BRITISH JOURNAL OF HOSPITAL MEDICINE

Lumbosacral magnetic resonance imaging findings in early Guillain–Barré syndrome

José Berciano[1]

Author details can be found at the end of this article

Correspondence to:
José Berciano;
joseberciano51@hotmail.com

Sir,

I read with great interest He et al's (https://doi.org/10.12968/hmed.2022.0508) description of early lumbosacral magnetic resonance imaging findings in a 2-year-old boy with Guillain–Barré syndrome. In that article, the authors stated that in Figure 1b (shown below for reference) 'axial postgadolinium T1-weighted magnetic resonance imaging revealed enhancement in the cauda equina root and bilateral nerve root (white arrows)'. An alternative interpretation is that the structures indicated by the arrows correspond to extradural spinal ganglia. I would like to make a brief pathophysiological comment.

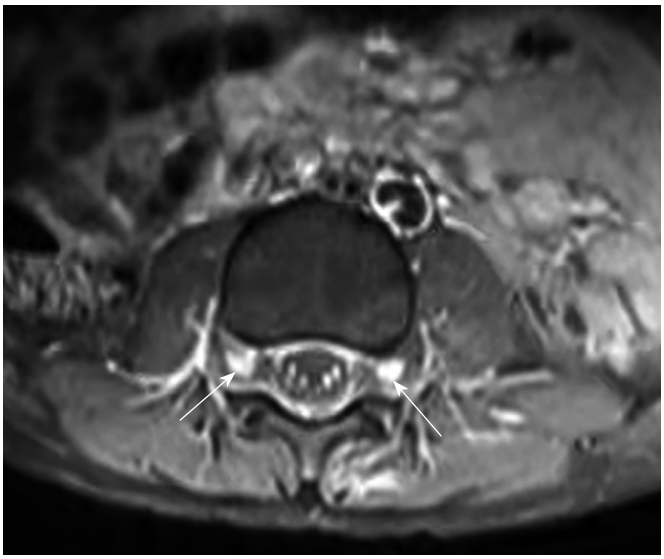

Figure 1b. Axial post-gadolinium T1-weighted [magnetic resonance imaging] reveal enhancement in the cauda equina root and bilateral nerve root (white arrows). From He et al (https://doi.org/10.12968/hmed.2022.0508).

In early Guillain–Barré syndrome, inflammatory oedema is the most pathogenic lesion (Berciano, 2021). The peripheral nervous system has a blood–nerve barrier that restricts the passage of soluble mediators and cells from the bloodstream into the endoneurium (Kanda, 2013). Endoneurial capillaries are continuous, with endothelial cells sealed by tight junctions; only the spinal ganglia present fenestrated capillaries. In classic experimental studies of vascular permeability in the peripheral nervous system, using albumin labelled with fluorescein isothiocyanate, the following topographic differences were observed (Olsson, 1968): (a) the ventral and dorsal spinal roots presented positive fluorescence, both within blood vessels and the interstitium of the fibres, (b) extravascular fluorescence was very intense in the spinal ganglia, and (c) in the peripheral nerve trunks, fluorescence was only visible in the vascular lumen. These features correlate well with the predominance of lesions in proximal nerve trunks (Berciano et al, 2017).

The image showing extensive enhancement of spinal ganglia correlates well with the reduced efficiency of the blood–nerve barrier. This might be a red flag for diagnosis of early Guillain–Barré syndrome.

How to cite this article:
Berciano J. Lumbosacral magnetic resonance imaging findings in early Guillain–Barré syndrome. Br J Hosp Med. 2023. https://doi.org/10.12968/hmed.2023.0233

Author details

[1]University of Cantabria, University Hospital 'Marqués de Valdecilla (IDIVAL)' and 'Centro de Investigación Biomédica en Red de Enfermedades Neurodegenerativas (CIBERNED)', Santander, Spain

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