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A Periodical insight into the Neuromuscular Ultrasound field & the Egyptian Neuromuscular Ultrasound Society

ENMUS Bulletin

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Practical tip >>>

When you look for fasciculations or other involuntary movements in the muscles:

- 1-Make sure the patient is completely relaxed.
- 2-Keep the probe steady at all times.
3. Frame rate should be at least 15/sec, higher rate is needed if you are looking for fibrillation.
4. Keep the environment and the limb warm.
5. Observe each muscle you scan for at least 30-60 seconds.
6. Scan different parts of the muscle.

Quote of the issue >>>



Hello summer 2021

‘Do what is right, not what is easy nor what is popular’

Topic of the issue

Pitfalls to consider when you scan the ulnar nerve

(By Dr. Eman Tawfik, the President of the Egyptian Neuromuscular Ultrasound Society)

1. The ulnar nerve can be sometimes ambiguous at the wrist just proximal to the Guyon's canal, and you may confuse it with the flexor carpi ulnaris tendon (figure 1). There are 3 techniques to easily identify the nerve and differentiate it from the confusing tendon.
 - a. Move the transducer proximally to the mid-forearm level where the nerve can be clearly visualized with its typical honeycomb appearance between the flexor carpi ulnaris and the flexor digitorum muscles. From there, trace the nerve again distally to the wrist level.
 - b. Tilt the probe to create anisotropic which turns the tendon hypoechoic while it minimally alters the nerve echotexture.
 - c. Ask the patient to flex and adduct the wrist and observe the mobility of the FCU. The ulnar nerve can be hypoechoic at the ulnar groove in healthy individuals (figure 2), so it is better to compare with the contralateral healthy side. Do not interpret nerve hypoechogenicity at the ulnar groove as a sign of entrapment unless it is associated

With increased CSA

3. Any nerve gets smaller as it descends distally because of physiological tapering, but you should keep in mind that the ulnar nerve can be slightly enlarged at the ulnar groove which is mostly caused by repetitive elbow flexion and extension of the elbow during activities of daily living. Such finding should not be interpreted as a sign of entrapment.

In ulnar neuropathy at the elbow, it is not necessarily to find focal enlargement at the ulnar groove. The nerve may enlarge at any point distal or proximal to the groove depending on the site of the entrapment. You may also find the nerve focally enlarged at multiple levels in the around the elbow. The level where the nerve passes between the two heads of the FCU (cubital tunnel proper) and the supracondylar level are common entrapment sites in addition to the ulnar groove.

...we discuss these practical points, much more, and detailed scanning techniques during hands-on courses that we offer, so follow us if you want to attend our unique in-person courses in the near future!

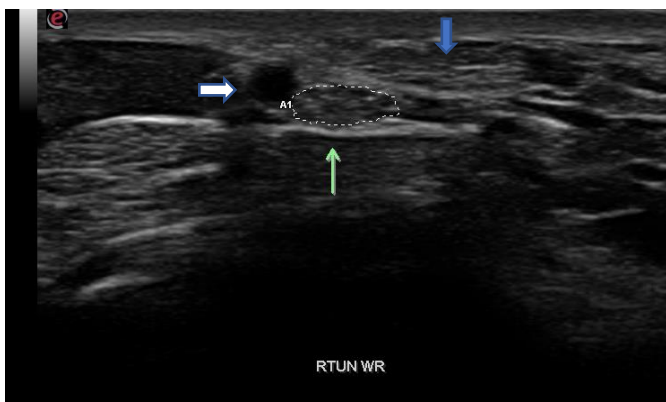


Figure 1: Green arrow = ulnar nerve, blue=FCU tendon, White=Ulnar artery



Figure 1. The ulnar n. appears hypoechoic at the ulnar groove in a healthy individual with average CSA.

Case of the Issue

By Ass. Prof. Marwa Hany Hammad, Associate Professor of Rheumatology & Rehabilitation, Faculty of Medicine, Zagazig University

A 28 year old man was subjected to deep cut wound at the right elbow during a fight several months ago. The wound resulted in complete median nerve injury which was surgically repaired. Post-surgery, the patient did not experience any clinical improvement and complained of weakness of wrist and hand and sensory loss along the median nerve distribution. Few months later, the patient started to complain of shooting neuropathic pain along the front of his arm and fingers upon any touch of the wound area. Subsequently, the patient was referred to the EMG lab. Nerve conduction studied failed to elicit motor and sensory responses from the median nerve, and needle EMG did not show any signs of reinnervation. Accordingly, the patient was referred for neuromuscular ultraosund to evaluate nerve continuity and structure. Tracing the nerve from the wrist to the mid-arm revealed continuity of the nerve along the scanned path. However, the nerve cross sectional area (CSA) was increased along the forearm up to the elbow level (trauma and repair site) where the nerve CSA abruptly and markedly increased and measured 54 mm². The nerve at this level of maximal enlargement acquired mixed echogenic appearance with loss of the normal honeycomb appearance (Figure 1). Moreover, the nerve was surrounded by some hypoechoic areas denoting scar tissue. Additionally, pressure by the probe at the site of maximum nerve enlargement provoked severe neuropathic pain along the forearm, lateral hand and lateral 3 fingers (positive US Tinel's sign). Long axis view of the Rt median nerve revealed a fusiform swelling clearly interrupting the normal fascicular pattern of the nerve (Figure 2). The findings in the axial and longitudinal views denote neuroma in-continuity at the site of the nerve repair.

Neuroma in-continuity can interfere with reinnervation and explains non-improvement of the patient post-nerve repair.

Concluding tips: In our patient ,US provided an added value to electrodiagnosis as it detected a neuroma in-continuity post-nerve repair that can interfere with the reinnervation process. Such info help guide the patient management. In light of clinical, ultrasound, and EDX findings, surgical interference is mostly needed involving excision of the neuroma and nerve grafting to re-establish the interior continuity of the nerve fascicles guiding healthy axons to its correct path within the nerve.



Figure 1: Rt Median nerve at the elbow (short axis). An abrupt marked increase in cross sectional area with loss of the normal cribriform appearance of the nerve.



Figure 2: Rt median nerve at the elbow (long axis). A fusiform swelling (arrow) interrupting the fascicular pattern of the nerve (neuroma in-continuity). Also, scar tissue in relation to the nerve is observed.

ENMUS NEWS >>>>

Mark your calendar.....August 5-6, 2021

Do not miss the chance to meet, learn from, and ask the Experts at the upcoming Advanced-level Neuromuscular Ultrasound Workshop!



The Egyptian Neuromuscular Ultrasound Society is pleased to announce the upcoming unique NMUS event in 2021..the 3rd International NMUS course (3rd INMUC)!

After the great success & the tremendous positive impact of the basic- & the intermediate-levels virtual NMUS courses that were held in 2020 and in response to lots of requests, we are back to complete the series of virtual courses WITH:

ADVANCED-LEVEL VIRTUAL INTERNATIONAL NEUROMUSCULAR ULTRASOUND COURSE FROM AUGUST 5-6, 2021

Target audience: Physiatrists, neurologists, clinical neurophysiologists, rheumatologists, neuro- & orthopedic surgeons.

Course director
Prof. Eman Tawfik, MD
President of the ENMUS.

AUGUST 5-6, 2021

ADVANCED-LEVEL VIRTUAL NEUROMUSCULAR ULTRASOUND COURSE (3rd INMUC)



TOP FACULTY & NMUS EXPERTS ARE JOINING US!

Francis Walker, USA
Eman Tawfik, Egypt
Nens van Alfen, Netherlands
Michael Cartwright, USA
Lisa Hobson-Webb, USA
Antonis Kerasnoudis, Greece

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The registration is now open for the course.

To register, contact Medicaconference, the managing company through phone or email:

Mobile: +201030808081

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www.medicconference.com

Looking forward to welcome you!