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The Influence of Downstream Branching Arteries on Upstream Haemodynamics

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ABSTRACT

The accuracy and usefulness of computed flow data in an artery is dependent on the initial geometry, which is in turn dependent on image quality. Often smaller branching arteries are not captured with computed tomography (CT), and thus neglected in flow simulations. We used a high-quality CT dataset of an isolated common iliac aneurysm, where multiple small branches of the internal iliac artery were evident. Simulations were performed both with, and without these branches. Results show that the haemodynamics in the common iliac artery were very similar for both cases, with any observable differences isolated to the regions local to the small branching arteries. Therefore, accounting for small downstream arteries may not be vital to accurate computations of upstream flow.

Keywords: *computational fluid dynamics, wall shear stress, iliac aneurysm*

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