INTRODUCTION

Imaging of peripheral nerves

Kimberly K. Amrami, MD,¹ Michel Kliot, MD,² Martijn J. A. Malessy, MD, PhD,³ and Robert J. Spinner, MD⁴

Departments of ¹Radiology and ⁴Neurosurgery, Mayo Clinic, Rochester, Minnesota; ²Department of Neurosurgery, Northwestern University Feinberg School of Medicine, Chicago, Illinois; and ³Department of Neurosurgery, Leiden University Medical Center, Leiden, The Netherlands

Although imaging of peripheral nerves may not answer every question, it has become an important extension of the peripheral nerve physical examination. Imaging technology has had an enormous impact on the evaluation and management of patients with a wide range of neurological disorders. X-ray–based approaches such as CT scanning revolutionized the treatment of cranial and spinal pathologies. MRI and ultrasound further enhanced imaging of soft tissues to the point where peripheral nerves and associated pathologies could be visualized. It has now become the standard of care to evaluate almost all peripheral nerve problems, other than the most straightforward entrapment neuropathy, such as carpal or cubital tunnel syndrome, by using a high-resolution imaging technique.

Advances are being made at an increasing rate; new platforms such as ultra–high field imaging (7-T), MRI-PET hybrid imaging, and sophisticated ultrasound will allow visualization never before possible in vivo. Through collaboration, surgeons, clinicians, radiologists, and imaging scientists with dedicated interest and expertise in the area of peripheral nerves will improve patient care by

taking advantage of innovative, noninvasive approaches to imaging. As we all gain experience and excitement with existing techniques and technologies, we will look for opportunities for new applications and novel uses of evolving tools for treatment. In addition to improving the quality of clinical care, high-resolution, multimodality imaging of nerves is also advancing the frontiers of our understanding of their pathophysiology.

This edition of *Neurosurgical Focus* illustrates the utility and potential of various imaging modalities used preoperatively, intraoperatively, and postoperatively to diagnose and treat a very wide range of peripheral nerve problems including simple and complex entrapment syndromes, traumatic nerve injuries, nerve masses, and neuropathic pain and diagnostic dilemmas. As technologies continue to improve, high-level imaging of peripheral nerves will become more accessible to patients across the world.

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DISCLOSURE

The authors report no conflict of interest.