

National Imaging Associates, Inc.*	
Clinical guideline ABDOMEN/PELVIS CTA (Angiography)	Original Date: September 1997
CPT Codes: 74174	Last Revised Date: April 2021
Guideline Number: NIA_CG_069	Implementation Date: January 2023

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/CT VENOGRAPHY (MRA/MRV)

For evaluation of known or suspected abdominal/pelvis vascular disease

Arterial Disease

- Evaluation of known or suspected aortic aneurysm^{‡ 1-3} ~~(Chaikof, 2018; Khosa, 2013; Kumar, 2017)~~
 - For screening, ultrasound is initial study
 - Known or suspected abdominal 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
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-up (and consider intervention)⁴ ~~(Wanhainen, 2019)~~

‡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).

- 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 vasculitis⁵⁻⁷ ~~(ACR, 2018; Thakur, 2018)~~

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

- For suspected aortic dissection⁸ ~~(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 hemorrhage⁹ ~~(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 unavailable¹⁰⁻¹² ~~(ACR, 2014; Clerc, 2017; Strate, 2016)~~
- For evaluation of suspected mesenteric ischemia^{5, 13-15} ~~(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)¹⁶ ~~(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 years¹⁷ ~~(Chu, 2014)~~
- For assessment in patients with spontaneous coronary artery dissection (SCAD) can be done at time of coronary angiography (also approve CTA pelvis)¹⁸ ~~(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 **suspected/known** May-Thurner syndrome^{19, 20} ~~(Ibrahim, 2012; Wan-Ling, 2012)~~
- For evaluation of venous thrombosis in the inferior vena cava (IVC)¹⁴ ~~(Aw-Zoretic, 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 ultrasound²¹ ~~(Hoshino, 2016)~~

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)²² ~~(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.
 - ~~o~~ — Routine, baseline study (post-op/intervention) is warranted within 1-3 months^{1, 23, 24} (~~ACR, 2017; Chaikof, 2018; Uberoi, 2011~~). **(-abdomen and pelvis MRA when CTA is inconclusive or cannot be performed)**
 - o If asymptomatic at 6-month intervals for one year, then annually
 - o If symptomatic/complications related to stent graft – more frequent imaging may be needed
 - o 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 hemodynamically unstable patients^{25, 26} (~~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 hemorrhage⁹ (~~Ioannou, 2018~~)
- Vascular invasion or displacement by tumor (Conventional CT or MRI also appropriate)²⁷ (~~Certik, 2015~~)
- For diffuse unexplained lower extremity edema with negative or inconclusive ultrasound²¹ (~~Hoshino, 2016~~)

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)^{23, 28} (~~Achenbach, 2012; ACR, 2017~~)
- Acute aortic dissection²⁹ (~~Barman, 2014~~)
- Takayasu's arteritis³⁰ (~~Keser, 2014~~)
- Marfan syndrome
- Loeys-Dietz syndrome
- Spontaneous coronary artery dissection (SCAD)
- Vascular Ehlers-Danlos syndrome
- Post-operative complications^{31, 32} (~~Bennet, 2017; Choudhury, 2017~~)
- Significant post-traumatic or post-procedural vascular complications

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 ~~(Strate, 2016)~~.¹¹

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 ≥ 1.5 x the normal diameter.

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 iodinate contrast. The limitations are that overlying bowel gas can obscure findings and the technique is operator-dependent. CTA/MRA are needed only when ultrasound is insufficient or when surgery is planned.

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 ultrasound¹ ~~(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 AAA¹ ~~(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 \geq 5.5 cm in patients at low or acceptable surgical risk.¹ ~~(Chaikof, 2018)~~

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 \geq 18 mm in men and \geq 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 ~~(Wainanen, 2019)~~.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 aorta 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 ~~(Clerc, 2017)~~.¹⁰ 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)~~.³³

POLICY HISTORY

Date	Summary
<u>April 2022</u>	<ul style="list-style-type: none"><u>Added “(abdomen and pelvis MRA when CTA is inconclusive or cannot be performed)” to follow-up for EVAR and AAA</u>

April 2021	<ul style="list-style-type: none"> • No substantive changes
May 2020	<ul style="list-style-type: none"> • Added FMD, SCAD, Marfans, etc. • Added May-Thurner • Removed CTA for renal artery stenosis • Added combo study section
May 2019	<ul style="list-style-type: none"> • 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

REFERENCES

- ~~Abe T, Kai M, Miyoshi O, Nagaie T. Idiopathic retroperitoneal hematoma. *Case Rep Gastroenterol*. 2010;4(3):318–322. doi:10.1159/000320590.~~
- ~~Achenbach S, Delgado V, Hausleiter J, et al. SCCT expert consensus document on computed tomography imaging before transcatheter aortic valve implantation (TAVI)/transcatheter aortic valve replacement (TAVR). *J Cardiovasc Comput Tomogr*. 2012 Nov-Dec; 6(6):366–80.~~
- ~~Akbeyaz IH, Tirosh A, Robinson C, et al. Spontaneously resolving hyperreninemic hypertension caused by accessory renal artery stenosis in a 13-year-old girl: A case report. *J Clin Hypertension*. 2017 Jan; 19(1):100–102.~~
- ~~American College of Radiology (ACR). ACR Appropriateness Criteria®. <https://acsearch.acr.org/list>. Published 2014.~~
- ~~American College of Radiology (ACR). ACR Appropriateness Criteria®. <https://acsearch.acr.org/list>. Published 2017.~~
- ~~American College of Radiology (ACR). ACR Appropriateness Criteria®. <https://acsearch.acr.org/list>. Published 2018.~~
- ~~Aw-Zoretic J, Collins JD. Considerations for imaging the inferior vena cava (IVC) with/without IVC filters. *Semin Intervent Radiol*. 2016 Jun; 33(2):109–21.~~
- ~~Bailey SR, Beckman JA, Dao TD, et al. ACC / AHA / SCAI / SIR / SVM 2018 Appropriate Use Criteria for Peripheral Artery Intervention. *J Am Coll Cardiol*. 2018 Dec.~~
- ~~Bala M, Kashuk J, et al. Acute mesenteric ischemia: Guidelines of the World Society of Emergency Surgery. *World J of Emerg Surg*. 2017; 12.~~
- ~~Baliga RR, Nienaber CA, Bossone E, et al. The role of imaging in aortic dissection and related syndromes. *JACC Cardiovasc Imaging*. 2014 Apr; 7(4):406–24.~~
- ~~Barman M. Acute aortic dissection. *ESC Eur Society Cardiol*. 2014 Jul 02; 12(25).~~
- ~~Bennet KM, Kent KC, Schumaker J, et al. Targeting the most important complications in vascular surgery. *J Vasc Surg*. 2017; 65(3):793–803.~~
- ~~Brazzelli M, Hernandez R, Sharma P, et al. Contrast-enhanced ultrasound and/or colour duplex ultrasound for surveillance after endovascular abdominal aortic aneurysm repair; A systematic review and economic evaluation. *Health Technol Assess*. 2018 Dec; 22(72):1–220.~~

~~Certik B, Treska V, Molacek J, et al. Cardiovascular Surgery. How to proceed in the case of a tumor thrombus in the inferior vena cava with renal cell carcinoma. *Cor et Vasa*. April 2015; 57(2):e95-e100.~~

~~Chaikof EL, Dalman RL, Eskandari MK, et al. The Society for Vascular Surgery practice guidelines on the care of patients with an abdominal aortic aneurysm. *J Vasc Surg*. January 2018; 67(1):2-77.e2. [http://www.jvascsurg.org/article/S0741-5214\(17\)32369-8/fulltext#sec1.3](http://www.jvascsurg.org/article/S0741-5214(17)32369-8/fulltext#sec1.3). Retrieved February 15, 2018.~~

~~Choudhury M. Postoperative Management of Vascular Surgery Patients: A Brief Review. *Clin Surg*. 2017; 2:1584.~~

~~Chu LC, Johnson PT, et al. CT Angiographic Evaluation of Genetic Vascular Disease: Role in Detection, Staging, and Management of Complex Vascular Pathologic Conditions. *AJR*. May 2014; 202(5).~~

~~Clerc D, Grass F, Schafer M, et al. Lower gastrointestinal bleeding—computed tomographic angiography, colonoscopy or both? *World J Emerg Surg*. 2017; 12:1. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5215140/>. Retrieved February 12, 2018.~~

~~Crousillat DR, Wood MJ, et al. Spontaneous Coronary Artery Dissection: An Update for the Interventionalist. *Cath Lab Digest*. 2020 Mar; 28(3).~~

~~Gulas E, Wysiadecki G, Szymanski J, et al. Morphological and clinical aspects of the occurrence of accessory (multiple) renal arteries. *Arch Med Sci*. 2018 Mar; 14(2):442-53.~~

~~Hartman R, Kawashima A. Radiologic evaluation of suspected renovascular hypertension. *Am Fam Physician*. August 1, 2009; 80(3):273-279. <https://www.aafp.org/afp/2009/0801/p273.html>. Retrieved February 15, 2018.~~

~~Harvin HJ, Verma N, Nikolaidis P, et al. ACR Appropriateness Criteria®—Renovascular Hypertension. *J Am Coll Radiol*. 2017 Nov; 14(11S):S540-9.~~

~~Hoshino Y, Machida M, et al. Unilateral leg swelling: Differential diagnostic issue other than deep venous thrombosis. *J Gen Fam Med*. 2016; 17(4):311-314.~~

~~Ibrahim W, Zakarey AS, et al. Endovascular Management of May-Thurner Syndrome. *Ann Vasc Dis*. 2012; 5(2):217-221.~~

~~Ioannou P, Alexakis G. Spontaneous retroperitoneal bleeding in a patient with primary antiphospholipid syndrome on aspirin. *Case Reports in Emergency Medicine*. 2018. <https://doi.org/10.1155/2018/4397893>.~~

~~Kadian-Dorsey D, Gornik HL, et al. Dissection and Aneurysm in Patients with Fibromuscular Dysplasia: Findings from the US Registry for FMD. *Journal of the Am Coll of Cardiology*, 2016;68(2).~~

Keser G, Direskeneli H, Aksu K. Management of Takayasu arteritis: A systematic review. *Rheumatology (Oxford)*. 2014 May; 53(5):793-801.

Khosa F, Krinsky G, Macari M, et al. Managing incidental findings on abdominal and pelvic CT and MRI, Part 2: White paper of the ACR Incidental Findings Committee II on vascular findings. *J Am Coll Radiol*. 2013; 10(10):789-794. doi: 10.1016/j.jacr.2013.05.021.

Kong W, Hu Z. Unique imaging findings in fibromuscular dysplasia of renal arteries: A case report. *Medicine (Baltimore)*. 2018 Nov; 97(46):e12815.

Kranokpiraksa P, Kaufman J. Follow-up of endovascular aneurysm repair: plain radiography, ultrasound, CT/CT angiography, MR imaging/MR angiography, or what? *J Vasc Interv Radiol*. 2008; 19(6):S27-S36. doi:10.1016/j.jvir.2008.03.009.

Kumar Y, Hooda K, Li S, et al. Abdominal aortic aneurysm: Pictorial review of common appearances and complications. *Ann Transl Med*. 2017 Jun; 5(12):256.

Liu PS, Platt JF. CT angiography of the renal circulation. *Radiol Clin North Am*. 2010; 48(2):347-65. doi: 10.1016/j.rcl.2010.02.005.

Mazzaccaro D, Farina A, Petsos K, et al. The role of duplex ultrasound in detecting graft thrombosis and endoleak after endovascular aortic repair for abdominal aneurysm. *Ann Vasc Surg*. 2018 Oct; 52:22-29.

Mohammed AMA, Abdalrasol RGE, Abdalhai KA, et al. Accessory renal vessels. *Acta Inform Med*. 2012 Sep; 20(3):196-97.

Saltzman JR. New British guideline on lower gastrointestinal bleeding. *NEJM*. 2019 Mar. <https://www.jwatch.org/na48586/2019/03/04/new-british-guideline-lower-gastrointestinal-bleeding>.

Seitz M, Waggershauer T, Khoder W. Congenital intrarenal arteriovenous malformation presenting with gross hematuria after endoscopic intervention: A case report. *J Med Case Rep*. 2008; 2:326. doi: 10.1186/1752-1947-2-326.

Strate, LL, Gralnek IM. ACG clinical guideline: Management of patients with acute lower gastrointestinal bleeding. *Am J Gastroenterol*. 2016 Apr; 111(4):459-74. Epub 2016 Mar 1.

Thakur V, Inampudi P, Pena CS. Imaging of mesenteric ischemia. *Applied Radiology*. 2018; 47(2):13-18.

Tullus K, Roebuck DJ, McLaren CA, et al. Imaging in the evaluation of renovascular disease. *Pediatr Nephrol*. June 2010; 25(6):1049-1056. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2855432/>. Retrieved February 15, 2018.

Uberoi R, Tsetis D, Shrivastava V, et al. Standard of practice for the interventional management of isolated iliac artery aneurysms. *Cardiovasc Intervent Radiol*. 2011; 34(1):3-13. doi: 10.1007/s00270-010-0055-0.

~~Wan-Ling MW, Wen-Sheng T, et al. Comprehensive MDCT Evaluation of Patients with Suspected May-Thurner Syndrome. *AJR*. 2012;199(5).~~

~~Wanhainen A, Verzini F, Van Herzele I, et al. Editor's choice—European Society for Vascular Surgery (ESVS) 2019 clinical practice guidelines on the management of abdominal aorto-iliac artery aneurysms. *Eur J Vasc Endovasc Surg*. 2019 Jan; 57(1):8–93.~~

~~Whelton PK, Carey RM, Aronow WS, et al. 2017 ACC / AHA / AAPA / ABC / ACPM / AGS / APhA / ASH / ASPC / NMA / PCNA guideline for the prevention, detection, evaluation, and management of high blood pressure in adults: A report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Hypertension*. 2018; 71(6):e13–e115.~~

~~Yonggeng G, Dan YY, Chua W, et al. Diagnostic utility of whole body CT scanning in patients with unexplained weight loss. *PLoS One*. 2018 July 27; 13(7).~~

Reviewed / Approved by NIA Clinical Guideline Committee

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.~~

Disclaimer: Magellan Healthcare service authorization policies do not constitute medical advice and are not intended to govern or otherwise influence the practice of medicine. These policies are not meant to supplant your normal procedures, evaluation, diagnosis, treatment and/or care plans for your patients. Your professional judgement must be exercised and followed in all respects with regard to the treatment and care of your patients. These policies apply to all Magellan Healthcare subsidiaries including, but not limited to, National Imaging Associates ("Magellan"). The policies constitute only the reimbursement and coverage guidelines of Magellan. Coverage for services varies for individual members in accordance with the terms and conditions of applicable Certificates of Coverage, Summary Plan Descriptions, or contracts with governing regulatory agencies. Magellan reserves the right to review and update the guidelines at its sole discretion. Notice of such changes, if necessary, shall be provided in accordance with the terms and conditions of provider agreements and any applicable laws or regulations.

1.

Chaikof EL, Dalman RL, Eskandari MK, et al. The Society for Vascular Surgery practice guidelines on the care of patients with an abdominal aortic aneurysm. *J Vasc Surg*. Jan 2018;67(1):2-77.e2.

doi:10.1016/j.jvs.2017.10.044

2. Khosa F, Krinsky G, Macari M, Yucel EK, Berland LL. Managing incidental findings on abdominal and pelvic CT and MRI, Part 2: white paper of the ACR Incidental Findings Committee II on vascular findings. *J Am Coll Radiol*. Oct 2013;10(10):789-94. doi:10.1016/j.jacr.2013.05.021

3. Kumar Y, Hooda K, Li S, Goyal P, Gupta N, Adeb M. Abdominal aortic aneurysm: pictorial review of common appearances and complications. *Ann Transl Med*. Jun 2017;5(12):256.

doi:10.21037/atm.2017.04.32

4. Wanhainen A, Verzini F, Van Herzele I, et al. Editor's Choice - European Society for Vascular Surgery (ESVS) 2019 Clinical Practice Guidelines on the Management of Abdominal Aorto-iliac Artery Aneurysms. *Eur J Vasc Endovasc Surg*. Jan 2019;57(1):8-93. doi:10.1016/j.ejvs.2018.09.020

5. Thakur V, Inampudi P, Pena CS. Imaging of mesenteric ischemia. *Applied Radiol* 2018;47(2):13-18.

6. Harvin HJ, Verma N, Nikolaidis P, et al. ACR Appropriateness Criteria® Renovascular Hypertension. *J Am Coll Radiol*. Nov 2017;14(11s):S540-s549. doi:10.1016/j.jacr.2017.08.040

7. American College of Radiology. ACR Appropriateness Criteria® Noncerebral Vasculitis. American College of Radiology (ACR). Updated 2021. Accessed January 10, 2022.

<https://acsearch.acr.org/docs/3158180/Narrative/>

8. Baliga RR, Nienaber CA, Bossone E, et al. The role of imaging in aortic dissection and related syndromes. *JACC Cardiovasc Imaging*. Apr 2014;7(4):406-24. doi:10.1016/j.jcmg.2013.10.015

9. Ioannou P, Alexakis G. Spontaneous Retroperitoneal Bleeding in a Patient with Primary Antiphospholipid Syndrome on Aspirin. *Case Rep Emerg Med*. 2018;2018:4397893. doi:10.1155/2018/4397893
10. Clerc D, Grass F, Schäfer M, Denys A, Demartines N, Hübner M. Lower gastrointestinal bleeding-Computed Tomographic Angiography, Colonoscopy or both? *World J Emerg Surg*. 2017;12:1. doi:10.1186/s13017-016-0112-3
11. Strate LL, Gralnek IM. ACG Clinical Guideline: Management of Patients With Acute Lower Gastrointestinal Bleeding. *Am J Gastroenterol*. Apr 2016;111(4):459-74. doi:10.1038/ajg.2016.41
12. American College of Radiology. ACR Appropriateness Criteria® Radiologic Management of Lower Gastrointestinal Tract Bleeding. American College of Radiology (ACR). Updated 2020. Accessed January 10, 2022. <https://acsearch.acr.org/docs/69457/Narrative/>
13. American College of Radiology. ACR Appropriateness Criteria® Imaging of Mesenteric Ischemia. American College of Radiology. Updated 2018. Accessed November 5, 2021. <https://acsearch.acr.org/docs/70909/Narrative/>
14. Aw-Zoretic J, Collins JD. Considerations for Imaging the Inferior Vena Cava (IVC) with/without IVC Filters. *Semin Intervent Radiol*. Jun 2016;33(2):109-21. doi:10.1055/s-0036-1583207
15. Bala M, Kashuk J, Moore EE, et al. Acute mesenteric ischemia: guidelines of the World Society of Emergency Surgery. *World J Emerg Surg*. 2017;12:38. doi:10.1186/s13017-017-0150-5
16. Kadian-Dodov D, Gornik HL, Gu X, et al. Dissection and Aneurysm in Patients With Fibromuscular Dysplasia: Findings From the U.S. Registry for FMD. *J Am Coll Cardiol*. Jul 12 2016;68(2):176-85. doi:10.1016/j.jacc.2016.04.044
17. Chu LC, Johnson PT, Dietz HC, Fishman EK. CT angiographic evaluation of genetic vascular disease: role in detection, staging, and management of complex vascular pathologic conditions. *AJR Am J Roentgenol*. May 2014;202(5):1120-9. doi:10.2214/ajr.13.11485
18. Crousillat DR, Wood MJ. Spontaneous Coronary Artery Dissection: An Update for the Interventionalist. HMP Global Learning Network. Updated March 2020. Accessed January 10, 2022. <https://www.hmpgloballearningnetwork.com/site/cathlab/content/spontaneous-coronary-artery-dissection-update-interventionalist>
19. Ibrahim W, Al Safran Z, Hasan H, Zeid WA. Endovascular management of may-thurner syndrome. *Ann Vasc Dis*. 2012;5(2):217-21. doi:10.3400/avd.cr.12.00007
20. Wu WL, Tzeng WS, Wu RH, et al. Comprehensive MDCT evaluation of patients with suspected May-Thurner syndrome. *AJR Am J Roentgenol*. Nov 2012;199(5):W638-45. doi:10.2214/ajr.11.8040
21. Hoshino Y, Machida M, Shimano Si, et al. Unilateral Leg Swelling: Differential Diagnostic Issue Other than Deep Vein Thrombosis. *Journal of General and Family Medicine*. 2016;17(4):311-314.
22. American College of Radiology. ACR Appropriateness Criteria® Imaging of Deep Inferior Epigastric Arteries for Surgical Planning (Breast Reconstruction Surgery). American College of Radiology. Updated 2017. Accessed January 10, 2022. <https://acsearch.acr.org/docs/3101591/Narrative/>
23. American College of Radiology. ACR Appropriateness Criteria® Abdominal Aortic Aneurysm: Interventional Planning and Follow-up. American College of Radiology. Updated 2017. Accessed November 5, 2021. <https://acsearch.acr.org/docs/70548/Narrative/>
24. Uberoi R, Tsetis D, Shrivastava V, Morgan R, Belli AM. Standard of practice for the interventional management of isolated iliac artery aneurysms. *Cardiovasc Intervent Radiol*. Feb 2011;34(1):3-13. doi:10.1007/s00270-010-0055-0

25. Saltzman JR. New British Guideline on Lower Gastrointestinal Bleeding. Massachusetts Medical Society. Updated March 4, 2019. Accessed January 10, 2022.
<https://www.jwatch.org/na48586/2019/03/04/new-british-guideline-lower-gastrointestinal-bleeding>
26. Oakland K, Chadwick G, East JE, et al. Diagnosis and management of acute lower gastrointestinal bleeding: guidelines from the British Society of Gastroenterology. *Gut*. May 2019;68(5):776-789. doi:10.1136/gutjnl-2018-317807
27. Čertík B, Třeška V, Moláček J, Šulc R. How to proceed in the case of a tumour thrombus in the inferior vena cava with renal cell carcinoma. *Cor et Vasa*. 2015/04/01/ 2015;57(2):e95-e100. doi:<https://doi.org/10.1016/j.crvasa.2015.02.015>
28. Achenbach S, Delgado V, Hausleiter J, Schoenhagen P, Min JK, Leipsic JA. SCCT expert consensus document on computed tomography imaging before transcatheter aortic valve implantation (TAVI)/transcatheter aortic valve replacement (TAVR). *J Cardiovasc Comput Tomogr*. Nov-Dec 2012;6(6):366-80. doi:10.1016/j.jcct.2012.11.002
29. Barman M. Acute aortic dissection. *ESC e-J Cardio Pract*. 2014;12(25):02Jul2014. doi:<https://www.escardio.org/Journals/E-Journal-of-Cardiology-Practice/Volume-12/Acute-aortic-dissection>
30. Keser G, Direskeneli H, Aksu K. Management of Takayasu arteritis: a systematic review. *Rheumatology (Oxford)*. May 2014;53(5):793-801. doi:10.1093/rheumatology/ket320
31. Bennett KM, Kent KC, Schumacher J, Greenberg CC, Scarborough JE. Targeting the most important complications in vascular surgery. *J Vasc Surg*. Mar 2017;65(3):793-803. doi:10.1016/j.jvs.2016.08.107
32. Choudhury M. Postoperative management of vascular surgery patients: a brief review. *Clin Surg*. 2017;2:1584.
33. Abe T, Kai M, Miyoshi O, Nagaie T. Idiopathic Retroperitoneal Hematoma. *Case Rep Gastroenterol*. Sep 11 2010;4(3):318-322. doi:10.1159/000320590

ADDITIONAL RESOURCES

1. Akbeyaz IH, Tirosh A, Robinson C, et al. Spontaneously Resolving Hyperreninemic Hypertension Caused by Accessory Renal Artery Stenosis in a 13-Year-Old Girl: A Case Report. *J Clin Hypertens (Greenwich)*. Jan 2017;19(1):100-102. doi:10.1111/jch.12893
2. Bailey SR, Beckman JA, Dao TD, et al. ACC/AHA/SCAI/SIR/SVM 2018 Appropriate Use Criteria for Peripheral Artery Intervention: A Report of the American College of Cardiology Appropriate Use Criteria Task Force, American Heart Association, Society for Cardiovascular Angiography and Interventions, Society of Interventional Radiology, and Society for Vascular Medicine. *J Am Coll Cardiol*. Jan 22 2019;73(2):214-237. doi:10.1016/j.jacc.2018.10.002
3. Brazzelli M, Hernández R, Sharma P, et al. Contrast-enhanced ultrasound and/or colour duplex ultrasound for surveillance after endovascular abdominal aortic aneurysm repair: a systematic review and economic evaluation. *Health Technol Assess*. Dec 2018;22(72):1-220. doi:10.3310/hta22720
4. Goh Y, Dan YY, Chua W, Jagmohan P, Lee JK, Thian YL. Diagnostic utility of whole body CT scanning in patients with unexplained weight loss. *PLoS One*. 2018;13(7):e0200686. doi:10.1371/journal.pone.0200686

5. Gulas E, Wysocki G, Szymański J, et al. Morphological and clinical aspects of the occurrence of accessory (multiple) renal arteries. *Arch Med Sci*. Mar 2018;14(2):442-453. doi:10.5114/aoms.2015.55203
6. Hartman RP, Kawashima A. Radiologic evaluation of suspected renovascular hypertension. *Am Fam Physician*. Aug 1 2009;80(3):273-9.
7. Kong W, Hu Z. Unique imaging findings in fibromuscular dysplasia of renal arteries: A case report. *Medicine (Baltimore)*. Nov 2018;97(46):e12815. doi:10.1097/md.00000000000012815
8. Kranokpiraksa P, Kaufman JA. Follow-up of endovascular aneurysm repair: plain radiography, ultrasound, CT/CT angiography, MR imaging/MR angiography, or what? *J Vasc Interv Radiol*. Jun 2008;19(6 Suppl):S27-36. doi:10.1016/j.jvir.2008.03.009
9. Liu PS, Platt JF. CT angiography of the renal circulation. *Radiol Clin North Am*. Mar 2010;48(2):347-65, viii-ix. doi:10.1016/j.rcl.2010.02.005
10. Mazzaccaro D, Farina A, Petsos K, Nano G. The Role of Duplex Ultrasound in Detecting Graft Thrombosis and Endoleak after Endovascular Aortic Repair for Abdominal Aneurysm. *Ann Vasc Surg*. Oct 2018;52:22-29. doi:10.1016/j.avsg.2018.03.040
11. Ali Mohammed AM, Elseed Abdalrasol RG, Alamin Abdalhai K, Gommaa Hamad M. Accessory renal vessels. *Acta Inform Med*. Sep 2012;20(3):196-7. doi:10.5455/aim.2012.20.196-197
12. Seitz M, Wiggershauser T, Khoder W. Congenital intrarenal arteriovenous malformation presenting with gross hematuria after endoscopic intervention: a case report. *J Med Case Rep*. Oct 12 2008;2:326. doi:10.1186/1752-1947-2-326
13. Tullus K, Roebuck DJ, McLaren CA, Marks SD. Imaging in the evaluation of renovascular disease. *Pediatr Nephrol*. Jun 2010;25(6):1049-56. doi:10.1007/s00467-009-1320-9
14. Whelton PK, Carey RM, Aronow WS, et al. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Hypertension*. Jun 2018;71(6):e13-e115. doi:10.1161/hyp.0000000000000065

Reviewed / Approved by NIA Clinical Guideline Committee

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.

Disclaimer: Magellan Healthcare service authorization policies do not constitute medical advice and are not intended to govern or otherwise influence the practice of medicine. These policies are not meant to supplant your normal procedures, evaluation, diagnosis, treatment and/or care plans for your patients. Your professional judgement must be exercised and followed in all respects with regard to the treatment and care of your patients. These policies apply to all Magellan Healthcare subsidiaries including, but not limited to, National Imaging Associates (“Magellan”). The policies constitute only the reimbursement and coverage guidelines of Magellan. Coverage for services varies for individual members in accordance with the terms and conditions of applicable Certificates of Coverage, Summary Plan Descriptions, or contracts with governing regulatory agencies. Magellan reserves the right to review and update the guidelines at its sole discretion. Notice of such changes, if necessary, shall be provided in accordance with the terms and conditions of provider agreements and any applicable laws or regulations.