

## Evaluation of Anterior Choroidal Artery on 3T 3D TOF MRA

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**Introduction:** Detection of anterior choroidal artery (AChA) is very important for preoperative planning, especially coiling or clipping of IC-PC aneurysms. However, on a MRI system with 1.5T or under, intracranial small arteries such as AChA could not be detected so clearly, and conventional angiography was essential for preoperative evaluation. 3T MRA has higher spatial resolution and higher SNR than 1.5T MRA, and are expected to depict the small arteries. The purpose of this study is to evaluate for a depiction of the AChA on 3T 3D TOF MRA using volume-rendering (VR) images.

**Materials and Methods:** Nineteen consecutive patients (eight men and eleven women; age range, 35-78 years; mean age, 62.6 years) suspected intracranial aneurysms were performed on 3T TOF MRA and 3D digital angiography (DA). MR examinations were performed with 3T MRI and eight-element phased array coil. Imaging parameters for 3D TOF MRA were as follows: 512x224matrix (512reconstructed), with parallel imaging (ASSET factor 2.0), TR/TE: 25/3.1ms, a ramped radio-frequency pulse with a central flip angle of 20°, one slab of 90sections, bandwidth: 31.2kHz, FOV: 190x170mm, NEX: 1, and 1.0-mm-thick (ZIP2 0.5mm). DA examinations were performed after MRA examinations using a 3D DA angiographic unit with a flat panel detector. Nonionic iodinated contrast medium (350mgI/ml, 6-8ml) was injected into the internal carotid artery with a power injector at a rate of 4-6ml/sec while scanning. The each data were transferred to a post-processing workstation and the VR images were generated with an adequate threshold on each study. The VR images were evaluated on a display by two radiologists, and 3D-DA images were used as a standard of reference.

**Results:** The AChA was exactly detected in all cases on MRA. As the quality of depiction, there was no difference between MRA and DA in ten cases (Fig 1.). In other nine cases, the AChA was depicted slightly intermittent on MRA-VR images (Fig 2.). The origins of the AChA were detectable clearly in all cases.

**Conclusions:** 3T TOF MRA has almost the same ability for the detection of the AChA compared to 3D DA. 3T TOF MRA is feasible and useful in the preoperative evaluation of the AChA, and there is a possibility of the alternative method to conventional angiography.

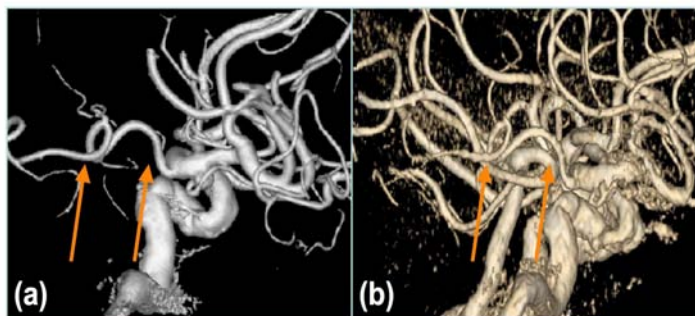


Fig 1. 61M

(a) DA-VR, (b) MRA-VR

AChA (orange arrows) was depicted clearly with the same quality on DA and MRA-VR.

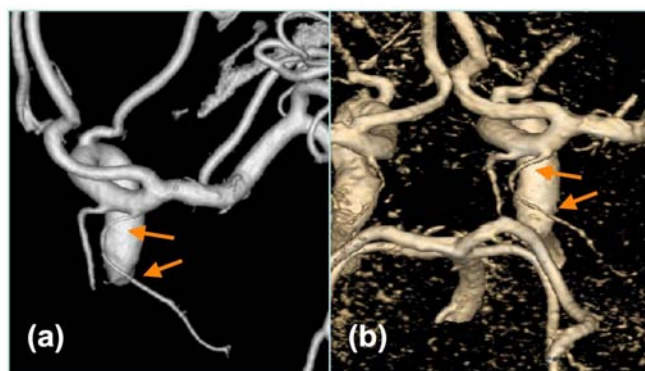


Fig 2. 54M

(a) DA-VR, (b) MRA-VR

The AChA depiction (orange arrows) on MRA was slightly irregular and intermittent compared to DA.