

High resolution magnetic resonance imaging of normal and regenerating peripheral nerves

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High-resolution Magnetic Resonance Imaging (MRI) is becoming increasingly available due to recent technical advancements, including higher magnetic field strengths (e.g. 3 Tesla systems), three dimensional image acquisition, evolution of novel fat-suppression methods, and improved coil design. With these advanced techniques, it is now possible to evaluate the internal structure of the peripheral nerve and smaller branches. In addition changes of nerve regeneration may also be evaluated with MRI. This poster will illustrate the MRI findings in normal and regenerating nerves. A discussion of microsurgical techniques in peripheral nerves will be also presented. These techniques which assist and guide nerve regeneration have benefited greatly in last 20 years from the ability to perform surgery under magnification. Neurolysis is a microsurgical technique for removal of fibrotic tissue within and around the partially injured peripheral nerve, and thus aids in regeneration. Nerve grafts, either allo- or autografts, are also in use clinically and may be used as end-to-side or end-to-end repairs. Nerve conduits are collagen-based protective sheaths referred to as a “nerve wrap” or “nerve tube”. The conduits provide a protected environment for regeneration of peripheral nerves. Representative images and findings in regenerating nerves after surgical treatment such as neurolysis, nerve repairs by using nerve grafts, and conduits will be shown. High-resolution MRI allows the visualization of normal and regenerating peripheral nerves and supplements information gained from clinical findings and electrophysiologic tests.

Biography

Shrey is currently a 4th year radiology resident at Yale University – Bridgeport hospital. Prior to his residency he worked as research fellow in Musculo-skeletal radiology at Johns Hopkins Hospital. Shrey did his internal medicine preliminary year in 2009 from Unity Hospital, University of Rochester, NY. He was awarded MD degree from Jiwaji University, in India. In addition to his radiology training, Shrey also served as an emergency room doctor in the island of Antigua in the Caribbean.

He has authored several peer reviewed publications in prestigious international journals, and has received multiple awards for presentations at international conferences.

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