

Abstract Submitted
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Strain accumulation visco-elastic ventriculomegaly hypothesis for the onset of idiopathic Normal Pressure Hydrocephalus (iNPH) STEPHANIE SINCOMB, University of California, San Diego, VICTOR HAUGHTON, School of Medicine- University of Wisconsin, Madison, ANTONIO SANCHEZ, ERNESTO CRIADO-HIDALGO, JUAN C LASHERAS, University of California, San Diego — Idiopathic Normal Pressure Hydrocephalus (iNPH) also known as Chronic Adult Hydrocephalus is a syndrome characterized by ventriculomegaly, an enlargement of the brain ventricles containing cerebrospinal fluid (CSF), in the absence of elevated intracranial pressure (ICP). Symptoms of iNPH include urinary incontinence, disturbed gait, and dementia. It is most prevalent in the elderly population while extremely underdiagnosed. This condition has been subject of considerable studies, but the question remains of why while the ICP remains normal the ventricles continue to dilate despite free communication between the ventricles and the subarachnoid space. Understanding the mechanisms leading to iNPH is fundamental for its early detection and treatment. This is clinically significant as iNPH is the only potentially reversible neurodegenerative disease. Through Magnetic Resonance Elastography (MRE) measurements of the viscoelastic properties of the brain parenchyma and analytical modeling, we investigate the hypothesis that the reduction in the stiffness of the periventricular white matter and/or a decrease in its permeability leads to a gradual accumulation of the CSF in the brain ventricles and its subsequent enlargement.

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