CASE REPORT

A rare case of Palizaeus Merzbacher Disease in a female patient diagnosed radiologically

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Abstract

Pelizaeus Merzbacher's Disease is an inherited X-linked recessive trait. Males have the disease, while females are usually carriers. We report the case of a 6-years-old girl who had nystagmus since birth and later on developed head nodding. She started talking at one year and walking at 18 months. Then she developed regression of milestones, with speech impairment and inability to walk which progressively worsened. Before presenting she had a generalised seizure. Her parents were second cousins. Family history was unremarkable. On examination she was awake, alert, there was bilateral horizontal nystagmus. Cranial nerve examination was normal. There was spastic paraparesis with bilateral extensor plantar response. Magnetic resonance imaging of the brain showed classical features of diffuse hypomyelination characteristic of Pelizaeus Merzbacher's Disease for this age group.

Keywords: Pelizaeus Merzbacher's disease, Age group.

Introduction

Pelizaeus Merzbacher's Disease (PMD), also called leukodystrophy hypomyelinating 1 (HDL1) is an inherited allelic leukodystrophy caused by mutations of the proteolipid protein 1 gene (PLP1). PMD is inherited as an X-linked recessive trait. Males with PLP1 mutations have the disease, while females are usually unaffected carriers.[1]

Case Report

We report the case of a six-years-old girl, born in hospital at full term through spontaneous vaginal delivery. She cried well soon after birth and no cyanosis or jaundice was observed at that time. The patient had nystagmus since birth and later on developed head nodding. She had normal attainment of milestones initially with suckling, neck holding, social smile at proper ages etc. She started uttering one or two words at one year of age and started to walk at 18 months. Thereon the milestones started regressing, with speech impairment and inability to walk that progressively worsened, leaving her bedridden for the preceding two years. Before presenting to our clinic she had a generalised seizure. Her parents were second cousins and it was a consanguineous marriage. She had 5 siblings. All were alive and healthy. Family history was unremarkable for any major illnesses. On examination she was awake and was following commands. Pupils were bilaterally equal and reactive. Spontaneous nystagmus was present bilaterally in horizontal direction. Cranial nerve examination was normal. There was spastic paraparesis with bilateral up-going plantars. Magnetic resonance imaging (MRI) of the brain had classical features of diffuse hypomyelination which is characteristic of PMD for this age group. Electroencephalography (EEG) showed mild encephalopathy.

Discussion

PMD is an X-linked leukodystrophy, leading to hypomyelination of the brain and spinal cord. It is seen rarely in clinical practice and still rarer in females. Its clinical features were initially highlighted by Pelizaeus in 1885 and later on in 1910 Merzbacher described a family with this genetic disease with details of pathological features.[1]

Our patient was female and was yet hit by PMD even though mutations of deletion can rarely cause disease in females. The reason for it could be that patients with PMD1 have homozygous or compound heterozygous mutations

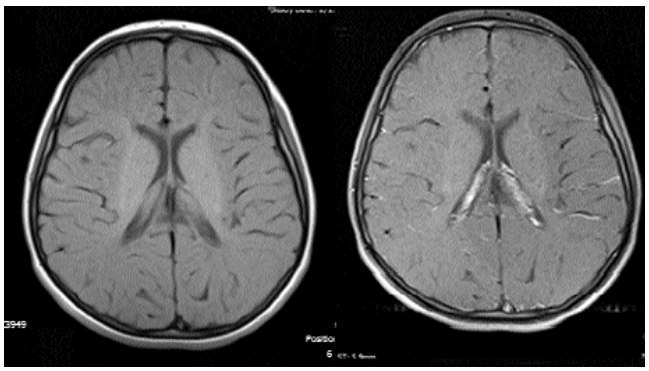

Figure-1: T1 weighted image T1 with contrast.

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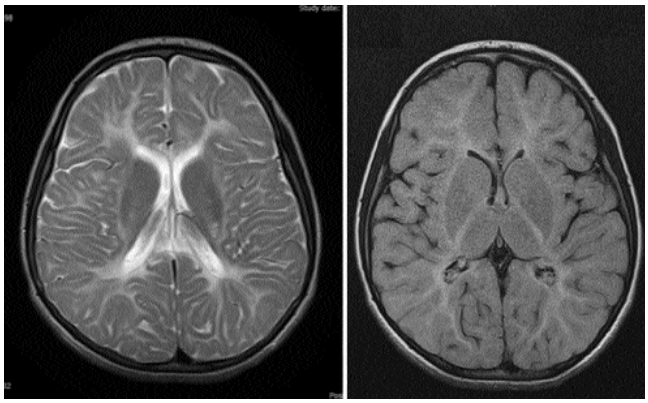

Figure-2: T2 weighted image FLAIR image.

and can affect both males and females equally.[2]

It is a slowly progressive disease leading to death in the first decade or early adult life. There are point mutations in PLP1 gene at the region of X q21-22,[3] leading to micro-deletion or duplication of the aminoacids involved in the formation of oligodendrocytes required for myelination of the brain and spinal cord.

There are at least two other case reports of PMD in female patients from Japan in 1996[4] and Israel in 2009.[5]

It can be misdiagnosed as cerebral palsy in clinical practice, bur MRI brain shows the classical hypomyelination typical of the disease (Figure-1 and 2). Furthermore, Brainstem Auditory Evoked Potentials (BAEP) and Somatosensory Evoked Potentials (SSEP) remain abnormal throughout the course of the disease. Visual Evoked Potentials are inconsistent.

Respiratory distress and stridor is common and important cause of morbidity/mortality in more severe forms of PMD.[6]

The white matter is isointense on T1-weighted image, non-enhancing on gadolinium contrast. T2-weighted and fluid attenuation inversion recovery (FLAIR) images show diffuse hyper-intense signals in the whole distribution of white matter, called diffuse hypomelination, characteristic of PMD.

Conclusion

PMD is an X-linked recessive leukodystrophy that should be suspected in children with regression of milestones.

References

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