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The clinical significance of intraluminal thrombus in patients with ascending aortic aneurysm: assessment with multidetector computed tomography

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PURPOSE: To assess the relationship of intraluminal thrombus (ILT) with annual expansion rate and embolic stroke in patients who have ascending aortic aneurysm detected on computed tomography (CT).

MATERIALS AND METHODS: Among the registry of 24,310 subjects underwent CT between 2003 and 2011, we retrospectively enrolled the consecutive 70 patients (36 men and 34 women; mean age, 68.8 years; range, 42–88 years) with aortic aneurysm at ascending aorta who underwent contrast enhanced-CT angiography (CECA) and repeated follow-up CECA before aortic surgery. We analyzed the initial diameter of aneurysm, presence of ILT and its characteristics such as plaque thickness, density (area of less than 60 HU was defined as a vulnerable plaque), and the presence of ulcerated plaque (defined as extension of the contrast medium beyond the vascular lumen into the surrounding plaque with larger than 3 mm orifice), and annual expansion rate. As an end point, acute embolic stroke was confirmed using MR images and matching the symptoms.

RESULTS: During follow-up (mean, 41 months; range, 12–93 months), acute embolic stroke had occurred in 25 patients (36%) with ascending aortic aneurysm. The presence of ILT was not correlated with the annual expansion rate ($p = .135$). In multiple logistic regression analysis, the independent predictors for embolic stroke were age, current smoker, hypertension, presence of ILT, plaque thickness, vulnerable plaque, and ulcerated plaque (each p -value $< .05$). Interestingly, vulnerable plaque and ulcerated plaque were only found in stroke patients group ($p < .001$).

CONCLUSION: The presence of ILT is significantly correlated with future event of embolic stroke, but not with the annual expansion rate in patients with ascending aortic aneurysm.