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Adult-Onset Alexander Disease Uncovered in A Previously Healthy Patient Presenting with Acute Stroke-like Symptoms

Usaamah M. Khan
Virginia Commonwealth University

Matthew Barrett
Virginia Commonwealth University

Alex Dworetz DO
VCU Medical Center

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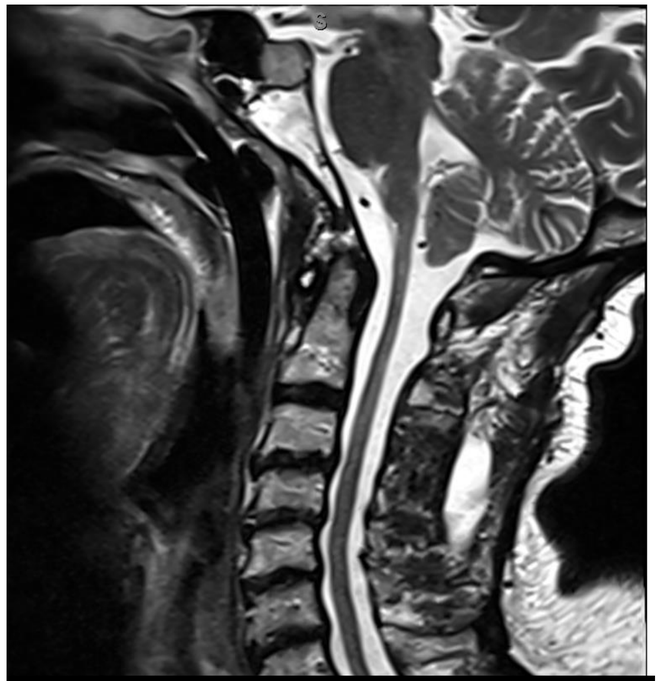
Usaamah M. Khan MD, Alex Dworetz DO, Matthew Barrett MD
Department of Neurology, Virginia Commonwealth University Health System

Introduction

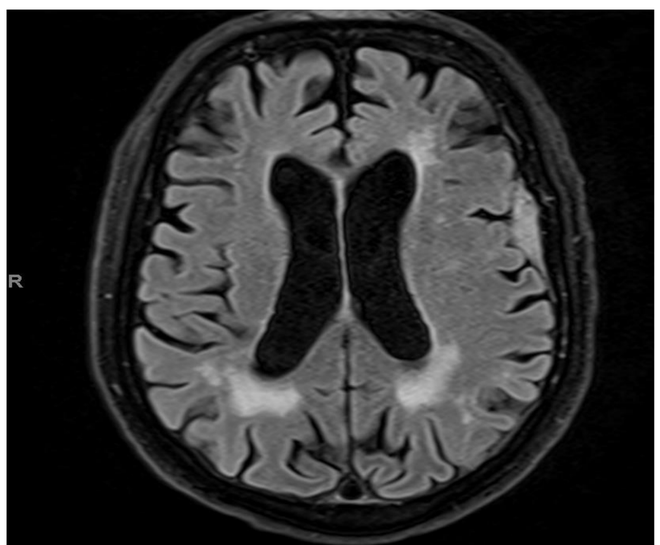
Alexander Disease is a rare, often fatal, leukoencephalopathy of early childhood associated with a heterozygous mutation of the glial fibrillary acid protein (GFAP) gene. Adult-Onset Alexander Disease (AOAD) is an exceptionally rare leukoencephalopathy that often presents with slowly progressive brainstem and cervical cord dysfunction features. Acute onset of AOAD has only ever been reported three times in the literature. We report a case of acute onset AOAD in a patient that presented with bulbar symptoms and left hemiplegia initially concerning for acute stroke.

Case Description

A previously healthy 75-year-old man without significant family history presented to the emergency department with acute-onset dysarthria and left hemiplegia. His brain and cervical spine MRI demonstrated no acute abnormality; however, it revealed marked atrophy of the cervicomedullary junction and symmetric T2 hyperintensity involving the posterior periventricular white matter (WM). Two days into his hospitalization, he rapidly progressed to quadriplegia and aphonia. His neurological examination was additionally remarkable for a nearly absent cough reflex. Neuroimaging was repeated and demonstrated no significant interval change.



MRI Cervical Spine T2 Sagittal view with evidence of cervico-medullary junction atrophy.



MRI Brain T2 FLAIR Axial view with periventricular white matter hyperintense changes

Diagnostic Work Up

Lab work including a Complete blood count, comprehensive metabolic panel, inflammatory markers including ESR, CRP and cerebrospinal fluid analysis were unremarkable. Considering his MRI findings, testing for glial fibrillary acidic protein (GFAP) mutation was sent and returned positive for GFAP gene mutation (c.382 G>A) which was diagnostic for Alexander's disease (AD).

Conclusion/Discussion

AOAD is an exceptionally rare leukodystrophy with features of slowly progressive spastic paraparesis, ataxia, and lower brainstem findings. Radiographic findings include upper cervical spinal cord and medulla atrophy and periventricular WM hyperintensities. Our patient presented with acute onset of symptoms which has only been reported in three patients in the literature. All three of those patients were diagnosed in the fourth decade of life. Unfortunately, there is no treatment and management is mostly supportive.

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