



NVS Examination Study Guide: Carotid

Created: August 2025

1) Extracranial Cerebrovascular Anatomy + Bmode Landmarks	<ul style="list-style-type: none">a. Major extracranial cerebrovascular arteries, branches, and originsb. Major cervical veins, branches, and originsc. Aortic arch anatomyd. Ultrasound and physical anatomical landmarkse. Common aberrant extracranial cerebrovascular anatomy
2) Hemodynamics + Waveform Recognition	<ul style="list-style-type: none">a. Normal extracranial waveform morphologyb. Abnormal extracranial waveform morphologyc. The relationship between intracranial disease and extracranial waveformsd. Physiological factors impacting cerebrovascular waveforms (e.g. hematocrit, BP, ICP)e. Hemodynamic influence of cardiac disease, cardiac intervention support / assistive devicesf. Hemodynamic factors impacting flow resistance, velocity, turbulenceg. Internal jugular vein assessmenth. Normal and abnormal venous waveform morphology
3) Imaging Optimization & Safety	<ul style="list-style-type: none">a. Transducer selectionb. Knowledge of transducer orientation relative to target anatomyc. Bmode, Color Doppler, PW Doppler optimizationd. Knobologye. ALARA principles

	<p>f. Peri-operative safety considerations (e.g. central lines, post-endarterectomy, etc).</p> <p>g. Ergonomics</p>
4) Technique	<p>a. Knowledge of transducer orientation relative to target anatomy</p> <p>b. Identification of carotid, vertebral, subclavian, brachiocephalic vessels (arterial and venous)</p>
4) Findings & Pathology	<p>a. Identification of arterial stenosis, thrombosis, dissection, occlusion, fibromuscular dysplasia, GCA, extrinsic compression, fistula, pseudoaneurysm</p> <p>b. Knowledge of plaque characterization</p> <p>c. Effects of collateral pathways (e.g. steal effects, activation of Circle of Willis collaterals and their impacts on extracranial flow)</p> <p>d. Post-procedural/ surgically altered assessment (e.g. CAS, CEA, TCAR, bypass, coiling, other exogenous devices)</p> <p>e. IMT assessment</p> <p>f. Evaluation of Superficial Temporal Arteritis</p> <p>g. Non-vascular & incidental findings: (e.g. Carotid body tumors, Lymph nodes, Thyroid nodules)</p>
5) Physiological Arterial Evaluation	<p>a. Brachial artery blood pressures</p> <p>b. Cuff inflation / exercise testing for assessment of subclavian steal</p>
6) Reporting	<p>a. Documentation of findings</p> <p>b. IAC Examination interpretation and report standards</p>