**ANATOMIC ORIENTATION OF THE BRACHIOCEPHALIC VESSELS: ARCH**

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Background: Distal embolic events (DEEs) are frequent during carotid artery stenting (CAS), exceed DEEs during carotid endarterectomy (CEA), and often occur in non-targeted cerebral vessels (NTV). Minimizing catheter manipulation in the aortic arch (AA) may reduce DEEs in NTV. We previously described the safety of 3DR catheter cannulation of brachiocephalic arteries (BCAs) using a sequential withdrawal technique.

Objective: To prove gravity and momentum of the beating heart on the AA causes “cresting” of BCAs along the superior most aspect of the AA facilitating engagement of the upwardly pointing 3DR catheter into BCAs.

Methods: We retrospectively reviewed 35 chest computed tomography scans utilizing Terarecon. The superior most portion of the AA was defined manually by adjusting the Curve Planar Reformation line in all views. This line was followed in a saggital view and marked at its intersection of BCAs origins. 8 patients were excluded due to image quality or surgical distortion.

Results: Demographics (n=27): mean age 49 +/-24years, height 168 +/-7.8cm, weight of 83 +/-28.6kg, body surface area 1.9 +/- 0.3m2. Male 16, hypertensive 16, diabetic 5, 3 bovine arch, 2 type II, 2 type III, and 1 right AA. In ALL 27 studies, BCAs originated along the crest.

Conclusions: BCAs are “crested” linearly across the superior aspect of the AA. An atraumatic way to cannulate BCAs is to pull the upwardly pointing 3DR catheter along the crest from most proximal BCA to the next without rotation. Eliminating catheter advancement and rotation in the AA might reduce DEEs in the NTV.