

Weekend Educational Course
Neuro 1 – Saturday, 30 May, 2015

Carotid Disease: What the Physicist Can Contribute

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MRI of carotid disease more specifically refers to imaging of the atherosclerotic vessel wall. Technically, the challenges are similar to many cardiovascular imaging applications: spatial resolution limits, soft tissue contrast better targeted for atherosclerotic tissues, motion interference, blood flow suppression and enhancement, the potential for contrast agent applications, and finally, processing software that can help analysis. Physicists and/or technically orientated researchers can play a leading role in all these aspects. Because of the complexity of atherosclerotic lesions in the carotid, imaging targets include: plaque size, tissue components, compliance and hemodynamic analysis, and state of inflammation. This presentation will outline physicist's contribution in dealing with the challenges in carotid lesion imaging and describe imaging techniques (including imaging sequence, hardware, and processing tools) developed for carotid lesions, as well as highlight recent new advancements.