MRI OF THE BRAIN WITHOUT CONTRAST:

HISTORY: Headaches following a motor vehicle collision dated 4/29/2020.

TECHNIQUE: T1, T2, FLAIR, diffusion, and GRE images were obtained. SWI imaging and DTI imaging was also performed.

FINDINGS:
SUPRATENTORIAL STRUCTURES: There are clusters of white matter lesions identified within the right frontal lobe and within the tip of the right temporal lobe. These white matter lesions are predominantly in the gray-white matter junction, which is the typical location associated with traumatic brain injury. There is no evidence for intracranial mass, hemorrhage or extra-axial fluid collection.

POSTERIOR FOSSA: The brainstem is normal in signal intensity. The cerebellum appears within normal limits. The cerebellar folia and sulci are unremarkable. The internal auditory canals appear within normal limits. The seventh and eighth cranial nerves are normal and there is no evidence for cerebellopontine angle mass.

VENTRICULAR SYSTEM: The ventricles are normal in size and shape. There is no evidence for hydrocephalus and there is no evidence for transependymal flow of CSF.

SKULL BASE AND OSSEOUS STRUCTURES: The orbits, paranasal sinuses and temporal bones are within normal limits. There is no evidence for abnormal mass or fluid collection associated with these structures.

VASCULAR STRUCTURES: There is normal signal void within the major vessels of the circle of Willis. The superior sagittal sinus appears unremarkable on this examination.

PITUITARY AND SELLA: There is no evidence for mass.

DIFFUSION WEIGHTED IMAGING: There are no signal abnormalities of an acute ischemic process. There is no evidence for acute small-vessel ischemia.

DIFFUSION TENSOR IMAGING: Whole brain analysis demonstrates visible reductions in fractional anisotropy which correspond with areas of abnormal signal seen on the standard MRI images. In addition, regional quantitative analysis through the corpus callosum demonstrates measured values that fall below the normal range. These findings are seen in groups of patients that are diagnosed with white matter injury; therefore, clinical correlation is recommended to confirm the diagnosis of traumatic brain injury in this patient. Quantitative analysis of the corpus callosum demonstrates that there is a reduction in fractional anisotropy within the body of the corpus callosum. Fractional anisotropy levels fall to the level of 0.420 +/- 0.153, which is below the normal range.

SUSCEPTIBILITY WEIGHTED IMAGING: The susceptibility weighted images demonstrate no areas of signal dropout to suggest residual blood products.

IMPRESSION:

1. There are clusters of white matter lesions identified in both the right frontal and right temporal lobes, predominantly in the gray-white matter junction. This is the typical location associated with traumatic brain injury. As differential considerations include other possibilities, such as demyelinating disease, Lyme disease, and small-vessel ischemia, clinical correlation is recommended to confirm a diagnosis of traumatic brain injury in this patient. **See Figure 1, Image 18, Series 40200000, Figure 2, Image 17, Series 40200000, Figure 3, Image 13, Series 40200000, and Figure 4, Image 9, Series 40200000.** Circles and arrows are pointing to clusters of white matter lesions identified in the right frontal lobe and right temporal lobe.
2. DTI imaging demonstrates regions of reduced fractional anisotropy that correspond with areas of abnormal signal on standard MRI. Quantitative analysis of the corpus callosum demonstrates that there is a reduction in fractional anisotropy within the body of the corpus callosum. Fractional anisotropy level falls down to the level of 0.420 +/- 0.153, which is below the normal range. These findings are consistent with the diagnosis of traumatic brain injury, and they are seen in group analysis within patients that are diagnosed with traumatic brain injury; therefore, clinical correlation is recommended to confirm the diagnosis of traumatic brain injury in this patient. See Figure 5, image
3. Diffusion weighted imaging was performed, and there is no evidence for an acute small-vessel ischemic process in this patient.

FIGURE 1

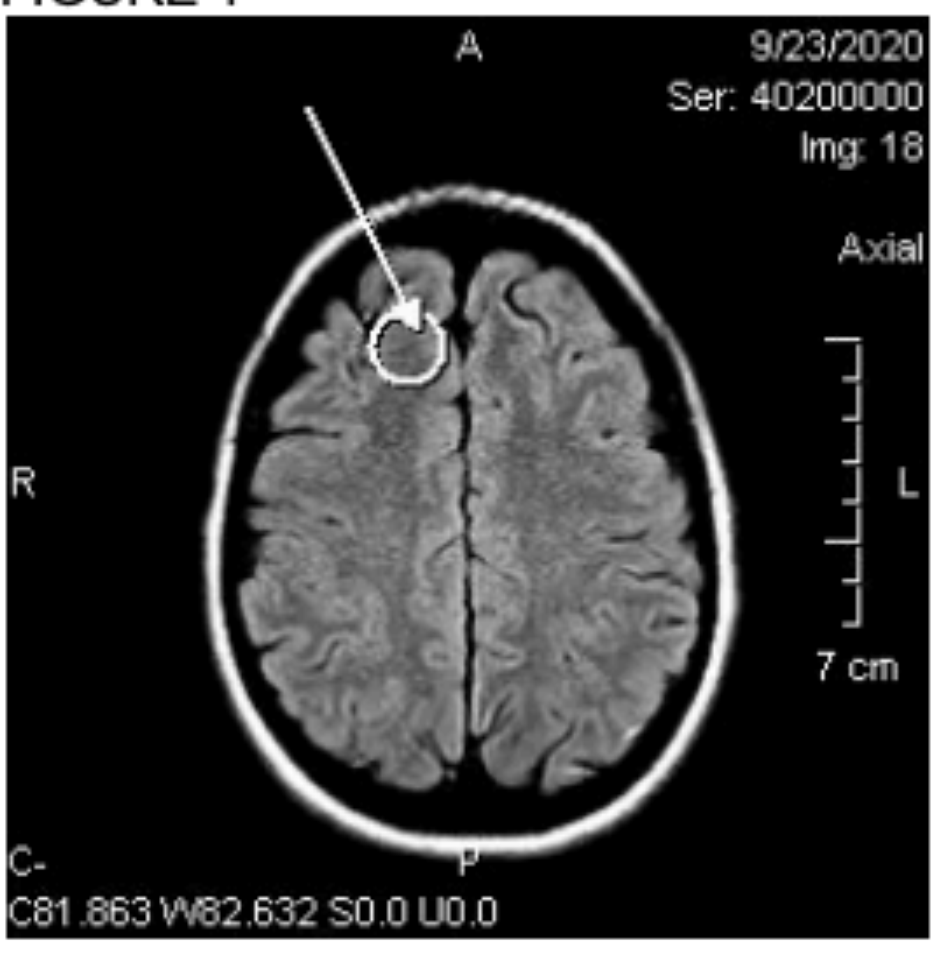

FIGURE 2

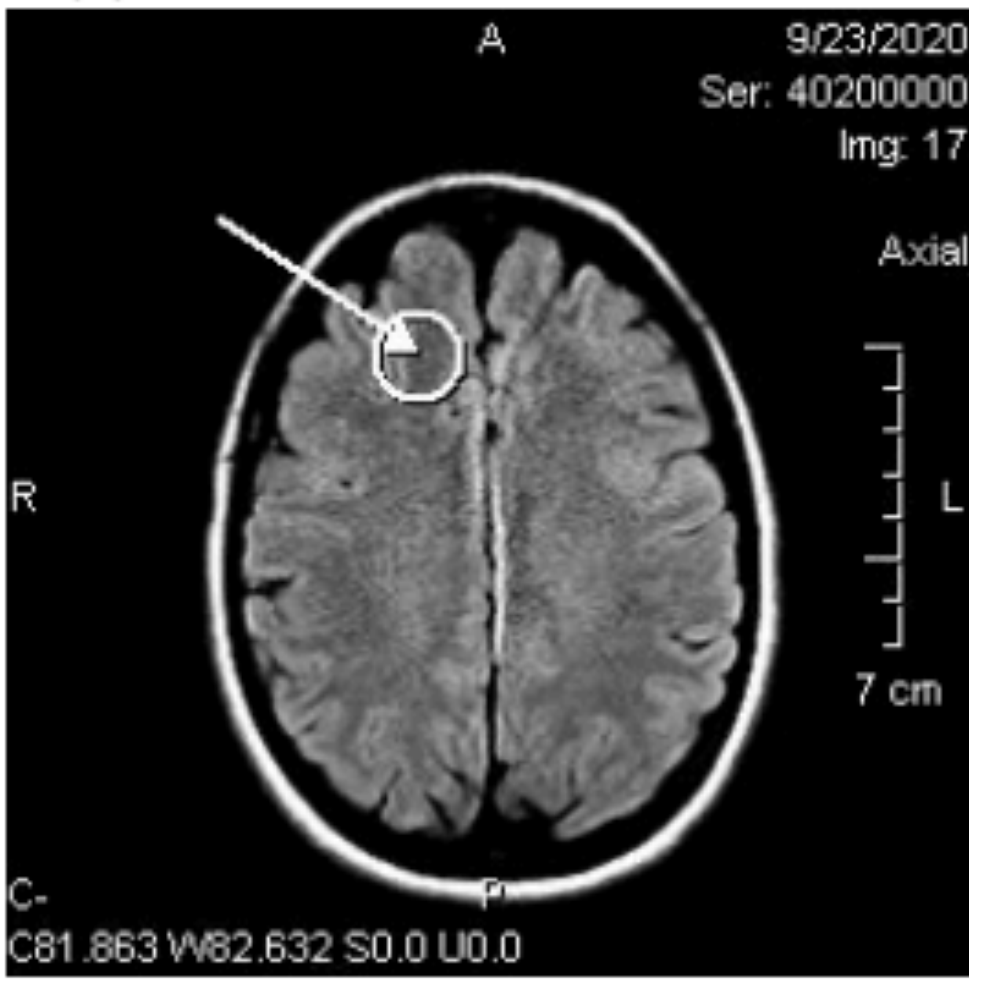

FIGURE 3