



Cohere Medical Policy – Computed Tomography Angiography (CTA), Neck

Clinical Guidelines for Medical Necessity Review

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy - Computed Tomography Angiography (CTA), Neck

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Type: Adult (18+ yo) | Pediatric (0-17 yo)

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Medical Necessity Criteria

Service: Computed Tomography Angiography (CTA), Neck

Recommended Clinical Approach

Cervicocerebral computed tomography angiography (CTA) is a clinically established and valuable procedure for identifying and characterizing vascular diseases, as well as for evaluating vascular anatomy relevant to the management of extravascular disorders. Typically, CTA focuses on evaluating the heart, arteries, or veins and necessitates a thin-section CT scan combined with intravenous injection of iodinated contrast medium. Incorporating three-dimensional rendering and multiplanar reformations are integral components of CTA examinations.¹

CTA can serve as the primary imaging modality for disease detection or as a supplementary tool for characterizing known conditions or monitoring changes over time. Preferentially, magnetic resonance angiography (MRA) should be considered as an alternative to CTA to minimize radiation exposure, particularly in pediatric and vulnerable patient populations. CTA involves exposure to ionizing radiation and should be performed solely for medically necessary reasons and with the lowest radiation dose necessary to achieve diagnostically adequate image quality.¹

Medical Necessity Criteria

Indications

- **Computed tomography angiography (CTA), neck** is considered appropriate for **ANY** of the following:
- ◆ Detection, screening, surveillance, and follow-up of vascular neck mass (e.g., paraganglioma, pulsatile neck mass [not parotid region or thyroid])²; **OR**
 - ◆ Tumor of vascular origin, with rich vascular supply or involving vascular structures³⁻⁴; **OR**
 - ◆ Trauma-related conditions as indicated by **ANY** of the following:
 - Trauma of the head with a suspected intracranial arterial injury based on clinical findings or prior imaging⁵; **OR**

- Traumatic and non-traumatic orbital pathology with clinical or imaging findings that indicate vascular involvement⁶; **OR**
- Traumatic injury to cervicocerebral vessels, suspected⁷; **OR**
- Trauma-related spine injuries (cervical and upper thoracic)⁸; **OR**
- Blunt cerebrovascular injury (BCVI) is suspected based on the mechanism and location of trauma (CTA head is also indicated with CTA neck)⁸; **OR**
- Suspected carotid or vertebral artery dissection secondary to trauma or spontaneous due to weakness of vessel wall (CTA head is also indicated with CTA neck); **OR**
- Traumatic vascular injury^{3,9-11}; **OR**
- ◆ Vascular conditions, known or suspected, including **ANY** of the following:
 - Arterial aneurysm; **OR**
 - Pseudoaneurysm¹²⁻¹³; **OR**
 - Atherosclerotic stenosis or occlusive disease (e.g., atherosclerotic plaque localization and characterization)¹; **OR**
 - Cerebrovascular disease, including **ANY** of the following¹³:
 - Acute ischemic stroke with focal neurologic deficit; **OR**
 - Carotid stenosis, asymptomatic; **OR**
 - Cervical bruit, asymptomatic; **OR**
 - Cervical vascular dissection or injury, known or suspected; **OR**
 - Recent ischemic infarct; **OR**
 - Collagen vascular disease; **OR**
 - Hemorrhage (acute) including **ANY** of the following:
 - Cervical spine¹⁴⁻¹⁵; **OR**
 - Head and neck; **OR**
 - Ischemic stroke^{3,9-11}; **OR**
 - Non-atherosclerotic, non-inflammatory vasculopathy (e.g., radiation vasculopathy); **OR**
 - Pulsatile tinnitus for the evaluation of vascular etiology¹⁶⁻¹⁷; **OR**
 - Subclavian artery stenosis; **OR**
 - Thromboembolism^{3,9-11}; **OR**
 - Transient ischemic attack (TIA)^{3,9-11}; **OR**

- Vasculitis; **OR**
 - Vasospasm^{3,9-11}; **OR**
 - Vascular anatomic variant¹⁸; **OR**
 - Vascular fistula; **OR**
 - Vascular malformation¹⁹; **OR**
 - Venous varix; **OR**
- ◆ For evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
- Cranial neuropathy as indicated by **ANY** of the following²⁰:
 - Combined lower cranial nerve syndromes (CN IX–XII); **OR**
 - Multiple different lower cranial nerve palsies; **OR**
 - Unilateral isolated weakness or paralysis of the tongue (hypoglossal nerve, CN XII); **OR**
 - Penetrating neck injury²¹; **OR**
 - Chronic recurrent vertigo associated with other brainstem neurologic deficits²²; **OR**
- ◆ Preoperative, postoperative, or pre-treatment evaluation for **ANY** of the following¹:
- Surgical and radiation therapy localization, planning, and neuronavigation²³⁻²⁴; **OR**
 - Vascular compression or vertebrobasilar insufficiency²⁵; **OR**
 - Vascular intervention and follow-up (percutaneous and surgical)^{23,26-27}; **OR**
- ◆ Repeat imaging (defined as repeat request following recent imaging of the same anatomic region with the same modality), in the absence of established guidelines, will be considered reasonable and necessary if **ANY** of the following is **TRUE**:
- New or worsening symptoms, such that repeat imaging would influence treatment; **OR**
 - One-time clarifying follow-up of a prior indeterminate finding; **OR**
 - In the absence of change in symptoms, there is an established need for monitoring which would influence management.

Non-Indications

- **Computed tomography angiography (CTA), neck** is not considered appropriate if **ANY** of the following is **TRUE**:
- ◆ The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms³³; **OR**
 - ◆ If contrast is used, history of anaphylactic allergic reaction to iodinated contrast media.

*NOTE: The referring professional and radiologist should discuss the risks and benefits of contrast media administration, including possible prophylaxis, in patients with chronic or worsening kidney disease or severe renal failure.

**NOTE: CT in patients with claustrophobia should be requested at the discretion of the ordering provider.

***NOTE: CT in pregnant patients should be requested at the discretion of the ordering provider and obstetric care provider.

Disclaimer on Radiation Exposure in Pediatric Population

Due to the heightened sensitivity of pediatric patients to ionizing radiation, minimizing exposure is paramount. At Cohere, we are dedicated to ensuring that every patient, including the pediatric population, has access to appropriate imaging following accepted guidelines. Radiation risk is dependent mainly on the patient's age at exposure, the organs exposed, and the patient's sex, though there are other variables. The following technical guidelines are provided to ensure safe and effective imaging practices:

Radiation Dose Optimization: Adhere to the lowest effective dose principle for pediatric imaging. Ensure that imaging protocols are specifically tailored for pediatric patients to limit radiation exposure.²⁸⁻²⁹

Alternative Modalities: Prioritize non-ionizing imaging options such as ultrasound or MRI when clinically feasible, as they are less likely to expose the patient to ionizing radiation. For instance, MRI or ultrasound should be considered if they are more likely to provide an accurate diagnosis than CT, fluoroscopy, or radiography.²⁸⁻²⁹

Cumulative Dose Monitoring: Implement systems to track cumulative radiation exposure in pediatric patients, particularly for those requiring

multiple imaging studies. Regularly reassess the necessity of repeat imaging based on clinical evaluation.²⁸⁻²⁹

CT Imaging Considerations: When CT is deemed the best method for achieving a correct diagnosis, use the lowest possible radiation dose that still yields reliable diagnostic images.²⁸⁻²⁹

Cohere Imaging Gently Guideline

The purpose of this guideline is to act as a potential override when clinically indicated to adhere to Imaging Gently and Imaging Wisely guidelines and As Low As Reasonably Possible (ALARA) principles.

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
70498	Computed tomographic angiography (CTA), of neck; with contrast material(s), including non-contrast images, if performed, and image post-processing

Medical Evidence

Tu et al. (2022) conducted a retrospective review on the utilization of head and neck computed tomography angiography (CTA) in the emergency department (ED). Head and neck CTA in the ED has shown a disproportionate increase compared to other neuroimaging examinations. The study contrasted utilization and the frequency of communicating non-routine results across different patient chief concerns. The study identified the top 50 primary concerns that led to the most CTA examinations. A total of 17903 CTAs for 833 distinct chief concerns were included, which accounts for 2.5% of 708,145 ED visits. The rates of ordering and communication of non-standard results exhibit significant variability across different chief concerns. Approximately half of the non-standard communications made by radiologists pertain to acute indications. Understanding the trends in ordering head and neck CT angiography (CTA) and the communication of non-standard results can aid in refining patient selection and enhancing radiologist interactions in the ED setting.³⁰

Paladino et al. (2021) performed a systematic review to determine the efficacy of CTA Neck in determining vascular or aerodigestive injuries (ADI). CTA covering the entire neck region is now an integral component of the standard diagnostic approach for patients with penetrating neck trauma (PNT) who do not necessitate immediate surgical intervention for ADI. While many studies have highlighted the usefulness of CTA to rule out arterial injuries, consensus is lacking regarding the capability of CTA Neck to detect ADI.³¹

Schenk et al. (2021) report on a retrospective review of stroke in young adults and the use of CTA Head and Neck diagnostic yield for anterior circulation ischemic stroke evaluation. The review included adults aged 18–50 who presented to the Mayo Clinic Rochester ED. Carotid dissection is a predominant cause of anterior circulation ischemic stroke, as evidenced by findings on CTA. Carotid webs were found to be infrequent in the patients studied, while carotid atherosclerosis was relatively rare. The presence of carotid webs, understanding their potential to trigger recurrent strokes. No significant disparity in the prevalence of carotid atherosclerosis between the symptomatic and asymptomatic sides was identified. Additionally, clinicians can recognize high-risk morphological attributes of carotid plaque observed on CT angiography, even in cases with no discernible stenosis.³²

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Clinical Guideline Revision History/Information

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Review History		
Version 2	8/15/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.