ABSTRACT

Leukodystrophies are white matter disorders that are genetic in nature. In the young, they represent an important cause of progressive neurological disability. They are frequently diagnosed on MRI, but their identification remains a challenge. Their diagnosis is important for palliative and experimental treatment, as well as family screening. We report a case of 14 yr old male child who presented to us with fever and status epilepticus. MRI revealed leukodystrophy. Patient’s family opted for palliative and home based care once the natural history and prognosis was explained to them. At the time of discharge patients seizures were controlled with phenytoin, phenobarbitone, sodium valproate and midazolam.

KEYWORDS: Leukodystrophy

INTRODUCTION

Leukodystrophies are genetic diseases with degeneration of myelin sheaths in the central nervous system and sometimes the peripheral nerves. Their basic defect is directly related to the synthesis and maintenance of myelin membranes. Inherited leukodystrophies are diseases of the myelin, including abnormal myelin development, hypomyelination, or degeneration of myelin. (1, 2) Leukodystrophies are distinguished from the more general term leukoencephalopathy, used to describe any disease of white matter, including also acquired or toxic diseases of white matter. (2) Recognition of leukodystrophies has been revolutionized by MRI technology, because of its increased sensitivity compared to CT, and because of its ability in some cases to reveal disease-specific features that can lead to a diagnosis. (3, 4)

Most leukodystrophies manifest themselves during childhood or adolescence, are incurable, have a progressive nature leading to premature death. Diagnosis requires amalgamation of history, clinical features and MRI features.

History reveals delayed milestones, cognitive impairment and seizures. Clinically spasticity and ataxia may be seen. Certain clinical features are specific for certain conditions such as macrocephaly seen in Alexander’s disease and Canavan disease. (6)

Disappointingly, however, in almost half of leukodystrophy patients a final diagnosis cannot be determined. (2) Treatment options for leukodystrophies are limited, and exist chiefly for X-linked adrenoleukodystrophy, metachromatic leukodystrophy, Krabbe disease, and some lysosomal diseases. (1, 2) Characterization and treatment of leukodystrophies has been hampered by the failure to diagnose many patients, a lack of clinical outcomes data (such as morbidities and mortality), and no data on overall incidence or relative frequencies of different leukodystrophies. Incidence has been estimated in a very broad range, from 1:5,000 to 2:100,000 live births. (9)
CASE REPORT

14 yr old male child born to nonconsanginous parents had an uneventful birth and post natal history. He had normal development and growth. He was studying in school with average grades. He had history of seizures associated with fever 1 yr back. These were generalized tonic clonic seizures which lasted for 10 min. Patient was drowsy and given some local therapy. Thereafter he was normal with no history suggestive of any cognitive or intellectual impairment till the time of presentation. Child did not have any walking or gait disturbances.

He presented to us with high grade fever with status epilepticus. On general examination head circumference was 50 cm on 50th centile. There were no neurocutaneous markers. Systemic examination was unremarkable.

Central nervous system examination revealed increased tone in all four limbs, brisk reflexes, extensor plantars and absence of meningeal signs.

Routine investigations and CSF study were normal. Ophthalmic review was normal. MRI showed T2 hyperintense signal in bilateral frontal white matter with diffuse restriction in deep white matter in the sub cortical location suggestive of leukodystrophy.

Child was started on injection phenytoin, phenobarbitone, valproate and inj midazolam. His seizures were controlled with these. Prognosis, natural history and treatment options were discussed with parents. They opted for home based supportive therapy.

DISCUSSION

In recent years use of MRI techniques has helped to characterize several new forms of white matter disease in children. (6). A pattern of recognition program was used to identify cases of common features among the unclassified leukodystrophies in which 7 major categories could be distinguished. 2 new categories were described viz, megalencephalic leukoencephalopathy with cysts and vanishing white matter disease . (6,7). Demelinating leukodystrophies are seen in the form of prominent hyperintensity of the white matter in T2 weighted images and prominent hypointensity in T1 weighted images compared to gray matter structures.

Neurological features consist of progressive motor symptoms mostly spasticity, cognitive and language changes. Peripheral nerve involvement is present in certain forms such as megalencephalic leukoencephalopathy, globoid cell leudodystrophy, and some hypomyelinating disorders. Early and recalcitrant seizures are rare. Some clinical features such as macrocephaly are seen in Alexander’s disease, canavan disease. (5,7). Rare presentations include inattention and behaviour problems. (8). Adolescent and adult forms are usually characterized by cognitive and psychiatric manifestations, while motor symptoms are rare.

Therapy is still experimental and includes supportive care, bone marrow transplantation and stem cell therapy.

Our patient had leukodystrophy presenting as fever with status epilepticus with no history of cognitive or behavioural change which has so far not been reported.

Limitation of our study was that further work-up could not be done as parents opted for home based supportive therapy.

CONCLUSION

Our patient had a distinct phenotype which adds to the varied clinical spectrum of leukodystrophy in children.
REFERENCES.