INTRODUCTION:

MRA is used for imaging arterial obstructive disease in the lower extremity. It is noninvasive and has little risk. It can image tibia and pedal arteries and can evaluate symptoms that occur after angiography.

INDICATIONS FOR LOWER EXTREMITY MRA/MRV:

For assessment/evaluation of suspected or known vascular disease/condition:
- Significant ischemia in the presence of ulcers/gangrene.
- Large vessel diseases, e.g., aneurysm, dissection, arteriovenous malformations (AVMs), and fistulas, intramural hematoma, and vasculitis.
- Arterial entrapment syndrome e.g. Peripheral artery disease (PAD).
- Venous thrombosis if previous studies have not resulted in a clear diagnosis.
- Vascular invasion or displacement by tumor.
- Pelvic vein thrombosis or thrombophlebitis
- Abnormal preliminary testing (Ankle/Brachial index, ultrasound/doppler arterial evaluation) associated with significant symptoms of claudication with exercise.

Pre-operative evaluation:
- Evaluation of known aortoiliac occlusion or peripheral vascular disease of the leg and ultrasound indicates significant disease and an indeterminate conclusion about whether the condition would be amenable to surgery.

Post-operative / procedural evaluation:
- Post-operative or interventional vascular procedure for luminal patency versus re-stenosis (due to atherosclerosis, thromboembolism, intimal hyperplasia and other causes) as well as complications such as pseudoaneurysms related to surgical bypass grafts and vascular stents and stent-grafts
- A 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 LOWER EXTREMITY MRA/MRV:

Request for a follow-up study - A 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.
**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.

**MRA of Foot** – Fast contrast-enhanced time-resolved 3D MR angiography is used in evaluating the arterial supply of the foot. It does not require the use of ionizing radiation and iodinated contrast medium and it is minimally invasive, safe, fast and accurate. Dorsalis pedis bypass surgery is an option for preserving a foot in a patient with arterial occlusive disease and MRA may be used in the preoperative evaluation. It can discriminate arteries from veins and can provide other key information, e.g., patency of the pedal arch, presence of collateral pathways, and depiction of target vessel suitable for surgical bypass. Time-resolved gadolinium enhanced MRA can identify injured fat pads in the foot before they have become ulcerated.

**MRA and arterial obstructive disease** – Catheter angiography is the standard of reference for assessing arterial disease but MRA with contrast enhanced media has gained acceptance and can image the entire vascular system. Contrast agents such as high dose gadolinium have been associated with the development of nephrogenic systemic fibrosis in patients with chronic renal insufficiency. Gadolinium dosage may be decreased without compromising image quality in high-spatial-resolution contrast-enhanced MRA of the lower extremity.

**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, Coarctation of aorta.
REFERENCES


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