Van der Knaap Disease: Megalencephalic Leukoencephalopathy with Subcortical Cysts

Sir,

Van der Knaap Disease is a slowly-progressive neurodegenerative disorder. It is characterized by infantile onset macrocephaly, cerebral leukoencephalopathy and mild neurological symptoms.[1] This condition has been reported in patients from the Agarwal community in India. Gorospe *et al*. carried out detailed genetic analysis of these patients and identified a common locus on the MLC1 gene.[2] A 27-year-old male born from a nonconsanguineous marriage in a Sikh community in Haryana, India had experienced a history of seizures and ataxia since the age of eight. His seizures were well controlled by a single antiepileptic drug. His magnetic resonance imaging (MRI) brain showed T2-hyperintensities with well-defined cystic lesions in the bilateral anterior temporal lobes [Figure 1]. These MRI features are consistent with van de Knaap syndrome.[3] Differential diagnosis of MLC includes inborn errors of metabolism, especially those responsible for megaloencephalopathy with or without white matter disease, for example, Alexander leukodystrophy (AL), Canavan disease (CD), and glutaric aciduria Type 1 (GA1). MRI findings can be helpful in differentiating these diseases from van der Knaap syndrome. AL is anterior predominant and has diffused white matter abnormalities, and a magnetic resonance spectroscopy will reveal that CD shows diffused subcortical signal abnormalities with the involvement of globus pallidus and thalamus and increased N-acetyl aspartate (NAA).[4,5] Furthermore, AL and CD can be confirmed by screening for glial fibrillary acid protein gene mutation and aspartoacylase gene mutation, respectively. NAA levels in cerebrospinal fluid can be useful in confirming CD.[5] Activity of glutaryl-CoA dehydrogenase (GCDH) in fibroblast and GCDH gene mutation analysis are used to rule out GA1. Another close differential diagnosis of MLC is merosin deficient congenital muscular dystrophy, which can be excluded by the absence of muscle weakness and normal serum creatine phosphokinase levels.

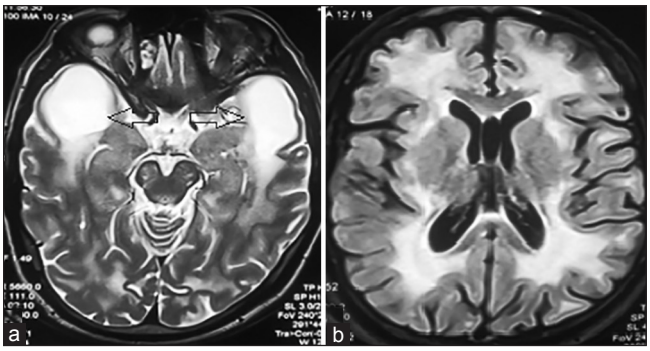

Figure 1: Magnetic resonance imaging brain (a and b) Axial T1weighted and T2-weighted images show subcortical cysts (arrows) in the bilateral anterior temporal lobes.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Ankush Sharma, Munish Gupta, Nitin Gupta, Akash Garg

Department of Neurology, Maharishi Markandeshwar Institute of Medical Sciences and Research, Mullana (Ambala), Haryana, India

Correspondence: Dr. Ankush Sharma,
Department of Neurology, Maharishi Markandeshwar Institute of Medical Sciences and Research,
Mullana (Ambala) - 133 207, Haryana India.
E-mail: drankushsharma@gmail.com

REFERENCES

1. van der Knaap MS, Barth PG, Stroink H, van Nieuwenhuizen O, Arts WF, Hoogenraad F, *et al.* Leukoencephalopathy with swelling and a discrepantly mild clinical course in eight children. Ann Neurol 1995;37:324-34.
2. Gorospe JR, Singhal BS, Kainu T, Wu F, Stephan D, Trent J, *et al.* Indian Agarwal megalencephalic leukodystrophy with cysts is caused by a common MLC1 mutation. Neurology 2004;62:878-82.
3. Schiffmann R, van der Knaap MS. Invited article: An MRI-based approach to the diagnosis of white matter disorders. Neurology 2009;72:750-9.
4. Marks HG, Caro PA, Wang ZY, Detre JA, Bogdan AR, Gusnard DA, *et al.* Use of computed tomography, magnetic resonance imaging, and localized 1H magnetic resonance spectroscopy in Canavan's disease: A case report. Ann Neurol 1991;30:106-10.
5. Costello DJ, Eichler AF, Eichler FS. Leukodystrophies: Classification, diagnosis, and treatment. Neurologist 2009;15: 319-28.

Access this article online	
Quick Response Code:	Website: www.sjmms.net
	DOI: 10.4103/1658-631X.188256

How to cite this article: Sharma A, Gupta M, Gupta N, Garg A. Van der knaap disease: Megalencephalic leukoencephalopathy with subcortical cysts. Saudi J Med Med Sci 2016;4:238-9.