Syllabus

Specialty Area: MRI of Musculoskeletal Impingement Syndromes
Title of Session: Nerve Impingement Around the Body, Monday, 22 April 2013
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Highlights

- Nerve impingement syndromes can occur anywhere in the body but are more common at certain anatomic sites where the nerve passes through a fibro-osseous canal near joints or under an abnormal fibrous band, muscle or a space-occupying lesion (i.e., ganglion cyst, hematoma, osteophyte, lipoma, tenosynovitis, etc.).
- The reference standard of diagnosis is clinical history and electrodiagnostic (ED) studies, however, there are limitations to ED studies. Imaging (MRI and/or ultrasound) can help solidify the clinical diagnosis and rule out secondary causes.
- MR neurography (MRN):
  - T2-based:
    - Higher signal-to-noise ratio (SNR) and contrast-to-noise ratio (CNR) with 3 T compared to 1.5 T MR imaging improves anatomic and lesion conspicuity.
    - Novel 3D sequences allow multiplanar isotropic reformats (MPR), curved planar reformats (CPR), and maximum intensity projections (MIP) to map and display the longitudinal extent of nerve involvement.
  - Diffusion based (DWI):
    - Developed to increase nerve conspicuity by vascular signal suppression, thereby creating nerve-specific images
    - Offers potential for quantification of the nerve signal intensity (SI), apparent diffusion coefficient (ADC), fractional anisotropy (FA) values, and fiber tracking.
- Ultrasound:
  - Thickening of the nerve and nerve fascicles
  - Loss of the normal honeycomb echotexture of the nerve
  - Increase in perineural and intraneural blood flow on Doppler may occur in chronic compressive neuropathies
  - Associated mechanical compression of the nerve by surrounding space occupying lesions
  - Can be utilized to perform targeted therapies

Target audience: Radiologists, sonographers, neurologists, general clinicians

Conclusions:

- Nerve impingement can be a challenging clinical diagnosis often necessitating imaging as a confirmatory test. MRI and ultrasound are both useful in making the diagnosis and ruling out secondary space occupying lesions. Ultrasound is also useful in performing targeted therapies.

References: