

Technical data supplement (MRI)

Diffusion-weighted MRI scans were acquired on 2 1.5T scanners (Aera, Siemens, Erlangen, Germany) with 20 channel head coils each and a 3T scanner (Skyra, Siemens, Erlangen, Germany) with a 20 channel head coil. The DTI sequence used for DWI calculation was acquired on a 3T scanner (Trio, Siemens, Erlangen, Germany) with a 32-channel head coil.

The routine stroke DWI sequences used had the following parameters: a) 3T: traced three-directional DWI EPI sequence, b-values 0 and 1000 s/mm², slice thickness 3 mm, interslice gap 0.3 mm, number of averages 3, echo time 98, repetition time 10.3, number of phase encoding steps 143, echo train length 71, percent sampling 100, percent phase field of view 100, pixel bandwidth 1040, acquisition matrix 192, in-plane phase encoding direction AP, flip angle 90°, SAR 0.287, duration 2:36 min, b) 1.5T: traced three-directional DWI EPI sequence, b-values 0, 500 and 1000 s/mm², slice thickness 3 mm, interslice gap 0.3 mm, number of averages 2, echo time 89, repetition time 8.80, number of phase encoding steps 105, echo train length 53, percent sampling 80, percent phase field of view 100, pixel bandwidth 1145, acquisition matrix 162, in-plane phase encoding direction AP, flip angle 90°, SAR 8.742, duration 2:22 min. c) 3T DTI EPI sequence, 6 directions, b-values 0 and 1000 s/mm², traced DWI calculation, b-value 1000 s/mm², slice thickness 2.5 mm, interslice gap 0 mm, number of averages 2, echo time 93, repetition time 8900, number of phase encoding steps 143, echo train length 1, percent sampling 100, percent phase field of view 100, pixel bandwidth 1240, acquisition matrix 192, in-plane phase encoding direction AP, flip angle 90°, SAR 0.282, duration 3:45 min.

Supplemental Figures

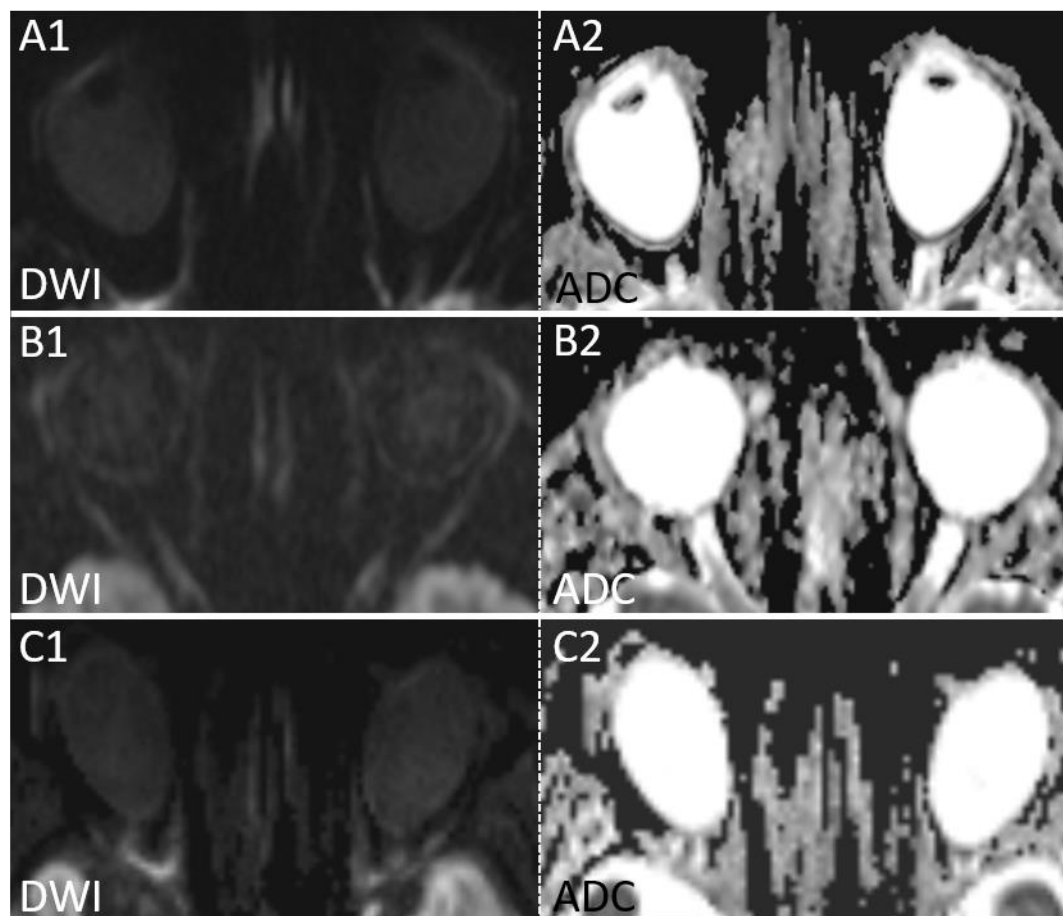


Figure 1: Examples of negative DWIs in acute CRAO (traced DWI $b=1000 \text{ s/mm}^2$ and corresponding ADC). Case 1 (A1/A2): 3T DWI-EPI MRI, left-sided CRAO. Case 2 (B1, B2): 1.5T DWI-EPI MRI, right-sided CRAO. Case 3 (C1, C2): 3T DTI-EPI MRI, right-sided CRAO.

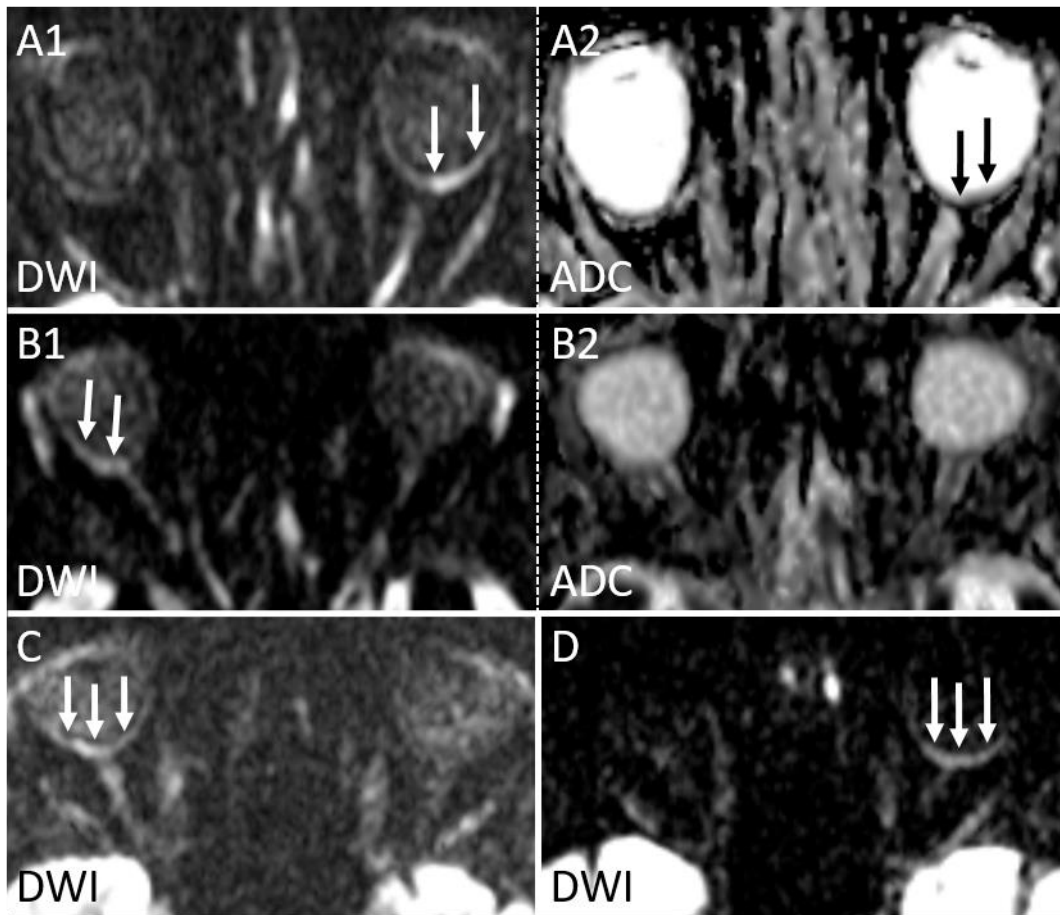


Figure 2: Examples of positive 1.5T DWIs in acute CRAO (traced DWI $b=1000 \text{ s/mm}^2$ and corresponding ADC). Case 1 (A1, A2): DWI-EPI MRI, left-sided CRAO with RDR and ADC reduction. Case 2 (B1, B2): DWI-EPI MRI, right-sided CRAO with RDR but no clear-cut visual ADC reduction. Case 3 and 4 (C, D): 2 DWI-EPI MRIs with RDR corresponding to the side of CRAO occlusion, but no clear-cut visually determinable ADC reduction (ADCs not shown). Note that due to reduced image quality and low contrast in the orbits, very narrow windowing was necessary to appreciate the DWI hypersignal.

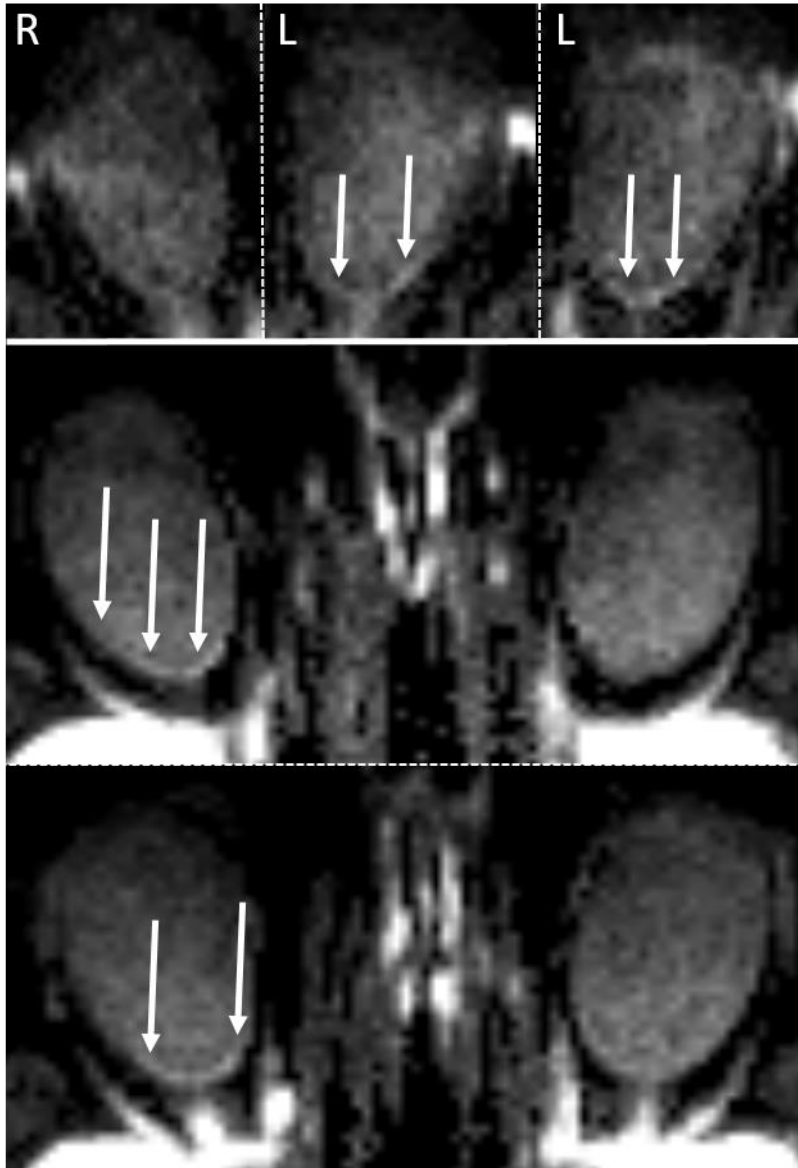


Figure 3: Examples of subtle DWI findings on 3T DWI-EPI MRI in acute CRAO ($b=1000$ s/mm² images). ADC maps were rated unremarkable (not shown). Top row: Subtle retinal DWI hypersignal is noted on two adjacent slices in this case of left-sided CRAO. Both readers scored this finding. Lower rows: Subtle retinal DWI hypersignal is noted on two adjacent slices in this case of right-sided CRAO. Only the more experienced reader scored this finding.