INTRODUCTION:

Magnetic resonance angiography (MRA) of the neck uses magnetic resonance imaging (MRI) technology and may be performed after abnormal results are found on carotid duplex imaging. MRA is used for the evaluation and imaging of vessels in the head and the neck.

INDICATIONS FOR NECK MRA:

For evaluation of vascular disease:
- For evaluation of patients with an abnormal ultrasound of the neck or carotid duplex imaging (e.g. carotid stenosis ≥ 60%, technically limited study, aberrant direction of flow in the carotid or vertebral arteries).
- For evaluation of head trauma in a patient with closed head injury for suspected carotid or vertebral artery dissection.

For evaluation of known or suspected tumor/mass:
- For evaluation of carotid body tumors, also called paragangliomas.
- For evaluation of pulsatile neck mass.

Pre-operative evaluation.

Post-operative/procedural evaluation (e.g. carotid endarterectomy):
- 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.

Indications for combination studies:

Neck MRA/Brain MRA:
- For evaluation of patients who have had a stroke or transient ischemic attack (TIA) within the past 2 weeks.
- For evaluation of patients with a sudden onset of one-sided weakness, inability to speak, vision defects or severe dizziness.
- For suspected vertebral basilar insufficiency with symptoms such as vision changes, vertigo, abnormal speech.
- For evaluation of head trauma in a patient with closed head injury for suspected carotid or vertebral artery dissection.
Neck MRA/Brain MRI:
- Confirmed carotid stenosis >60%, surgery or angioplasty candidate (significant lesion can flip off emboli, looking for stroke).

ADDITIONAL INFORMATION RELATED TO NECK 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.

MRA and Carotid Body Tumor – Carotid body tumors are found in the upper neck at the branching of the carotid artery. Although most of them are benign they may be locally aggressive with a small malignant potential. MRA may be used to identify a carotid body tumor due to its ability to define the extension of the tumor in relation to the carotid arteries, involvement of the base of the skull and bilateral tumors.

Post-operative evaluation of carotid endarterectomy – Carotid endarterectomy is a vascular surgical procedure that removes plaque from the carotid artery. MRA with multiprojection volume reconstruction is a non-invasive imaging modality that is an alternative to postoperative angiography following carotid endarterectomy. It allows the surgeon to get informative and comparative data.

The Asymptomatic Carotid Atherosclerosis Study (ACAS): The ACAS clinical trial is an often quoted study that demonstrated a 5-year reduction in stroke risk of asymptomatic patients with ≥ 60% carotid diameter reduction that underwent carotid endarterectomy compared to those who received medical treatment.
REFERENCES


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