



OSPEDALE SAN RAFFAELE

# Coronary Microvascular Dysfunction and the Brain

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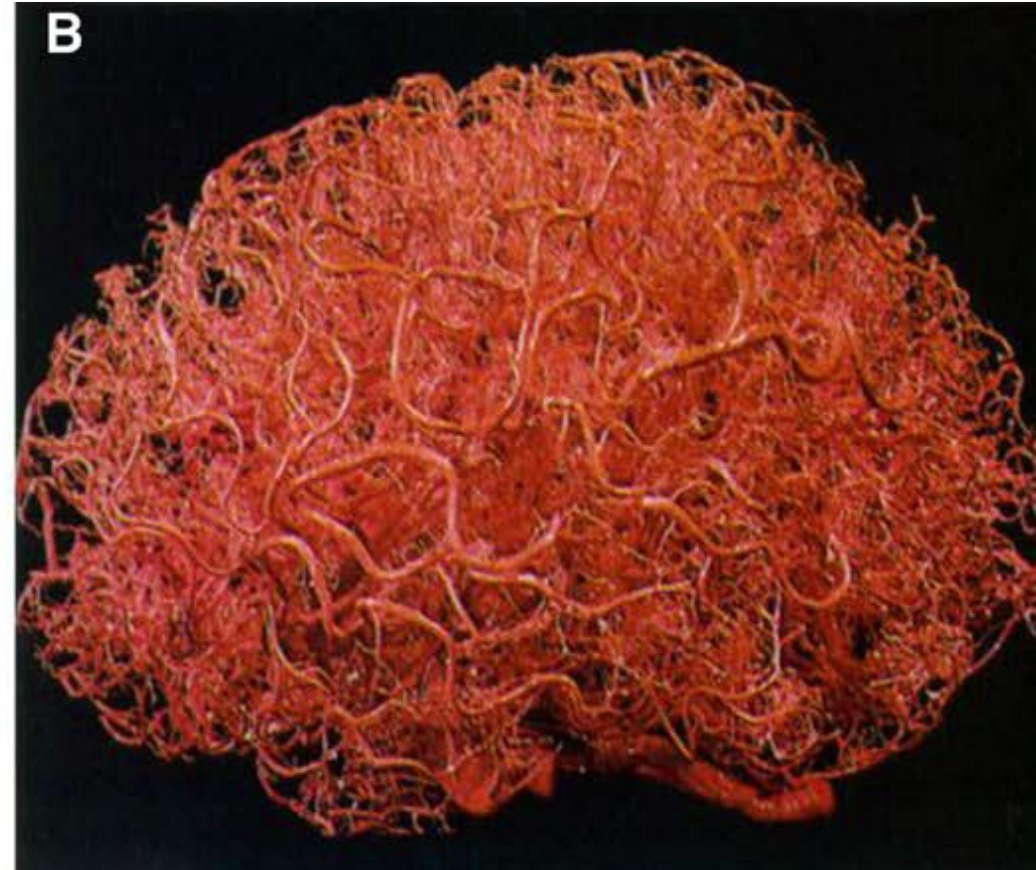
Circulation: Cardiovascular Imaging

**ADVANCES IN CARDIOVASCULAR IMAGING**

**Association of White Matter  
Hyperintensities and Cardiovascular Disease  
The Importance of Microcirculatory Disease**

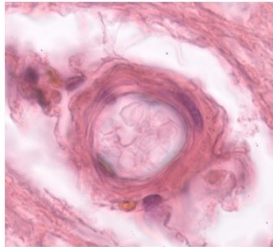
Moroni F, Ammirati E, Ainsworth AH and Camici PG

Circ Cardiovasc Imaging. 2020;13:e010460. DOI: 10.1161/CIRCIMAGING.120.010460



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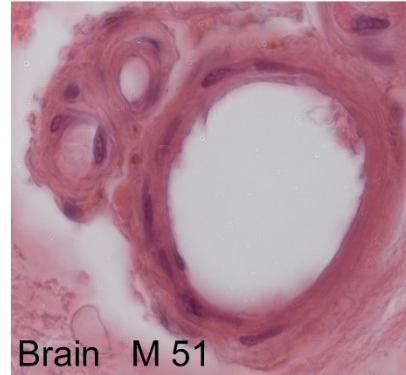
# Microvascular disease of the coronary and cerebral circulation



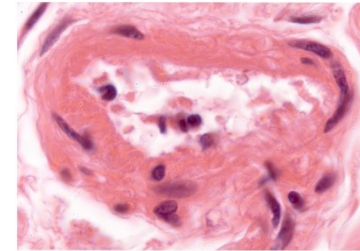
Brain M 51



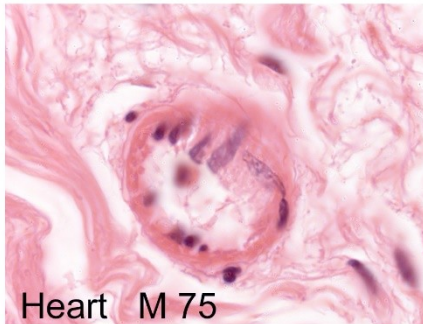
Heart M 27



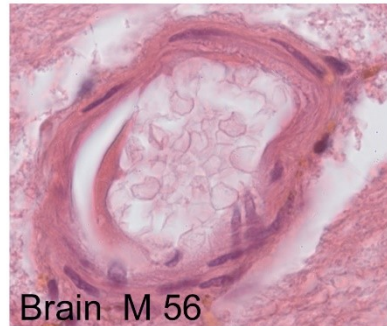
Brain M 51



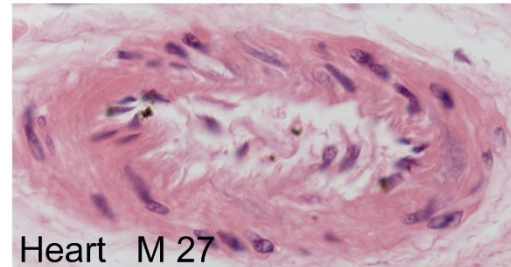
Heart M 70



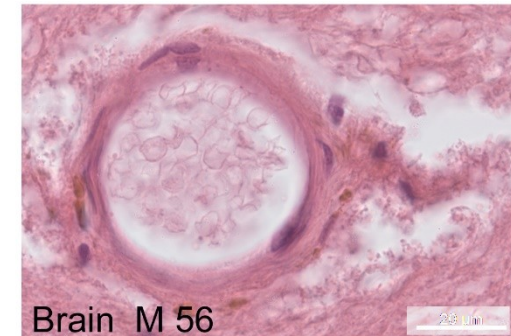
Heart M 75



Brain M 56



Heart M 27



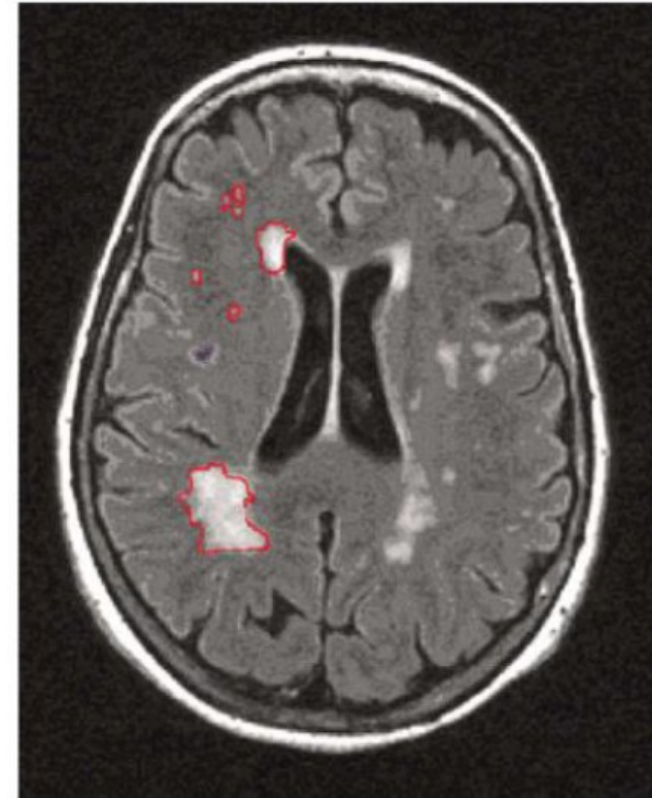
Brain M 56

# BACKGROUND

## WHITE MATTER HYPERINTENSITIES (WMHs)

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- Hyperintense areas (T2-weighted or FLAIR MRI sequences)
- Likely ischemic origin
- High prevalence (up to 94% in the elderly)
- Carotid atherosclerosis supposed to play a role in WMH (micro-emboli/impairment of CBF)
- WMHs confer high risk for stroke (HR=3.3), dementia (HR=1.9) and death (HR=2.2) in otherwise healthy individuals



Ylikovski A et al, Stroke, 1995  
Debette S, Markus HS, BMJ, 2010  
Altaf N, Eur J Vasc Endovasc Surg, 2006  
De Weerd M et al, Stroke, 2010  
Wardlaw JM et al, JAHA, 2015

# Coronary microvascular dysfunction is associated with impaired cognitive function: the Cerebral-Coronary Connection study (C3 Study)

Hernan Mejia-Renteria et al. *JAMA* 2019

