially in older patients with multiple cardiovascular risk factors and worsening hypertension or deterioration of renal function. CTA is used to evaluate the renal arteries and detect renal artery stenosis.

**NF1 may present with hypertension due to renal artery stenosis in children. All young patients (<30 year) with hypertension should be clinically screened for secondary causes of hypertension, including NF1, so that renal revascularization can be offered before permanent end organ damage has occurred (Duan, 2014).

Asymptomatic Aneurysms may require treatment when:

- Diameter is > 2 cm
- Identified during pregnancy
- Multiple aneurysms are present
- Hepatic transplant

POLICY HISTORY:

Review Date: May 2019

Review Summary:

- Added indications for transjugular intrahepatic portosystemic shunt when Doppler ultrasound indicates suspected complications; accelerated hypertension; pre-transplant evaluation of either liver or kidney; imaging of deep inferior epigastric arteries for surgical planning (breast reconstruction surgery
- For chest CTA/Abdomen CTA combo: added Transcatheter Aortic Valve Replacement; Acute Aortic dissection; Takayasu's arteritis; post op complications; significant post-traumatic or post-procedural vascular complications
- Added and modified Background information and updated references

Review Date: May 2020

Review Summary:

- **Added compression syndromes for evaluation of vascular disease**
- **Added evaluation of FMD, Vascular Ehlers-Danlos syndrome, Loetz-Dietz**
- **Added May-Thurner Added to assess DVT in pregnant women vs serial compression ultrasound, to include pelvis**
- **Added indications for combo studies for chest CTA/abdomen and pelvis CTA**

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