Abstract Submitted
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Computational Fluid Dynamics Analysis of Thoracic Aortic Dissection YIK SAU TANG, YI FAN, Department of Mechanical Engineering, The University of Hong Kong, STEPHEN WING KEUNG CHENG, Department of Surgery, The University of Hong Kong, KWOK WING CHOW, Department of Mechanical Engineering, The University of Hong Kong — Thoracic Aortic Dissection (TAD) is a cardiovascular disease with high mortality. An aortic dissection is formed when blood infiltrates the layers of the vascular wall, and a new artificial channel, the false lumen, is created. The expansion of the blood vessel due to the weakened wall enhances the risk of rupture. Computational fluid dynamics analysis is performed to study the hemodynamics of this pathological condition. Both idealized geometry and realistic patient configurations from computed tomography (CT) images are investigated. Physiological boundary conditions from in vivo measurements are employed. Flow configuration and biomechanical forces are studied. Quantitative analysis allows clinicians to assess the risk of rupture in making decision regarding surgical intervention.

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