INTRODUCTION:

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.

INDICATIONS FOR PELVIS MRA:

For evaluation of known or suspected pelvic vascular disease:
- 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.
- Evidence of vascular abnormality seen on prior imaging studies.
- For suspected pelvic extent of aortic dissection.
- Evaluation of suspected or known aneurysms limited to the pelvis or in evaluating pelvic extent of aortic aneurysm**
  - Suspected or known iliac artery aneurysm (>2.5 cm AND equivocal or indeterminate ultrasound results OR
  - Prior imaging (e.g. Ultrasound) demonstrating iliac artery aneurysm >2.5cm in diameter OR
  - Suspected complications of known aneurysm as evidenced by clinical findings such as new onset of pelvic pain.
  - Follow up of iliac artery aneurysm: Six month if between 3.0-3.5 cm and if stable follow yearly. If >3.5cm, <six month follow up (and consider intervention)
- Suspected retroperitoneal hematoma or hemorrhage.
- For evaluation of suspected pelvic vascular disease when findings on ultrasound are indeterminate.
- Venous thrombosis if previous studies have not resulted in a clear diagnosis.
- Vascular invasion or displacement by tumor.
- Pelvic vein thrombosis or thrombophlebitis.

Pre-operative evaluation:
- Evaluation of interventional vascular procedures for luminal patency versus restenosis due to conditions such as atherosclerosis, thromboembolism, and intimal hyperplasia.

Post-operative or post-procedural evaluation:
• 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 peritoneal cavity.

• Follow-up for post-endovascular repair (EVAR) or open repair of abdominal aortic aneurysm (AAA). Routine, baseline study (post-op/intervention) is warranted within 1-3 months.
  o Asymptomatic at six (6) month intervals, for two (2) years.
  o 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.

ADDITIONAL INFORMATION RELATED TO PELVIS MRA:

MRI imaging – Metal devices or foreign body fragments within the body, such as indwelling pacemakers and intracranial aneurysm surgical clips that are not compatible with the use of MRI, may be contraindicated. Other implanted metal devices in the patient as well as external devices such as portable O₂ tanks may also be contraindicated.

Abdomen/Pelvis MRA & Lower Extremity MRA Runoff Requests: Two auth requests are required, one Abd MRA, CPT code 74185 and one for Lower Extremity MRA, CPT code 73725. This will provide imaging of the abdomen, pelvis and both legs.

Bruit: 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.
**Follow-up of asymptomatic incidentally-detected iliac artery aneurysms:**
- <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
REFERENCES


