

America's Leader in the Diagnosis & Treatment of Traumatic Brain Injury ®

BRAIN W & W/O CONTRAST (TBI PROTOCOL)

HISTORY: Dizziness and headaches and loss of balance following a motor vehicle accident on 11/16/2017.

TECHNIQUE: Multisequence T1-weighted and T2-weighted images were obtained. DTI imaging, SWI imaging and NeuroQuant analysis was also performed. Contrast was given, 10 mL of Dotarem 0.5 mmol/ml was given IV.

FINDINGS: SUPRATENTORIAL STRUCTURES: There are multiple bright spots identified within the right and left frontal lobes, predominantly in the gray-white matter junction. While these white matter lesions are nonspecific, this is more than what is seen for this patient's age, and the pattern of involvement is consistent with findings of traumatic brain injury. Recommend clinical correlation to determine if this diagnosis is present in this patient.

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.

CONTRAST ENHANCEMENT: There is no evidence for abnormal enhancement on this examination.

PITUITARY AND SELLA: There is no evidence for mass.

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

SWI IMAGING: There are no signal abnormalities identified to suggest the presence of hemorrhage or blood products.

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NEUROQUANT ANALYSIS: Volumetric brain measurements were obtained and compared with the normal values for the patient's age. There is no evidence for atrophy at this time. The hippocampus size measurements are normal and they are as follows: Left side is 4.45 cubic centimeters (58 percentile), Right side is 4.56 cubic centimeters (57 percentile).

DTI IMAGING: There are visible reductions in fractional anisotropy which can be identified in the right and left frontal lobes which correspond with areas of abnormal signal identified on the standard MRI. Quantitative analysis was performed, and there are minimum fractional anisotropy levels that fall below the normal range in the anterior corpus callosum. This corresponds with the areas of abnormal signal on standard MRI. These findings are consistent with a diagnosis of traumatic brain injury. Recommend clinical correlation to determine if this diagnosis is present.

IMPRESSION:

1. There are multiple white matter lesions identified in both the right and left frontal lobes, predominantly in the gray-white matter junction. This finding is abnormal in a patient of this age. While these white matter lesions are nonspecific, differential considerations in a patient with this history include white matter lesions associated with traumatic brain injury. See Axial FLAIR Images 26/38, 29/38, and 30/38. Arrows are pointing to white spots in both the right and left frontal lobes. Note that these are in the region of the gray-white matter junction.
2. NeuroQuant analysis demonstrates no evidence for atrophy at this time. If the patient develops persistent or worsening symptoms, a follow-up MRI with NeuroQuant can be performed to determine if the patient is developing atrophic changes associated with traumatic brain injury.
3. DTI imaging demonstrates visible reductions in fractional anisotropy that correspond with the areas of abnormal signal identified on the standard MRI. In addition, quantitative analysis was performed, and there are minimum fractional anisotropy levels that fall below the normal range in the anterior corpus callosum, and this corresponds with the areas of abnormal signal identified on the standard MRI. These findings are consistent with a diagnosis of traumatic brain injury.
4. Recommend clinical correlation to determine if the diagnosis of traumatic brain injury is present in this patient with these findings.

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IMAGE 1:

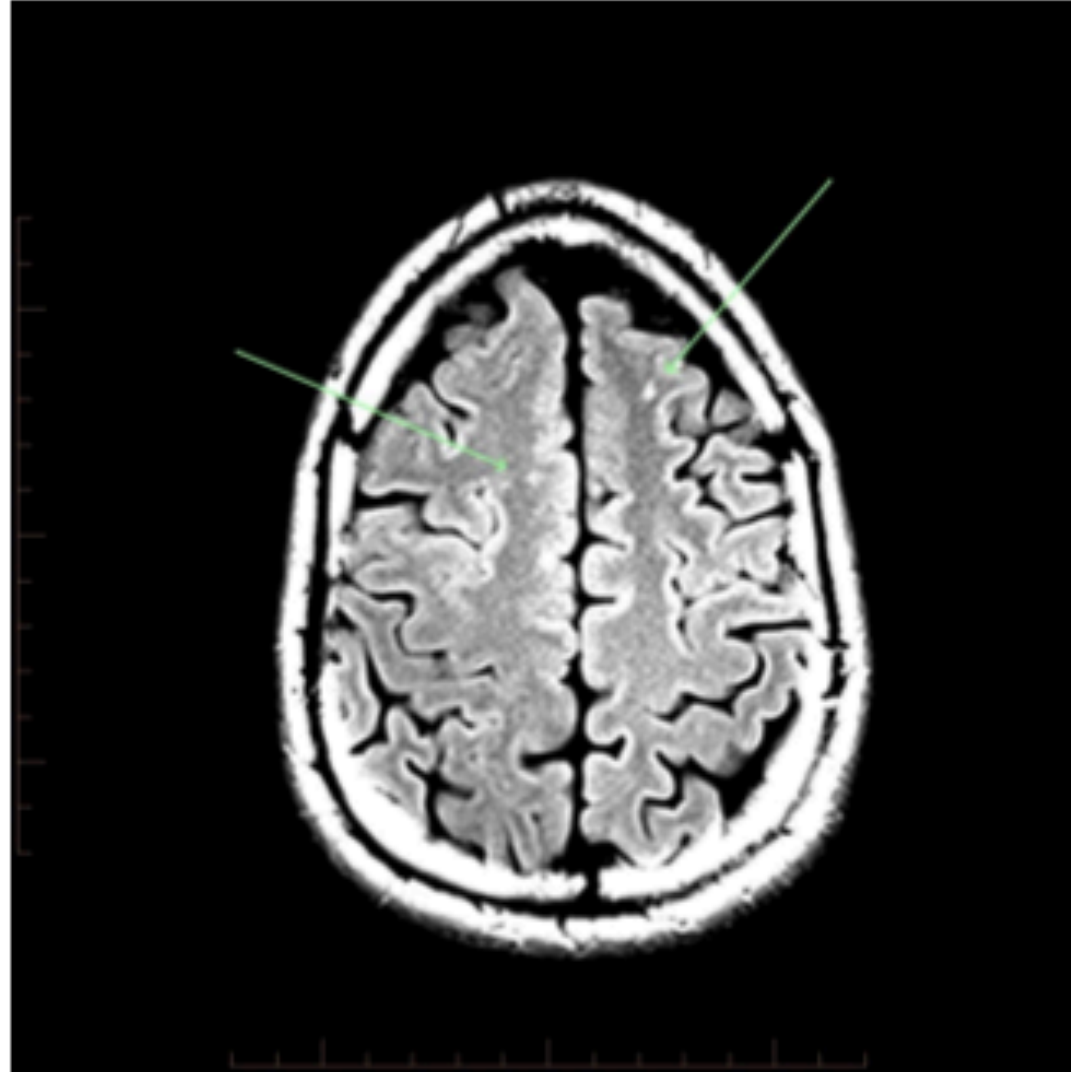


IMAGE 2:

