

Neurosonology in Peripheral Nervous System Disease



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The development of the oscilloscope over a century ago eventually gave rise to both electrodiagnostic testing and ultrasound. However, it has only been in the last few decades that ultrasound has been recognized as a useful technique for evaluating primary diseases of muscle and nerve. The changes in diseased muscle which include atrophy and increased echogenicity contrast with the changes seen in diseased nerve, which include hypertrophy (in the form of increased cross sectional area) with loss of echogenicity. The mechanisms underlying these changes will be discussed, as well as the occasional exceptions to these observations. Recent research has helped enhance the application of the technique to both common and uncommon clinical disorders, including evaluation of the median nerve in the distal palm in carpal tunnel syndrome, recognition of unusual traumatic neuropathies, analyzing the role of blood flow in nerve and muscle disease, interventional applications, and evaluation of difficult muscles such as the diaphragm. Now research from all parts of the globe are adding to the understanding and use of ultrasound. Not only will this help determine optimal approaches to clinical care but it will also lead to development of instruments specifically suited to use in the practice of neuromuscular medicine.
