



Letter to the Editor

Zebra sign specific to ALS or not



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Dear Editor,

We read with great interest the article by Sugiyama et al. [1] entitled “Exploring the frequency and clinical background of the ‘zebra sign’ in amyotrophic lateral sclerosis and multiple system atrophy” published recently in Journal of Neurological Sciences. We are grateful to authors for their contribution to the scientific community and we appreciate their efforts to investigate that ‘Zebra Sign’ is not specific to Amyotrophic Lateral Sclerosis (ALS), but may also be present in Multiple System Atrophy (MSA).

The use of Phase Enhanced Difference (PADRE) is superior to the SWI method because it shows not only the content of iron but also the content of myelin. PADRE uses 3T MRI to detect iron deposition. It can find the anatomical structure with better target and surrounding tissue phase differentiation, which is not well addressed on conventional MRI. It is therefore helpful to diagnose neurodegenerative processes at early stages [2]. ‘ZEBRA SIGN’ on PADRE is formed in the Precentral Gyrus due to a reduced myelin concentration and may reflect iron deposition. In all neurodegenerative diseases such as Alzheimer’s disease (AD), Parkinson’s disease, multiple sclerosis (MS) and amyotrophic lateral sclerosis associated with excessive iron accumulation, this Zebra Sign may be present [3].

The study by Tateishi et al. [4] concluded that when comparing AD patients with age control group and PADRE images were taken on a 3T MR scanner, significant hypointensity in superior temporal gyrus is noted in AD patients compared to controls. The study by Du Et al [5] compared 30 MS patients with 30 controls by undergoing conventional MRI and it is measured that iron deposition in the MS group was increased compared to control. Similarly, Adachi et al. [6] studied 23 ALS patients with 28 age-matched control by using MRI, SWI and T2 weighted images. In the motor cortex of ALS patients, decreased intensity and increased deposition of iron were found.

Therefore, we believe that “Zebra sign” is not only to distinguish ALS patients with MSA, but it can be an early hallmark of all neurodegenerative diseases and can help to diagnose neurodegeneration at early stages. In the future, it would be more helpful to use PADRE as a

diagnostic or screening tool to diagnose iron deposition and decrease myelin. To justify this idea, more studies and trials are needed.

Conflict of interests

All authors do not show any conflict of interest.

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