

Intracranial artery pathology has traditionally been evaluated with luminal imaging. High-resolution vessel wall imaging (HR-VWI) with MRI has facilitated submillimetre evaluation of the arterial walls. This technique can help differentiate various causes of intracranial steno-occlusive disease, identify culprit atherosclerotic plaques with a recent cerebral infarct, locate vessel wall pathology in areas with minimal or no narrowing on luminal imaging, predict aneurysm stability and identify a ruptured aneurysm when multiple aneurysms are present. Interpretation of HR-VWI examinations requires a solid understanding of the pathophysiology, clinical features, serum and cerebrospinal fluid laboratory findings, treatment administered and fundamental patterns of VWI abnormalities that may be encountered with the intracranial vasculopathies. This pictorial essay aimed to illustrate the essential findings of common conditions encountered with HR-VWI including intracranial atherosclerosis, moyamoya disease, intracranial vasculitis, varicella zoster vasculopathy, reversible cerebral vasoconstriction syndrome and aneurysms¹⁾.

In total, 74 patients harboring 96 unruptured intracranial aneurysm (UIAs) were included in a study. The mean patient age was 64.7 ± 12.4 years, and 60 patients (81%) were women. Multivariate analysis showed that age (OR 1.12, 95% CI 1.05-1.19), aneurysm size \geq 7 mm (OR 21.3, 95% CI 4.88-92.8), and location in the anterior communicating, posterior communicating, and basilar arteries (OR 10.7, 95% CI 2.45-46.5) were significantly associated with increased wall enhancement on High-resolution vessel wall imaging (HR-VWI). On the other hand, the use of aspirin (ASA) was significantly associated with decreased aneurysmal wall enhancement on HR-VWI (OR 0.22, 95% CI 0.06-0.83, p = 0.026).

The study results establish a correlation between use of ASA daily for \geq 6 months and significant decreases in wall enhancement of UIAs on HR-VWI. The findings also demonstrate that detection of wall enhancement using HR-MRI may be a valuable noninvasive method for assessing aneurysmal wall inflammation and UIA instability²⁾.

References

1)

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Decreased contrast enhancement on high-resolution vessel wall imaging of unruptured intracranial aneurysms in patients taking aspirin. J Neurosurg. 2020 Mar 6:1-7. doi: 10.3171/2019.12.JNS193023. [Epub ahead of print] PubMed PMID: 32114538.

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