Colorado Springs Imaging

Patient Name: Bentley, Kenneth	Patient DOB: 05/28/1983
Date of Exam: 20230126	Referring Provider: ADAMS,LAURENCE J J MD
Study Description: MRI Head/Brain W / WO	MPI: HI4175824

EXAM: PRE- AND POST-CONTRAST MRI OF THE BRAIN WITH NEUROQUANT

INDICATIONS: Apparent ruptured arteriovenous malformation with hematoma, intracranial injury and subsequent disability.

COMPARISON: July 30, 2018.

TECHNIQUE: MRI evaluation was performed using the GE high field magnet utilizing T2-weighted, and T1-weighted pulse sequences with 1.2-3.0 mm section thicknesses. Images were generated in the axial, coronal, and sagittal planes. Very heavily T2-weighted FLAIR (fluid attenuated inversion recovery), susceptibility weighted (SWI, SWAN), and DWI (diffusion weighted) sequences were also performed. Optional sequences included: CUBE 3D FLAIR T2 brain and arterial spin labeling (ASL) non-contrast brain perfusion. The post contrast scans were obtained following the injection of 13 cc of Clariscan using a 3D T1-weighted STEALTH sequence.

FINDINGS: No acute disease is shown.

The exam is notable for signs of previous intracranial hemorrhage and surgery involving the superior right hemispheric convexity, with ex vacuo enlargement of the superolateral ventricle, leukoencephalomalacia and residual hemosiderin deposition in the area of injury. Comparison to the prior study shows no definite interval change.

ASL: Noncontrast cerebral perfusion shows no recurrent signs of arteriovenous malformation or hyperperfusion. There is hypoperfusion in the posterior right parietofrontal area affecting cortical gray matter and supraventricular cerebral white matter.

The post contrast scans show no abnormal parenchymal enhancement. Maximum intensity projection (MIP) processing shows no abnormal vessel enlargement.

The basal ganglia and thalami are within normal limits. The brainstem and cerebellum are normal. There is reduced cross-sectional area of the corpus callosum diffusely, most marked in the central body of the corpus callosum. The pituitary gland and adjacent areas are normal. The orbits are unremarkable. There is mild mucosal disease involving ethmoid sinuses. There are normal relationships at the craniovertebral and cervicomedullary junctions.

NeuroQuant: As indicated on the structural images, there is volume loss in multiple areas, primarily right hemisphere. Cerebral white matter on the left is at the 30th percentile, on the right = 1st percentile. Cortical gray matter left = 18th percentile, right = 5th percentile. Ventricular volumes on the left = 84th percentile, right = 99th percentile. Cerebellum and brainstem are normal. The right thalamus is normal. The left thalamus = 1st percentile. Basal ganglia are normal on the left. Right putamen, globus pallidus and

nucleus accumbens = 2nd percentile. Left cingulate gyrus = 2nd percentile.

nucleus accumbens = 2nd percentile. Left cingulate gyrus = 2nd percentile, right = 1st percentile. Total frontal lobe volume = 14th percentile, parietal lobe = 7th percentile, occipital lobe = 56th percentile and temporal lobes = 7th percentile. Limbic structures are normal. Medial and superior parietal gyri are at the 2nd percentile and fusiform gyri at the 4th percentile.

OPINION: Abnormal study, demonstrating:

1. There are broad areas of leukoencephalomalacia primarily affecting the right cerebral hemisphere, but with atrophy of the corpus callosum and ex vacuo right-sided ventriculomegaly. These injuries were apparently incurred by spontaneous intracranial hemorrhage/hematoma associated with AVM rupture.

2. There is reduced volume in the right thalamus, basal ganglia, cingulate gyri and several different supratentorial gyri. Subjectively, there is no definite interval change compared to the previous exam, and there are no signs of acute or subacute hemorrhage, ischemia or edema.

3. No evidence of acute or subacute hemorrhage, enhancement, edema, recurrent vascular malformation or other lesion.

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