
# Diagnostic flowcharts for Leukodystrophies

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# Introduction to the European Reference Network for Rare Neurological Diseases (ERN-RND):

ERN-RND is a European Reference Network established and approved by the European Union. ERN-RND is a healthcare infrastructure which focuses on rare neurological diseases (RND). The three main pillars of ERN-RND are (i) network of experts and expertise centres, (ii) generation, pooling and dissemination of RND knowledge, and (iii) implementation of e-health to allow the expertise to travel instead of patients and families.

ERN-RND unites 32 of Europe's leading expert centres in 13 Member States and includes highly active patient organizations. Centres are located in Belgium, Bulgaria, Czech Republic, France, Germany, Hungary, Italy, Lithuania, Netherlands, Poland, Slovenia, Spain and the UK.

The following disease groups are covered by ERN-RND:

- Ataxias and Hereditary Spastic Paraplegias
- Atypical Parkinsonism and genetic Parkinsons' Disease
- Dystonia, Paroxysmal Disorder and Neurodegeneration with Brain Ion Accumulation
- Frontotemporal Dementia
- Huntingtons' Disease and other Choreas
- Leukodystrophies

Specific information about the network, the expert centres and the diseases covered can be found at the networks web site www.ern-rnd.eu.

## Recommendation for clinical use:

**The European Reference Network for Rare Neurological Diseases developed the Diagnostic Flowcharts for Leukodystrophies to help guide the diagnosis of Leukodystrophy patients. The Reference Network recommends the use of these Diagnostic Flowcharts.**

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# METHODOLOGY

The development of the Diagnostic Flowcharts for Dystonia was done by the Disease group for Leukodystrophies of ERN-RND.

## Disease group for Leukodystrophies:

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# Flowchart development process:

- Development of flowcharts – June 2017– June 2018
- Discussion/Revision in ERN-RND disease group during ERN-RND annual meeting 2018 – 08/06/2018
- Consent on document by whole disease group – 02/10/2018

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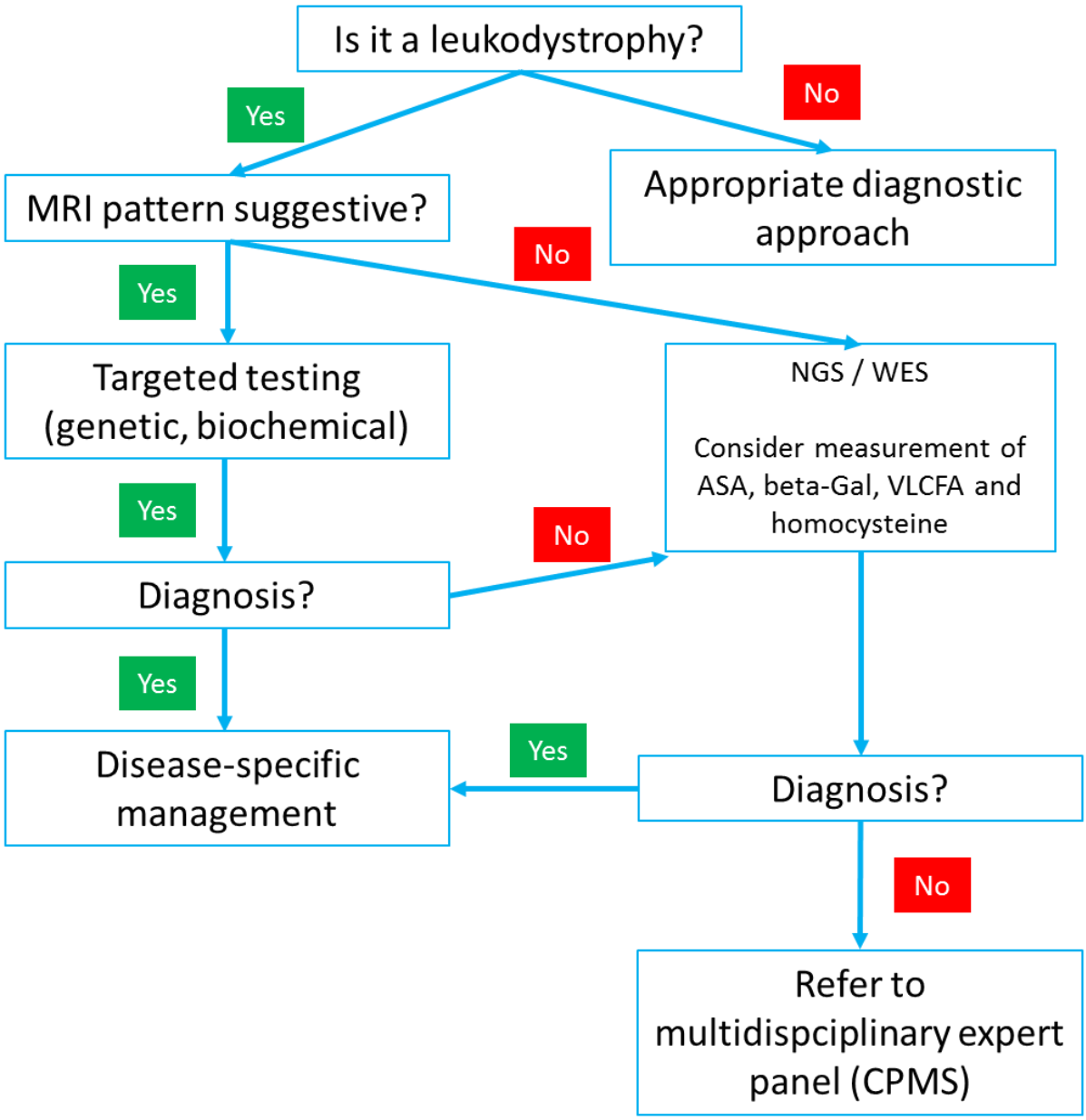
# Diagnostic flowchart for Leukodystrophies

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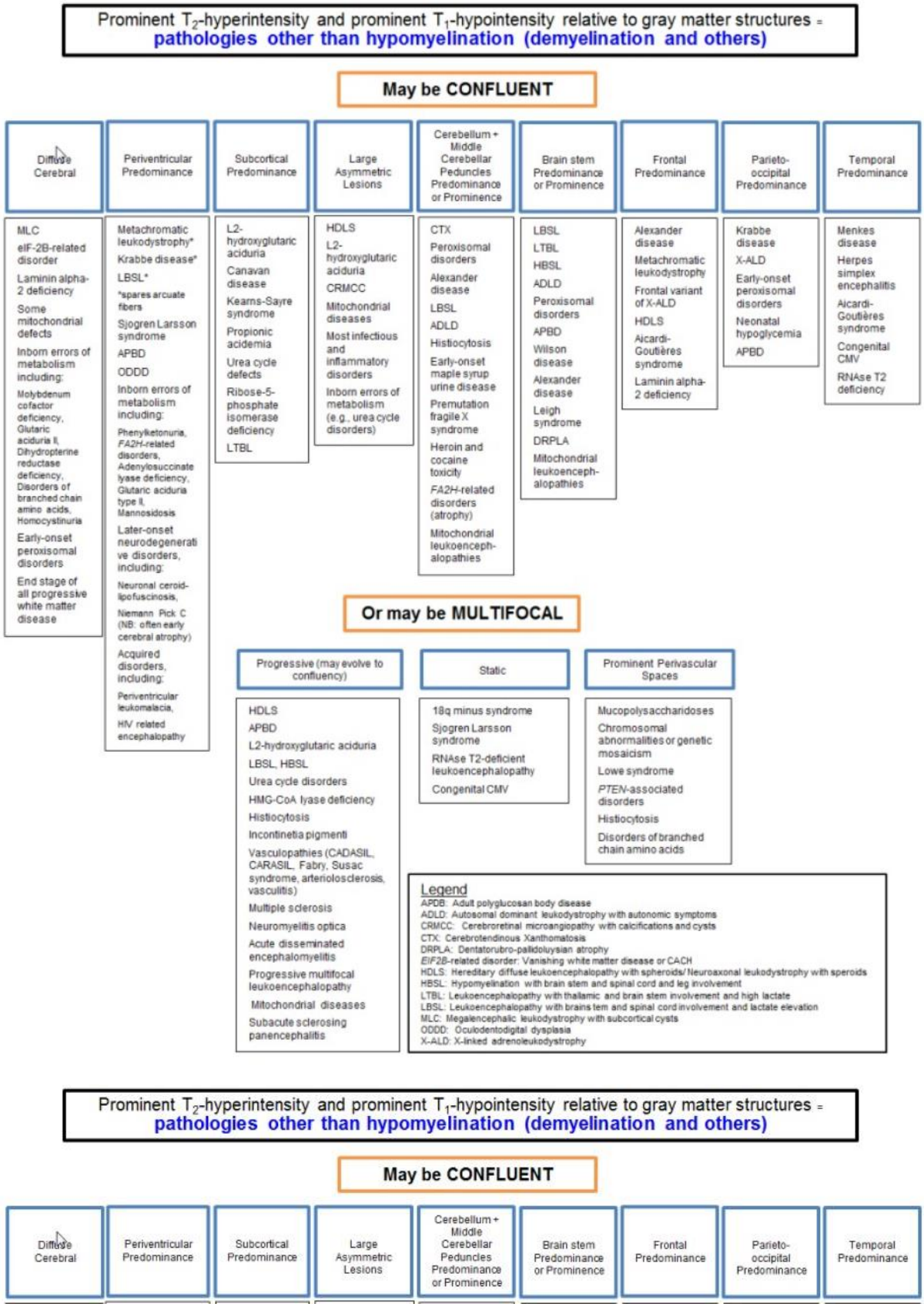
# A guide to pattern recognition in leukodystrophies

(adapted from Schiffmann and van der Knaap 2009)

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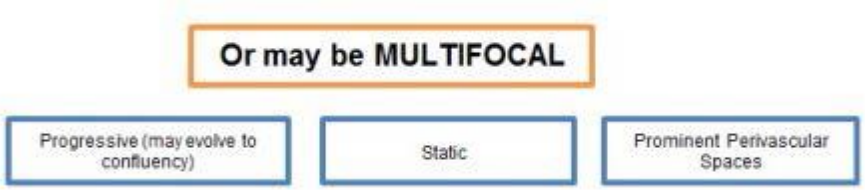


## Some of the differences with the original diagnostic flowchart by Schiffmann et al. include the following:

| ERN-RND flowchart | Schiffmann, van der Knaap flowchart |
|---|---|
| „may be“ confluent or “may be” multifocal | Confluent or multifocal |
| May be confluent: large asymmetric lesions | NA |
| May be confluent: temporal predominance | NA |
| “may be multifocal” , 3 sub-categories: progressive, static and prominent perivascular spaces | Multifocal, no sub-categories |
| NA | Hypomyelination: typical PNS involvement or no typical PNS involvement |

## References:

Schiffmann R, van der Knaap MS (2009) An MRI-based approach to the diagnosis of white matter disorders, Neurology 72(8): 750–759.

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# ABBREVIATIONS

ADP6: adult polyglucosan body disease

ADLD: autosomal dominant leukodystrophy with autonomic symptoms

CRMCC: cerebroretinal microangiopathy w/calcifications & cysts

CTX: cerebrotendinous xanthomatosis

DRPLA: dentatorubropallidoluysian atrophy

ElF2B-related disorder: vanishing white matter disease or CACH

HDLS: hereditary diffuse leukoencephalopathy with spheroids

HBSL: hypomyelination with brainstem and spinal cord involvement and leg spasticity

LTBL: leukoencephalopathy with thalamus and brainstem involvement and high lactate

LBSL: leukoencephalopathy with brainstem and spinal cord involvement and lactate elevation

MLC: megalencephalic Leukoencephalopathy with subcortical cysts

ODDD: oculodentodigital dysplasia

X-ALD: x-linked adrenoleukodystrophy

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