

Hemodynamical assessment of Aortic Dissection using MR-DSA

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Purpose: To determine the diagnostic potential of MR-DSA in the assessment of aortic dissection.

Materials and Method: Five patients with dissection of the thoracic aorta underwent MR study. FLASH-3D sequence was performed with a 1.5T Siemens Vision scanner, with the following parameters: TR 3.2 ms, TE 1.2 ms, flip angle 30, 80×160 matrix, FOV 250×400, 16 slices of 10mm thickness, acquisition time 1.3sec, 20 serial scans after 5seconds scan delay. Fifty ml of Gadolinium was injected with a power injector at a rate of 3 ml/sec on the right side antecubital vein. Multi-processing of subtraction of 20 serial scans was performed with a workstation to represent a bolus-advancing effect, mimicking DSA. Inlet, outlet and extension of aortic dissection were analyzed with MR-DSA.

Results: Inlet (n=5), outlet (n=2), extension (n=5) of aortic dissection were definitely outlined on MR-DSA. Hemodynamical patterns of inflow, turnover and stasis of the blood stream in the aortic dissection were well visualized on MR-DSA of five patients. Advancing the effect of contrast bolus on MR-DSA of aorta was enough for the evaluation of aortic dissection in five patients.

Conclusion: MR-DSA with gadolinium provides a fast and promising minimally invasive technique for the evaluation of aortic dissection with hemodynamical patterns.