

AmeriHealth Caritas Louisiana

National Imaging Associates, Inc.*	
Clinical guidelines PELVIS MRAangiography	Original Date: May 2008
CPT Codes: 72198	Last Revised Date: May 2020
Guideline Number: NIA(CG)_039	Implementation Date: <u>January 2021 TBD</u>

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.

IMPORTANT NOTE:

Abdomen/Pelvis Magnetic Resonance Angiography (MRA) & Lower Extremity MRA Runoff Requests: Two authorization requests are required, one Abdomen MRA, CPT code 74185 and one for Lower Extremity MRA, CPT code 73725 (a separate Pelvic MRA request is not required). This will provide imaging of the abdomen, pelvis, and both legs.

INDICATIONS FOR PELVIS MR Angiography / MR Venography: Abdominal MRA can be added when indicated*

For evaluation of known or suspected pelvic vascular disease:

- For pelvic extent of 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.
- Evidence of vascular abnormality seen on prior imaging studies.
- For suspected pelvic extent of aortic dissection.
- For evaluation of known or suspected aneurysms limited to the pelvis or evaluating pelvic extent of aortic aneurysm (Khosa, 2011; Uberoi, 2011; Wanhainen, 2019)
 - Known or suspected iliac artery aneurysm **AND** equivocal or indeterminate Doppler ultrasound results and contraindication to CTA
 - **OR**
 - If repeat Doppler ultrasound is indeterminate

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

- ~~OR~~
- Suspected complications of known aneurysm as evidenced by clinical findings such as new onset of pelvic pain.
- Follow up of iliac artery aneurysm:
 - Every three years for diameter 2.0 – 2.9 cm ~~— Six month and~~
 - ~~aAnnually if between 3.0-3.4 if Doppler ultrasound is inconclusive. 5 cm. and if stable follow yearly.~~
 - If >3.5 cm, < six month follow up (and consider intervention) [\(Wainhainen, 2019\)](#).
- ~~Suspected retroperitoneal hematoma or hemorrhage (to determine a vascular source of hemorrhage in the setting of trauma, tumor invasion, fistula or vasculitis, (CT rather than MRA/CTA) is sufficient and the modality of choice for diagnosing hemorrhage when an underlying neoplasm is suspected and prior imaging is inconclusive~~ (Abe, 2010).*
- For evaluation of suspected pelvic vascular disease or pelvic congestive syndrome when findings on ultrasound are indeterminate (MR or CT venography (CTV) may be used as the initial study for evaluating pelvic thrombosis or thrombophlebitis) [\(Bookwater, 2019; Knutinen, 2015; Bookwater, 2019\) ACR, 2013](#)).
- For diffuse, unexplained lower extremity edema with negative or inconclusive ultrasound (Hoshino, 2016)
- For evaluation of venous thrombus in the inferior vena cava [\(Aw-Zoretic, 2016\)](#)
- Venous thrombosis if previous studies have not resulted in a clear diagnosis [\(ACR, 2013\)](#).
- Vascular invasion or displacement by tumor (Conventional CT or MRI also appropriate) (Certik, 2015).
- -For known or suspected mesenteric ischemia (ACR, 2018)

Other vascular indications:

- Pelvic vein thrombosis or thrombophlebitis (ACR, 2013; Khalil, 2012)
- For suspected May-Thurner Syndrome (iliac vein compression syndrome) (Al-Nouri 2011; Kalu, 2013)
- For chronic known or suspected mesenteric ischemia (ACR, 2018)
- Acute mesenteric ischemia assess with CTA unless contraindicated (Thakur, 2018)
- For patients with fibromuscular dysplasia (FMD) a one-time vascular study of the abdomen and pelvis (Baradhi, 2019; Kadlian-Dodov, 2016; Baradhi, 2019)
- For patients with Ehlers-Danlos or Marfan's syndrome, recommend a one-time vascular study of the abdomen and pelvis
- For Loeys-Dietz vascular imaging every two years include abdomen MRA (Chu, 2014)
-

Pre-operative evaluation:

(ACR, 2017)

- Evaluation of interventional vascular procedures prior to endovascular aneurysm repair (EVAR), or for luminal patency versus restenosis due to conditions such as atherosclerosis, thromboembolism, and intimal hyperplasia.
- [Imaging of the deep inferior epigastric arteries for surgical planning \(breast reconstruction surgery\) include CTA/MRA abdomen \(ACR-, 2017\)](#)
- [Prior to uterine artery embolization for fibroids \(Maciel, 2017\)](#)

Post- operative or post-procedural evaluation:

- Evaluation for post-operative complications of renal transplant allograft (Bultman, 2014)
- Evaluation of endovascular/ interventional 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 pelvis.
- Follow-up for post-endovascular repair (EVAR) or open repair of abdominal aortic aneurysm (AAA) and iliac artery aneurysms.
 - Routine, baseline study (post-op/intervention) is warranted within 1-3 months (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 MRA, and Abdomen MRA, or Abdomen/Pelvis MRA combo](#)

- [Acute aortic dissection \(CTA or CT preferred\)](#)
- [Takayasu's arteritis](#)
- [Marfans syndrome](#)
- [Loeys-Dietz syndrome](#)
- [Vascular Ehlers-Danlos syndrome](#)

BACKGROUND:

Magnetic resonance angiography (MRA) 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. Contrast enhanced MRA requires the injection of a contrast agent which results in very high quality images. It does not use ionizing radiation, allowing MRA to be used for follow-up evaluations.

OVERVIEW:

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.

MRA and Chronic Mesenteric Ischemia – Contrast-enhanced MRA is used for the evaluation of chronic mesenteric ischemia, including treatment follow-up. Chronic mesenteric ischemia is usually caused by severe atherosclerotic disease of the mesenteric arteries, e.g., celiac axis, superior mesenteric artery, inferior mesenteric artery. At least two of the arteries are usually affected before the occurrence of symptoms such as abdominal pain after meals and weight loss. MRA is the technique of choice for the evaluation of chronic mesenteric ischemia in patients with impaired renal function.

MRA and Abdominal Aortic Aneurysm Repair – MRA may be performed before endovascular repair of an abdominal aortic aneurysm. Endovascular repair of abdominal aortic aneurysm is a minimally invasive alternative to open surgical repair and its success depends on precise measurement of the dimensions of the aneurysm and vessels. This helps to determine selection of an appropriate stent-graft diameter and length to minimize complications such as endoleakage. MRA provides images of the aorta and branches in multiple 3D projections and may help to determine the dimensions needed for placement of an endovascular aortic stent graft. MRA is noninvasive and rapid and may be used in patients with renal impairment.

***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 the diagnosis of lower gastrointestinal bleeding is such an example (Clerc, 2017).

MRA/MRV is often utilized in non-acute situations to assess vascular structure involved in atherosclerotic disease and its complications, 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).

***Follow-up of asymptomatic incidentally detected iliac artery aneurysms (Uberoi, 2011):**

- ~~≤3.0 cm: rarely rupture, grow slowly, follow up not generally needed~~
- ~~3.0-3.5 cm: followed up initially at 6 months~~
 - ~~if stable, then annual imaging~~
- ~~>3.5 cm: greater likelihood of rupture~~
 - ~~<6 month follow up~~

○ consider intervention

POLICY HISTORY:

Review Date: May 2019

Review Summary:

- Modified the follow up for iliac aneurysm
- Added 'chronic' to mesenteric ischemia indication; added acute mesenteric ischemia should be assessed with CTA unless contraindicated
- Added indications for post-operative complications of renal transplant allograft; venous thrombus in inferior vena cava; suspected May-Thurner syndrome

Review Date: May 2020

Review Summary:

- Added suspected vascular cause of retroperitoneal hemorrhage or hematoma
- Added pelvic congestion syndrome
- Added for evaluation of diffuse unexplained LE edema with neg ultrasound
- Added FMD, Ehlers-Danlo, Marfans, Loetz-Dietz
- Added for surgical planning breast reconstruction Deep inferior epigastric arteries
- Added prior to uterine artery embolization
- Added indications for combo imaging

REFERENCES:

Abe T, Kai M, Miyoshi O, et al. Idiopathic retroperitoneal hematoma. *Case Rep Gastroenterol.* September-December 2010; 4(3):318-322. Retrieved 2/12/18 from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2974992/>. Retrieved February 12, 2018.

Al-Nouri O, Milner R. May-Thurner Syndrome. *Clinical Review.* 2011; 8(3). <https://www.vasculardiseasemanagement.com/content/may-thurner-syndrome>. Accessed May 9, 2019.

American College of Radiology (ACR). ACR Appropriateness Criteria. <https://acsearch.acr.org/list>. Published 2013.

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; 33(2):109-21.

[Baradhi, K., and Bream, P.. Fibrohemangiomyomatous Dysplasia. Stat Pearls \(Internet\). December 18, 2019.](#)

[Bookwater, CA., Van Buren, WM., et. al. Imaging Appearance and Nonsurgical Management of Pelvic Venous Congestion Syndrome. Radiographics., 2019; 319\(2\).](#)

Bultman EM, Klaers J, Johnson KM, et al. Non-contrast enhanced 3D SSFP MRA of the renal allograft vasculature: A comparison between radial linear combination and cartesian inflow-weighted acquisitions. *Magn Reson Imaging.* 2014; 32(2):190–195.

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. <https://www.sciencedirect.com/science/article/pii/S0010865015000260>. Retrieved February 12, 2018.

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.

[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 Am J Roentgenol. 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. Retrieved February 12, 2018.

Cohen EI, Weinreb DB, Siegelbaum RH, et al. Time-resolved MR angiography for the classification of endoleaks after endovascular aneurysm repair. *J Magn Reson Imaging*. 2008; 27(3):500-503. doi: 10.1002/jmri.21257.

[Hoshino Y, Hoshino, Machida M, Shimano S, et al. Unilateral Leg Swelling: Differential Diagnostic Issue Other than Deep Vein Thrombosis. J Gen Fam Med. 2016; 17:311-314. 10.14442/jgfm.17.4 311.](#)

Jesinger RA, Thoreson AA, Lamba R. Abdominal and pelvic aneurysms and pseudoaneurysms: Imaging review with clinical, radiologic, and treatment correlation. *RadioGraphics*. 2013; 33(3):E71-96. doi: 10.1148/rg.333115036.

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

Kalu S, Shah P, Natarajan A, et al. May-thurner syndrome: a case report and review of the literature. *Case Rep Vasc Med.* 2013; 2013:740182. Epub 2013 Feb 20.

Khalil H, Avruch L, Olivier A, et al. The natural history of pelvic vein thrombosis on magnetic resonance venography after vaginal delivery. *Am J Obstet Gynecol.* 2012; 206(4):356.

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.

Knuttinen, M-G., Xie, K., et al. Pelvic Venous Insufficiency Imaging: Diagnosis, Treatment Approaches and Therapeutic Issues. AJR. 2015; 204(2).

Maciel, C., Tang, YZ., et al. Preprocedural MRI and MRA in planning fibroid embolization. Diagn Interv Radiol. 2017; 23(2):163-171.

Soulez G, Pasowicz M, Benea G, et al. Renal artery stenosis evaluation: Diagnostic performance of gadobenate dimeglumine-enhanced MR angiography--comparison with DSA. *Radiology.* 2008; 247(1):273-285. <http://radiology.rsna.org/content/247/1/273.full.pdf+html>.

Maciel, C., Tang, YZ., et al. Preprocedural MRI and MRA in planning fibroid embolization. Diagn Interv Radiol 2017;23(2):163-171

Textor SC, Lerman L. Renovascular hypertension and ischemic nephropathy. *Am J Hypertens.* 2010; 23(11):1159-1169. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3078640/>.

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

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.

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; 57(1):8-93.

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

Reviewed / Approved by *Patrick Browning, VP, Medical Director*

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.