

WHITE MATTER HYPER-INTENSITY PATTERNS IN PATIENTS WITH AMYLOID ANGIOPATHY AND CEREBELLUM INVOLVEMENT

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Background: Pathological changes in the cerebral white matter can be determined both in small vessel disease and in cerebral amyloid angiopathy. The pattern of involvement may be different depending on the etiology and severity of the process.

Keywords: amyloid, angiopathy, cerebral, white matter.

Objective of the study: Determination and analysis of the pattern of cerebral white matter changes in patients with amyloid angiopathy and involvement of the cerebellum.

Material and Methods: Patients with intracerebral hemorrhages who were examined by magnetic resonance imaging were prospectively analyzed. Patients were diagnosed with cerebral amyloid angiopathy (CAA) according to Boston criteria. Changes in white matter were interpreted using the Fazekas scale and compared for patients with CAA and patients with CAA and cerebellar involvement.

Results: Of the 614 patients with intracerebral hemorrhage, 96 were examined by cerebral magnetic resonance imaging. Of these, 41 patients were diagnosed with amyloid angiopathy, 19 patients with possible amyloid angiopathy, 21 patients - probable and 1 case with defined amyloid angiopathy. Cerebellar involvement was determined in 34% (14/41) cases. Severe changes in white matter (Fazekas 2-3) were seen patients with cerebellar involvement (12/14; 86% versus 8/27 and 30% $p = 0.002$).

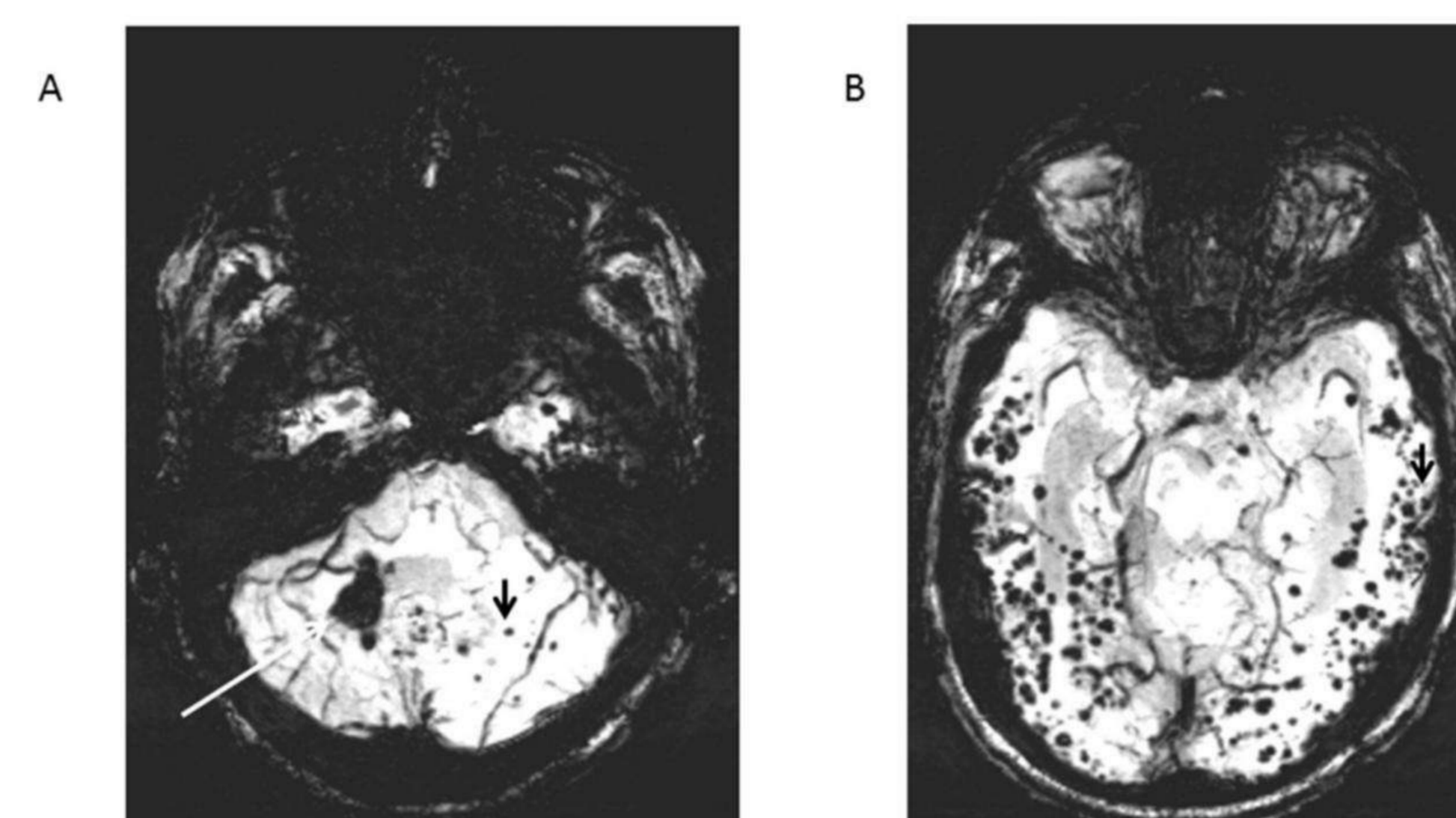


Fig. 1. Typical SWI MRI images from a patient with hypo-intense cerebellar macro (A. long white arrow) and micro-hemorrhages (short black arrow) as well as cortical lobar micro-hemorrhages (B, short black arrow) typical for cerebral amyloid angiopathy.

Multivariate analysis for cerebellar CAA presence.

Variable	OR	P	95% C.I.	
Age (yr)	1.018	0.604	0.952	1.089
Previous ICH	1.729	0.564	0.269	11.135
Hematoma size (ml)	1.016	0.353	0.982	1.051
Degree of superficial siderosis	1.518	0.052	0.997	2.311
Number of MB	1.045	0.025	1.005	1.087
Admission NIHSS	0.814	0.047	0.664	0.997

ICH – intracerebral hemorrhage, MB – micro bleeds, NIHSS – National Institutes of Health Stroke Scale.

Conclusion: Our data shows that cerebellar involvement may be quite common in patients with CAA, especially when CAA has been more advanced, as noted by the association with higher numbers of lobar CMB, CSS, and more severe white matter hyper-intensities. Clinical presentation of patients with cerebellar involvement in CAA and without cerebellar involvement does not appear to differ. Severe white matter changes seen on non-contrast CT in patients with lobar or cerebellar hemorrhage should prompt the treating physician to perform an MRI and to look for CAA.