



Supplemental Figure 3. Quality Assessment of *ex vivo* 7 Tesla Multi-echo Flash (MEF) Dataset.

A posterior view of an axial slice at the level of the mid-pons (foreground) is shown, along with a coronal section in the plane of the left frontal contusion. The horizontal white line indicates the intersection of the axial and coronal planes. Both images are from a MEF flash parameter map (flash20) at 200 μm spatial resolution. The MEF images provide clear anatomic delineation of cortical and subcortical structures, as well as identification of the left frontal and temporal contusions (red arrows). Punctate foci of hemorrhage, likely representing hemorrhagic traumatic axonal injury, are also seen in the genu of the corpus callosum (blue arrow). Of note, the images shown here are from a combined synthetic FLASH scan with a flip angle of 20° .