

Author presenting: Tommaso Addona, MD

Co-authors: Jess Ting, MD, FACS

Institution: Mount Sinai Medical Center

Title: Biopsy of the Median Motor Nerve: Description of Technique and Complications

Introduction: There is no previously described technique for biopsy of motor nerves in the upper extremity. The standard nerve biopsy performed is the sural nerve biopsy, which is a sensory nerve in the lower extremity. We have previously described a motor nerve biopsy in the lower extremity, the internal obturator nerve to the gracilis muscle, but this technique is of limited efficacy in disease afflicting the upper extremities. For example, multifocal motor neuropathy (MMN) without conduction block most frequently presents in the upper extremities. It is difficult to differentiate this disease entity, which is treatable with Intravenous Immunoglobulin, from Motor Neuron Disease, which has no known treatment, without a motor nerve biopsy. A technique to biopsy motor nerves in the upper extremity would be extremely helpful in this and other clinical settings.

Methods: We have developed an experimental technique to biopsy a small motor nerve in the upper extremity - the pronator branch of the median nerve. A small branch to the pronator muscle is identified after intraoperative stimulation of one of the identifiable branches by eliciting an evoked response recorded by a concentric needle placed in the pronator muscle. Simultaneous biopsy of the pronator muscle is performed for correlation of nerve and muscle pathology.

Results: 40 patients were biopsied. With a median follow up of 14 months, no complications were reported, with no injury to the median nerve. All cases were reviewed, for diagnosis, histopathology, treatment, outcome, and complications.

Conclusion: We conclude that biopsy of median motor nerve is safe and efficacious in the diagnosis and management of multifocal motor neuropathy, motor neuron disease and other neuromuscular disorders.