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Case Report

A Rare Case Report On Metachromatic Leukodystrophy Presenting With Regression of Milestone

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ABSTRACT

Background and Aims - MLD is a rare lysosomal storage disorder caused due to deficiency of Enzyme *"arylsulfatase A(ARS-A)"* It has three clinical subtypes- late infantile (onset before three years of age), juvenile (onset before 16 years) and adult. Case report: We report a case of 3-year-old male child born of consanguineous marriage, FTND cried spontaneously after birth. Baby had normal developmental progression till one and half years of age. At around 2 years of age baby had sudden onset regression of all milestones. Regression of motor milestone was observed at the earliest. It was associated with generalized tonic clonic seizures. Baby was admitted in ICU for stabilization. MRI Brain was suggestive of confluent t2/FLAIR hyperintensities with hypointense foci within (tigroid pattern) bilateral white matter with relative sparing of temporal lobes. Subtle hyperintensities are also seen in posterior limbs of bilateral internal capsules. ARSA gene mutation at Exon and MLC at exon 11 was detected in DNA test. Gradually baby lost the ability to walk, sit, crawl and roll over a period of last 6 months. Speech and language were also affected.

Conclusion: A three-year-old boy born of consanguineous marriage, manifesting with recurrent tonic-clonic seizures and regression of milestones with characteristic MRI finding and gene mapping is a variant of late infantile type of metachromatic leukodystrophy. Public awareness and education are must regarding consanguineous marriage so that manifestation of this rare disorder can be prevented.

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Introduction

MLD is a rare lysosomal storage disorder caused due to deficiency of Enzyme "arylsulfatase A(ARS-A)" It has three clinical subtypes- late infantile (onset before three years of age), juvenile (onset before 16 years) and adult [1]. The accumulation of sulfated glycolipids in myelin sheath, liver, gall bladder and kidney leads to organ failure. Clinical features of MLD include mental deterioration, hypotonia (low muscle tone), developmental delay, speech abnormalities, loss of mental abilities, blindness, rigidity, convulsions, impaired swallowing, paralysis, dementia, impaired school performance, ataxia, tremors, seizures and dementia [2].

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Case Presentation

We report a case of 3-year-old male child born of consanguineous marriage, FTND cried spontaneously after birth. Baby had normal developmental progression till one and half years of age. At around 2 years of age baby had sudden onset regression of all milestones. Regression of motor milestone was observed at the earliest. It was associated with generalized tonic clonic seizures. Baby was admitted in ICU for stabilization. Routine investigation was done along with MRI brain and genetic study.

MRI Brain was suggestive of confluent t2/FLAIR hyperintensities with hypointense foci within (tigroid pattern) bilateral white matter with relative sparing of temporal lobes. Subtle hyperintensities are also seen in posterior limbs of bilateral internal capsules.

ARSA gene mutation at Exon and MLC at exon 11 was detected in DNA test. Gradually baby lost the ability to walk, sit, crawl and roll over a period of last 6 months. Speech and language were also affected. Baby was continued on antiepileptics and tube feed. Baby started developing aspiration pneumonia due to oromotor dysfunction.

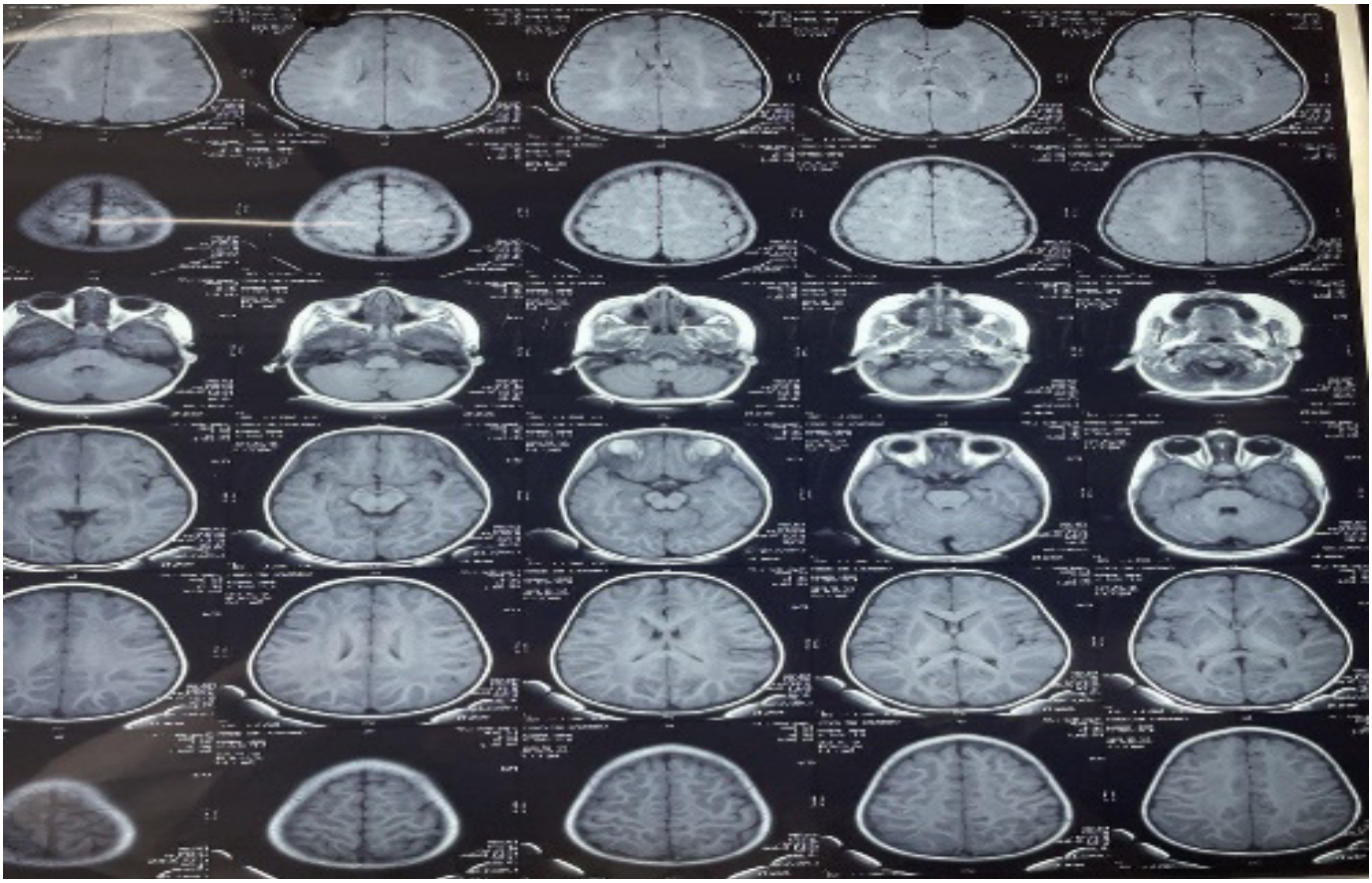

FIGURE: MRI brain suggestive of confluent t2/FLAIR hyperintensities with hypointense foci within (tigroid pattern) bilateral white matter with relative sparing of temporal lobe.

Discussion

The important diagnostic modalities used to confirm this degenerative disorder are arylsulfatase A enzyme activity, molecular genetic testing of arylsulfatase A, estimation of urinary sulfatide and detecting metachromatic lipid deposits in the nervous tissue. Gene sequence analysis of arylsulfatase A is an important tool for prenatal diagnosis[3]. As MLD progresses with age and the neurodegeneration worsens with time, there is no definitive treatment till date. To reduce the subject's symptoms and relieve pain, a number of medicines can be prescribed such as: muscle relaxants, seizure medications, psychiatric medications and analgesics. Physical therapy can be employed in order to keep joints flexible and maintain movement as much as possible. It helps to delay joint stiffness or contractures and reduce loss of function or pain that can result from contractures. Newer treatment modalities include stem cell transplantation, bone marrow transplantation along with genetic engineering and these might halt the progression of neurologic dysfunction[4]. Recombinant human ARSA administration, an experimental treatment can be a promising option in future, although it lacks universal recommendation and adaptation[5].Transplantation of boys with X-linked ALD using partial HLA-matched umbilical cord blood yields similar results to those previously reported after bone marrow transplantation. Superior outcomes were seen in neurologically asymptomatic boys less than 3.5 years of age at the time of transplantation[6].

Conclusion

A three-year-old boy born of consanguineous marriage, manifesting with recurrent tonic-clonic seizures and regression of milestones with characteristic MRI finding and gene mapping is a variant of late infantile type of metachromatic leukodystrophy. Public awareness and education are must regarding consanguineous marriage so that manifestation of this rare disorder can be prevented.

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Author's Contributions

The document's concept was developed by AD, who also worked on its writing and drafting. The editing was aided by RR. The manuscript was read and modified by DA and FA. The manuscript was edited and examined by RS and UM. DA contributed to the editing, and evaluation of the manuscript as well as the literature review. The final manuscript was read and approved by all writers.

Conflict Of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

Consent For Publication

Written informed consent was obtained from the patient for the publication of this case report.

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