Nerve ultrasound and 3D-MR neurography suggestive of intraneural perineurioma

Figure Multimodal diagnostic approach to perineurioma

Right sciatic nerve: enlargement (cross-sectional area 35 mm²) revealed by ultrasound (US) and surgical inspection (A–C); increased signal intensity on 3D-magnetic resonance (MR) neurography, reformatted coronal maximum intensity projection view (B). Cross-sectional area left sciatic nerve: 14 mm². Left radial nerve: US showed cross-sectional area enlargement 40 mm² (normal values ≤ 8 mm²), 6 cm long and 4.4–4.8 mm wide (D–E); MR neurography, coronal oblique postcontrast T1 fatsat (F): enhancement and fusiform enlargement.

An 8-year-old girl presented with progressive painless right peroneal and tibial nerve palsy. A 20-year-old woman had insidious weakness of the left wrist and fingers extension. Both underwent neurophysiology (tables e-1 through e-4 on the *Neurology*[®] Web site at Neurology.org) and nerve ultrasound that showed enlargement of sciatic (figure, A) and radial nerve (figure, D–E). A 3D-magnetic resonance (MR) neurography examination detected a 20-cm-long uniform enlargement of sciatic nerve (figure, B) and a 6-cm-long fusiform enlargement of radial nerve (figure, F) with mild hyperintensity and marked contrast enhancement, suggesting intraneural perineurioma.^{1,2}

Both had surgical exploration but not biopsy: the macroscopic and imaging appearance (figure, C), texture, and clinical history (young age, progressive motor symptoms) strongly suggested the diagnosis intraoperatively.³

Intraneural perineurioma is a rare benign nerve tumor presenting in youth. MR neurography aids the diagnosis, possibly avoiding nerve biopsy when there are typical MR features.

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**Supplemental data
at Neurology.org**

Author contributions: Alessandro Salvalaggio and Chiara Briani are the neurologists in charge of patient 1 and wrote the draft of the manuscript. Mario Cacciavillani is the neurologist who performed the neurophysiologic/EMG as well as nerve ultrasound evaluation of patient 1. Daniele Coraci and Carmen Erra are the physicians in charge of patient 2 and performed the neurophysiologic/EMG study. Luca Padua is the neurologist who performed the nerve ultrasound evaluation of patient 2. Roberto Gasparotti performed MR neurography on both patients. Stefano Ferraresi performed surgical exploration in both patients. All the authors helped in the analysis and interpretation of data. All the authors read and approved the final version of the manuscript.

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