

Abstract Submitted  
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**Flow Characterization of Severe Carotid Artery Stenosis in Pre- and Post-operative Phantoms by Using Magnetic Resonance Velocimetry**<sup>1</sup> SEUNGBIN KO, SIMON SONG, Hanyang University, DOOSANG KIM, Seoul Veterans Hospital — It is remained unknown that the flow characteristics changes between pre- and post-operative severe carotid artery stenosis could affect the long-term patency or failure. However, in-vivo clinical experiments to uncover the flow details are far from bed-side due to limited measurement resolutions, blurring artifact, etc. We studied detailed flow characteristics of more than 75% severe carotid artery stenosis before and after surgical treatments. Real-size flow phantoms for 10 patients, who underwent carotid endarterectomy with patch/no patch closure, were prepared by using a 3D rapid-prototype machine from CT scanned images. The working fluid is a glycerin aqueous solution, and patient-specific pulsatile flows were applied to the phantoms, based on ultrasonic flow rate measurements. The flows were visualized with magnetic resonance velocimetry (MRV). The detailed flow characteristics are presented for both pre- and post-operative carotid arteries along with visualization data of 3 dimensional, 3 component velocity fields.

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