

BIOMECHANICAL ANALYSIS OF DISTAL STENT GRAFT INDUCED NEW ENTRY (SINE) FORMATION IN AORTIC DISSECTION PATIENT

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Abstract:

This is the first study to investigate the effect of material models and properties on stress and strain distributions in Type IIIb aortic dissection patient with distal stent graft induced new entry. Both elastic and hyperelastic models consistently showed a reduction in all stress and strain parameters (i.e. 5.4% - 59.1%) at neighboring region distal to the stent-wall composite when the disease progressed from acute to chronic. We found that the maximum shear stress (SS) presents a potential inducer for SINE formation, while the maximum shear elastic strain (SE) could be an indicator for the location of such formation.

Keywords: Aortic Dissection; Distal Stent Graft Induced Entry (SINE); Thoracic Endovascular Aneurysm Repair (TEVAR); Disease Stage Based

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