

# Computed Tomography Angiography (CTA) Neck

---

## *Diagnostic Imaging*

P\_  
Guideline Initiated: 06/30/2019  
Copyright © 2023 WNS (Holdings) Ltd.

Last Review Date: 7/25/2023  
Previous Review Date: 08/01/2022





A WNS COMPANY

## Table of Contents

Computed Tomography Angiography (CTA) Neck .....	3
CTA Neck Guideline .....	3
CTA Brain/Head and CTA Neck Combination .....	4
CTA General Contraindications/Exclusions .....	5
CTA Neck Procedure Codes .....	5
CTA Neck Summary of Changes .....	5
CTA Neck Definitions/Key Terms .....	5
CTA Neck References .....	7
Disclaimer & Legal Notice .....	8

## Computed Tomography Angiography (CTA) Neck



### **NCD 220.1**

See also, **NCD 220.1**: Computed Tomography at <https://www.cms.gov/medicare-coverage-database/search.aspx> if applicable to individual's healthplan membership.

### CTA Neck Guideline

Computerized tomography angiography (CTA) of the neck is considered medically appropriate when the documentation demonstrates **ANY** of the following: [2]

- I. Aneurysm screening in fibromuscular dysplasia, Loeys-Dietz syndrome or spontaneous coronary arteries dissection (SCAD) (**\*NOTE: For Loeys-Dietz imaging should be repeated at least every 2 years.**)[6] [1]
- II. Cerebrovascular disease is suspected or known with **ANY** of the following: [2]
  - A. Asymptomatic **AND** neck ultrasound or carotid duplex imaging is abnormal, non-diagnostic or indeterminate (eg, aberrant direction of flow in the carotid or vertebral arteries, carotid stenosis 70% or more). [11]
  - B. Stroke, ischemic, or transient ischemic attack (TIA) occurred recently (within 6 months). [8] [5]
  - C. Symptomatic **AND** neck ultrasound or carotid duplex imaging is abnormal, non-diagnostic or indeterminate (eg, aberrant direction of flow in the carotid or vertebral arteries, carotid stenosis 50% or more).
  - D. Vertebrobasilar insufficiency (VBI) is suspected or known and symptomatic (eg, abnormal speech, ataxia, blindness, diplopia, dizziness, headaches, vertigo, vomiting, weakness in both sides of the body).
- III. Carotid or vertebral artery dissection is suspected, due to trauma **OR** spontaneous weakness of vessel wall. [7] [9]
- IV. Extracranial vascular disease follow-up, when identified on previous imaging [2]
- V. Giant cell arteritis or Takayasu's arteritis with suspected extracranial involvement [14] [13] [12]
- VI. Hemorrhage of the head or neck is known, to identify arterial source of bleeding.
- VII. Horner's syndrome (anhidrosis, miosis or ptosis) [4]

VIII. Peri procedural care for **ANY** of the following:

- A. Pre procedural evaluation for neck surgery
- B. Post procedural evaluation after neck or head procedures (**\*NOTE:** *A follow-up study may be needed to help evaluate 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.*)

IX. Pulsatile tinnitus is present **AND** vascular etiology is suspected. [10]

X. Subclavian steal syndrome and ultrasound is abnormal, non-diagnostic or indeterminate **OR** for procedure planning.

XI. Tumor/pulsatile mass on examination or carotid body tumors (or other masses) are known (eg, arteriovenous fistula pseudoaneurysm, atypical lymphovascular malformation, paraganglioma) [3]

## CTA Brain/Head and CTA Neck Combination

Computerized tomography angiography (CTA) of the brain/head **combined** with CTA of the neck is considered medically appropriate when the documentation demonstrates **ANY** of the following: [2]

- Asymptomatic **AND** neck ultrasound or carotid duplex imaging is abnormal, non-diagnostic or indeterminate (eg, aberrant flow direction in the carotid or vertebral arteries, carotid stenosis 70% or more) **AND** candidate for surgery or angioplasty. [11]
- Carotid or vertebral artery dissection is suspected, due to trauma or spontaneous weakness of vessel wall. [7] [9]
- Pulsatile tinnitus is present and vascular etiology is suspected. [10]
- Stroke, ischemic, or transient ischemic attack (TIA) occurred recently. [5] [8]
- Symptomatic (eg, blurred vision, confusion, memory loss) and neck ultrasound or carotid duplex imaging is abnormal, non-diagnostic or indeterminate (eg, aberrant flow direction in the carotid or vertebral arteries, carotid stenosis 50% or more) **AND** candidate for surgery or angioplasty.
- Vertebrobasilar insufficiency (VBI) is suspected or known and symptomatic (eg, abnormal speech, ataxia, bilateral weakness, blindness, diplopia, dizziness, headaches, vertigo, vomiting).

## CTA General Contraindications/Exclusions

Contraindications and exclusions for computerized tomography angiography (CTA) include **ANY** of the following: [15]

- Contrast allergic reaction
- Heart failure that is decompensated.
- Hemodynamic instability (eg, blood pressure irregularities)
- Myocardial infarction, acute (AMI)
- Protocol can **NOT** be followed (eg, physically, mentally).
- Renal impairment

## CTA Neck Procedure Codes

**Table 1. CTA Neck Associated Procedure Codes**

CODE	DESCRIPTION
70498	Computed tomographic angiography, neck, with contrast material(s), including noncontrast images, if performed, and image postprocessing

## CTA Neck Summary of Changes

CTA Neck guideline from 2022 to 2023 had the following changes:

- Added "Hemorrhage of the head and neck" indication to keep in line with current research
- Removed "prior imaging" portion of "Giant cell arteritis" indication, it is no longer found in the current research.

## CTA Neck Definitions/Key Terms

**Aberrant** is a deviation from the normal, usual or natural type.

**Aneurysm** refers to weakness in an artery wall, allowing it to abnormally balloon out or widen.

**Anhidrosis** is a condition where the sweat glands make little or no sweat.

**Aphasia** is the loss or impairment of the power to use or comprehend words usually resulting from brain damage.

**Arteriovenous fistula pseudoaneurysm** occurs mainly in large or medium-sized head-and-neck arteries, lower extremity arteries, and visceral arteries.

**Arteriovenous malformation (AVM)** is a tangle of abnormal blood vessels connecting arteries and veins in the brain.

**Ataxia** is the inability to coordinate voluntary muscular movements, and is symptomatic of some central nervous system disorders and injuries and not due to muscle weakness.

**Computed tomography angiography (CTA)** is a medical test that combines a CT scan with an injection of a special dye to produce pictures of blood vessels and tissues in a part of the body.

**Diplopia** is a disorder of vision in which two images of a single object are seen (as from unequal action of the eye muscles).

**Dissection** is the abnormal and usually abrupt formation of a tear or separation of the layers inside the wall of an artery.

**Duplex ultrasound** is a non-invasive evaluation (color picture) of blood flow through the arteries and veins along with a two-dimensional Grey-scale ultrasound image of the tissues.

**Extracranial** is that which is situated or occurring outside the cranium.

**Fibromuscular dysplasia** is a rare blood vessel disorder in which some of the strong, flexible cells of arteries are replaced with cells that are more fibrous. Fibrous cells are less strong and less flexible, and leads to the arteries becoming stiffer and prone to damage.

**Fistula** is an abnormal passage that leads from an abscess, hollow organ or part to the body surface, or from one hollow organ or part to another, and may be surgically created to permit passage of fluids or secretions.

**Giant cell arteritis** is arterial inflammation often involving the temporal arteries that may lead to blindness when the ophthalmic artery and its branches are affected, characterized by the formation of giant cells and can be accompanied by fever, malaise, fatigue, anorexia, weight loss and arthralgia.

**Hemorrhage** is a copious or heavy discharge of blood from the blood vessels.

**Hematoma** is a mass of usually clotted blood that forms in a tissue, organ or body space as a result of a broken blood vessel.

**Horner's syndrome** is a syndrome marked by sinking in of the eyeball, contraction of the pupil, drooping of the upper eyelid, face vasodilation and anhidrosis (abnormal deficiency or absence of sweating) caused by paralysis of the cervical sympathetic nerve fibers on the affected side.

**Indeterminate** findings are those that are inconclusive or insufficient for treatment planning.

**Ischemic stroke** occurs when a vessel supplying blood to the brain is obstructed. It accounts for about 87% of all strokes.

**Loeys-Dietz syndrome** is a disorder that affects the connective tissues of the body and increases the risk of aneurysm in arteries such as the aorta.

**Miosis** is the excessive constriction of the pupil of the eye.

**Non-diagnostic** is a result that does not lead to a confirmed diagnosis.

**Paraganglioma** is a type of neuroendocrine tumor that forms near certain blood vessels and nerves outside of the adrenal glands.

**Pseudoaneurysm** is a vascular abnormality (as an elongation or buckling of the aorta) that resembles an aneurysm in radiography.

**Ptosis** is the drooping of the upper eyelid.

**Pulsatile tinnitus** is a rhythmic pulsing noise in one or both ears that occurs in the absence of external sound and tends to be synced with the heartbeat.

**Stenosis** is a narrowing or constriction of the diameter of a bodily passage or orifice.

**Subclavian steal syndrome (Vertebral artery flow reversal)** is reduced blood flow to the posterior fossa as a result of reversed blood flow within one vertebral artery as a result of a tight stenosis or occlusion within its parent subclavian artery.

**Takayasu's arteritis** is a chronic inflammatory disease especially of the aorta and its major branches (the brachiocephalic artery and left common carotid artery) that result in progressive stenosis, occlusion and aneurysm formation marked by diminution or loss of the pulse (as in the arm) and ischemic symptoms.

**Transient ischemic attack (TIA)** is a brief interruption of the blood supply to the brain that causes a temporary impairment of vision, speech or movement. The episode usually lasts for just a few moments but may be a warning sign of a full scale stroke.

**Vertebrobasilar insufficiency (VBI)** is defined by inadequate blood flow through the posterior circulation of the brain, supplied by the 2 vertebral arteries that merge to form the basilar artery.

**Vertigo** is a symptom, rather than a condition itself. It's the sensation that a person, or the environment around them, is moving or spinning.

## CTA Neck References

- [1] Abozeed, M. & Bolen, M.A. (2020). Screening CT angiography in patients with suspected fibromuscular dysplasia: improved patient care with single-session skull vertex to pelvis coverage. *Cardiovascular Diagnosis & Therapy*, 10(2), 201-207.
- [2] AbuRahma, A.F., Avgerinos, E.D., . . . Zhou, W. (2022). Society for Vascular Surgery clinical practice guidelines for management of extracranial cerebrovascular disease. *Journal of Vascular Surgery*, 75(1S), 4S-22S.
- [3] Aulino, J.M., Kirsch, C.F.E., . . . Bykowski, J. (2019). ACR Appropriateness Criteria Neck Mass-Adenopathy. *Journal of the American College of Radiology*, 16(5S), S150-S160.
- [4] Chan, T. L. H. Kim, D. D., . . . Peretz, A. (2021). Horner's Syndrome and Thunderclap Headache. *Canadian Journal of Neurological Sciences*, 48(1), 141-143.
- [5] Gladstone, D. J., Lindsay, M. P., . . . Gahan, B. R. (2021). Canadian Stroke Best Practice Recommendations: Secondary Prevention of Stroke Update 2020. *Canadian Journal of Neurological Sciences*, 1-23.
- [6] Gornik, H.L., Persu, A., . . . Plouin, P. (2019). First International Consensus on the diagnosis and management of fibromuscular dysplasia. *Vascular Medicine* 24(2), 164-189.
- [7] Gupta, S., Meyersohn, N.M., . . . Hedgire, S.S. (2020). Role of coronary CT angiography in spontaneous coronary artery dissection. *Radiology: Cardiothoracic Imaging*, 2(6), e200364.



- [8] Hartman, J., Goiney, C., . . . Mossa-Basha, M. (2020). ACR Appropriateness Criteria Facilitate Judicious Use of CT Angiography for Stroke Workup in the Emergency Department *Journal of the American College of Radiology*, 17(10), 1230-1236.
- [9] Hayes, S.N., Tweet, M.S., . . . Rose, C.H. (2020). Spontaneous Coronary Artery Dissection: JACC State-of-the-Art Review. *JACC (Journal of the American College of Cardiology)*, 76(8), 961-984.
- [10] Kessler, M.M., Moussa, M., . . . Cornelius, R.S. (2017). ACR Appropriateness Criteria Tinnitus. *Journal of the American College of Radiology*, 14(11S), S584-S591.
- [11] Maclean, M.A., Touchette, C.J., . . . Christie, S.D. (2022). Work-up and Management of Asymptomatic Extracranial Traumatic Vertebral Artery Injury. *Canadian Journal of Neurological Sciences*, 1(Advance Online Publication), 1-21. Retrieved: June 2023. <https://www.cambridge.org/core/journals/canadian-journal-of-neurological-sciences/article/workup-and-management-of-asymptomatic-extracranial-traumatic-vertebral-artery-injury/D7F89825281B456C117B8A2DAB6DFA97>
- [12] Maz, M., Chung, S. A., . . . Mustafa, R. A. (2021). 2021 American College of Rheumatology/Vasculitis Foundation Guideline for the Management of Giant Cell Arteritis and Takayasu Arteritis. *Arthritis Care & Research*, 73(8), 1071-1087.
- [13] Oura, K., Oura, M.Y., . . . Maeda, T. (2021). Vascular Imaging Techniques to Diagnose and Monitor Patients with Takayasu Arteritis: A Review of the Literature. *Diagnostics*, 11(11), 1993.
- [14] Owen, C.E., Yates, M., . . . Mackle, S.L. (2023). Imaging of giant cell arteritis – recent advances. *Best Practice & Research: Clinical Rheumatology*, Article in Press, Article: 101827.
- [15] Witte, D.H. (2021). Advanced Imaging in Orthopaedics. F.M. Azar & J.H. Beaty (Eds.). *Campbell's Operative Orthopaedics* (14), (pp. 141-176). Philadelphia, PA: Elsevier, Inc.

## Disclaimer & Legal Notice

### Purpose

The purpose of the HealthHelp's clinical guidelines is to assist healthcare professionals in selecting the medical service that may be appropriate and supported by evidence to safely improve outcomes. Medical information is constantly evolving, and HealthHelp reserves the right to review and update these clinical guidelines periodically. HealthHelp reserves the right to include in these guidelines the clinical indications as appropriate for the organization's program objectives. Therefore the guidelines are not a list of all the clinical indications for a stated procedure, and associated Procedure Code Tables may not represent all codes available for that state procedure or that are managed by a specific client-organization.





A WNS COMPANY

## Clinician Review

These clinical guidelines neither preempt clinical judgment of trained professionals nor advise anyone on how to practice medicine. Healthcare professionals using these clinical guidelines are responsible for all clinical decisions based on their assessment. All Clinical Reviewers are instructed to apply clinical indications based on individual patient assessment and documentation, within the scope of their clinical license.

## Payment

The use of these clinical guidelines does not provide authorization, certification, explanation of benefits, or guarantee of payment; nor do the guidelines substitute for, or constitute, medical advice. Federal and State law, as well as member benefit contract language (including definitions and specific contract provisions/exclusions) take precedence over clinical guidelines and must be considered first when determining eligibility for coverage. All final determinations on coverage and payment are the responsibility of the health plan. Nothing contained within this document can be interpreted to mean otherwise.

## Registered Trademarks (®/™) and Copyright (©)

All trademarks, product names, logos, and brand names are the property of their respective owners and are used for purposes of information and/or illustration only. Current Procedural Terminology (CPT)®™ is a registered trademark of the American Medical Association (AMA). No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise, without permission from HealthHelp.