

CONFIDENTIAL

PROTOCOL FOR CAROTID IMT STUDIES Sleep Apnea Study UW Atherosclerosis Imaging Research Program

Prior to starting, create the subject's data folder with ID number

1. Place subject in supine position for 10 minutes prior to imaging
2. Make sure room temperature is 70-76°F
3. Place carotid arc the over subject's neck
4. Use Acuson 8L5 linear array vascular probes for B-mode and Doppler imaging. Obtain images with probe orientation notch toward the head, for longitudinal and toward patient's right side for transverse scans
5. Place study videotape (for backup) into Acuson Sequoia ultrasound machine.
6. Enter tape time under VCR control
7. Enter pertinent information under "Patient ID", select CIMT preset and create Camtronics system digital study.
8. Attach ECG leads to chest and automatic blood pressure cuff to left upper arm, set at q.15 minutes
9. Record entire study on VCR tape
10. Record all digital loops and still frames to Camtronics system
11. Tilt head to the left for right carotid artery scanning; maintain the head at a 45 degree angle for scan, with minor adjustments as needed to optimize image
12. Annotate "right" on the ultrasound screen
13. Perform transverse scan from proximal right common carotid artery (CCA) towards bifurcation to find the orientation of the 2 vessels at the bifurcation level. Annotate "CCA," "bifurcation," and "ICA" when visualized. Record several loops of this process so anatomy is clear to reader.
14. Identify the optimum angle of interrogation (OAI); annotate "OAI" with angle on screen, place vertical line at tip of the flow divider and record 3 consecutive cardiac cycles.
15. Spectral Doppler of right internal carotid artery (ICA) to verify vessel identity and location (still frame)
16. Spectral Doppler of right external carotid artery (ECA) to verify vessel identity and location (still frame)
17. At right OAI, optimize far wall and record 3 R-wave gated still frames of B-mode images from following 3 carotid segments (annotate site and OAI for each):
 - a. CCA
 - b. Bulb
 - c. ICA
18. Right CCA circumferential scan #1 – approximately 45 degrees anterior to OAI. Optimize far wall of the right CCA and record 3 R-wave gated still frames of B-mode images (annotate site and angle)

19. Right CCA circumferential scan #2 – approximately 45 degrees posterior to OAI. Optimize far wall of the right CCA and record 3 R-wave gated still frames of B-mode images (annotate site and angle)
20. Tilt head to the right for left carotid artery scanning; maintain 45 degree angle for scan, with minor adjustments as needed to optimize image
21. Annotate “left” on the ultrasound screen
22. Perform transverse scan from proximal left common carotid artery (CCA) towards bifurcation to find the orientation of the 2 vessels at the bifurcation level. Annotate “CCA,” “bulb,” and “ICA” when visualized. Record several loops of this process so anatomy is clear to reader.
23. Identify the optimum angle of interrogation (OAI); annotate “OAI” with angle on screen, place vertical line at OAI and record 3 consecutive cardiac cycles.
24. Spectral Doppler of left internal carotid artery to verify vessel identity and location (still frame)
25. Spectral Doppler of left external carotid artery to verify vessel identity and location (still frame)
26. At left OAI, optimize far wall and record 3 R-wave gated still frames of B-mode images from following 3 carotid segments (annotate site and OAI for each):
 - a. CCA
 - b. Bulb
 - c. ICA
27. Left CCA circumferential scan #1 – approximately 45 degrees anterior to OAI. Optimize far wall of the right CCA and record 3 R-wave gated still frames of B-mode images (annotate site and angle)
28. Left CCA circumferential scan #2 – approximately 45 degrees posterior to OAI. Optimize far wall of the right CCA and record 3 R-wave gated still frames of B-mode images (annotate site and angle)
29. Measure any large plaques identified during any scan. Make sure angle and site of plaque are annotated on the screen. Perform clinically relevant spectral Doppler examination if indicated.