

Venous reflux on carotid CT angiography: relationship with left-arm

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摘要

Abstract

Objective: We evaluated the relationship between image degradation due to the reflux of contrast agent into the major neck veins and use of a left-arm injection site during computed tomographic (CT) angiography of the carotid arteries. Methods: A total of 364 patients underwent 4-section carotid CT angiography performed with an injection into the right (n = 183) or left (n = 181) arm. We calculated the volume of refluxed contrast medium and measured the retrosternal distance measured as the shortest distance between the sternum and the arch or its branches. Nine patients underwent follow-up CT angiography weeks later by using the side of injection not used before for comparison. Results: The amount of refluxed contrast medium was greater with left-arm injection than with right-arm injection ($P < 0.001$). With left-arm injection, the volume was significantly correlated with the retrosternal distance ($r = -0.514$, $P < 0.001$), even after we adjusted for age and sex in the linear regression model ($P < 0.001$). Five of the 9 patients who received injections in both arms had no reflux of contrast medium, whereas 4 patients had obvious reflux after left-arm but not right-arm injection. Conclusion: Normal compression of the left brachiocephalic vein due to a developmental decreased retrosternal space may degrade carotid CT angiograms because of reflux of contrast material into the cervical veins. This degradation can be avoided if right-arm injection is used.