

Issue 2 at a Glance >>>

- Topic of the issue
- Practical tip
- Case of the issue
- ENMUS news



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

ENMUS Bulletin

ISSUE 2- OCTOBER 15, 2020

Practical tip >>>

Orthooganl orientation of the probe is v.imp. for multiple reasons:

- To obtain good quality image.
- To avoid anisotropy artefact
- For accurate nerve & muscle measumerments.

How to be sure you are orthogonal to the target sutrucutre?

- The underlying bone profile is clear & bright.
- No anisotropy in the surrounding tendons.
- Maximum contrast between the muscles and surrounding facia

Quote of the issue >>>



“You can only become truly accomplished at something you love”

Topic of the issue

Pre-surgical ultrasonographic mapping of peripheral nerves

(written by A. Prof.. Eman Tawfik, the ENMUS president)

Neuromuscular ultrasound has become a fundamental diagnostic tool for nerve & muscle disorders.

The dynamic ability of the ultrasound allows tracing of most of the nerves along their entire courses making ultrasound a suitable tool for preoperative nerve mapping. Previous cadaveric study demonstrated the ability of ultrasound to map peripheral nerves¹

Pre-surgical mapping of peripheral nerves can be useful in the following cases:

1. Traumatic peripheral nerve injuries to assess nerve continuity, presence or absence of neuromas, or scar tissue.²⁻⁴ In cases of complete nerve transection, an important value of ultrasound is to determine the level of transection and to localize the site of distal and proximal nerve stumps. Such information is valuable to the surgeon for optimum preoperative planning of the surgery (**figure 1**).

From the surgeon's prospective, knowing the level of nerve stumps in cases of nerve transection allows the surgeons to open directly at the level of stumps and it spares them the extensive exploration that may be needed in some patients to find the nerve stumps.

2. Prior to surgical excision of soft tissue masses and tumors to assess the relation of the mass to important nerves and to detect any compressing effect by the mass on a nerve (**Figure** Also, sonographic mapping of normal nerve tissue in relation to schwannoma prior to resection can be useful.⁵

3. To avoid common iatrogenic nerve injuries prior to surgeries e.g. mapping of the spinal accessory nerve prior to cervical lymph node dissection or biopsy,^{6,7} or mapping of the sural prior to Achilles tendon repair.⁸

4. Mapping the sural nerve prior to nerve grafting. Ultrasound allows identification of the course of the sural nerve, its proximal and distal ends and its length.⁹



Pre-surgical mapping of the left radial nerve in a teenage female with a painful left forearm swelling. On examination, there was well defined and tender swelling at the proximal forearm, just below the elbow. Ultrasound scanning revealed a huge hypoechoic well defined mass in the brachioradialis muscle. The mass was neither compressible nor displaceable.. Radial nerve was mapped from the spiral groove down to the level where it passes between the superficial and deep heads of the supinator. US revealed that the mass is closely related to the radial nerve with its 2 branches (yellow arrows) but without a direct compressive effect. The CSA of the superficial and deep radial branches didn't significantly differ from the opposite healthy side. Ultrasound in this case demonstrated the relation of the mass to the radial nerves which helped the surgeon in preoperative planning. Biopsy revealed brachioradialis fibroma.

Figure A: spiral groove level. Figure B, C: Elbow and distal forearm levels.

Yellow arrow = radial nerve in A, deep radial branch in B, C

White arrow = superficial radial branch, Blue arrows = mass in the brachioradialis.

References:

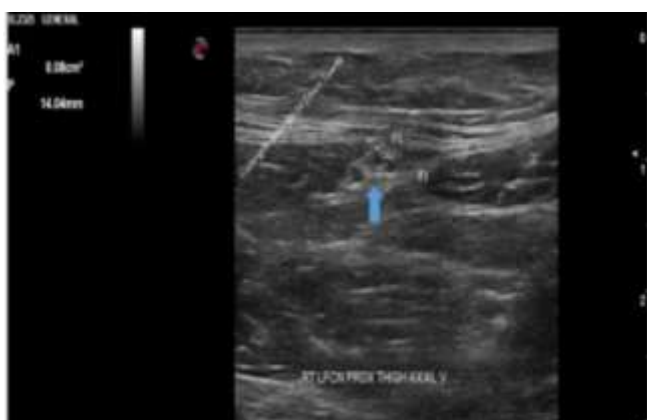
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Case of the Issue (by A. Prof. Eman Tawfik)

A 50 years old male was referred to the EMG lab for query right meralgia paresthetica. Sensory nerve conduction study of the lateral femoral cutaneous nerve of the thigh (LFCN) failed to elicit a response on both sides due to obesity. As an alternative test, neuromuscular ultrasound examination was performed. The LFCN was scanned from the proximal thigh at the level of the ASIS and traced distally as far as possible. Ultrasound showed increased cross-sectional area of the right LFCN (left image) with significant side-to-side difference in CSA (= 4 mm² on the left asymptomatic side versus 8 mm² on the right symptomatic side). Also, the nerve fascicles on the right side were enlarged and edematous. These findings denote entrapment of the right LFCN

Concluding Tip

Neuromuscular ultrasound can be very helpful in the assessment of small nerves pathology especially when NCS fails to assess such nerves. The case also shows the importance of integrating NMUS in EMG labs. As always recommended by the experts, the best setting of the neuromuscular ultrasound is inside the EMG labs with the US machine side-by-side with EMG machine.



ENMUS LATEST NEWS >>>

We proudly provided two unique virtual full training courses during the pandemic last August 2020!!

Faculty (in alphabetical order)



A. Prof. Eman Tawfik, MD
Department of PMR, ASU,
Egypt, ENMUS president &
course organizer
(Speaker)



Prof. Francis Walker, MD
Neurology Department,
Wake Forest School of
Medicine, USA
(Speaker)



Prof. Michael Cartwright,
MD, MSc, Neurology
Department, Wake Forest
School of Medicine, USA
(Speaker)



A. Prof. Nens van Allen,
MD, Department of
Neurology & clinical
neurophysiology,
Radboudumc,
Netherlands
(Speaker)



A. Prof. Peter Inkipen,
MD, FRCPC,
Division of PMR,
University of British
Columbia, Canada
(Speaker)



Prof. Yasser El Miedany
Professor Canterbury Christ
Church University & H.
Senior clinical lecturer,
King's college, London
(Moderator)

The ENMUS have organized two international virtual training courses last August: a Basic-level course held on August 10-11, and an Intermediate-level course held on August 27-28.

Top International faculty & NMUS experts have joined us in the two courses and > 300 physicians from all over the world have attended each course.

More than 8 hours of online training in each course which included a perfect combination of lectures & practical sessions in the form of video demos to compensate for the missed-hands on sessions.

The two courses were a huge success, achieved a great impact & fantastic feedback

Faculty of the Basic course

Prof. Antonis Kerasnoudis: Department of Neurology, St Luke's Hospital, Thessaloniki Greece & St Josef Hospital, Ruhr University Bochum, Germany.

A. Prof. Doris Lieba-Samal: Neurologist, Medical Center Gallneukirchen, Upper Austria, Austria

A. Prof. Eman Tawfik: Department of Physical Medicine & Rehabilitation, Faculty of Medicine, Ain Shams University, Cairo, Egypt.

A. Prof. Natalie Winter: Department of Neurology, Tübingen University, Tübingen, Germany.



A. Kerasnoudis



D. Lieba-Samal



E. Tawfik



N. Winter

Faculty of the Intermediate course

.....And here are some testimonials >>>>

<p>Organized</p> <p>sharp schedule</p> <p>Practical demonstration</p> <p>live and video demonstrations of the US</p> <p>Everything</p> <p>Lots of new knowledge</p> <p>All the presentations were excellent, very useful. I like the demo of lower limb nerves most</p> <p>64 responses</p>	<p>QUE AND ANSWERS... ALL QUESTIONS COVERED ...GREAT ...DEMO BY DR TAWFIK</p> <p>Comprehensive</p> <p>Online, made available to view again</p> <p>The Virtual Course</p> <p>Basic approach to visualizing and understanding what you see</p> <p>willingness of speakers to answer all questions</p> <p>Live demo and uploaded youtube videos</p> <p>willingness of speakers to answer all questions</p> <p>Live demo and uploaded youtube videos</p>	<p>4. What was the best aspect of this event?</p> <p>111 responses</p> <p>All</p> <p>Knowledge containing presentations</p> <p>Organization</p> <p>Uncommon focal neuropathy</p> <p>Actually all aspects</p> <p>Every lecture was very informative</p> <p>Detailed explanation of each topic</p> <p>new uses of ultrasound</p> <p>Important branches of main nerves of upper limb</p> <p>rare nerves and diseases covered</p> <p>Content and organisation and the variety of the themes</p> <p>All topics</p>	<p>Educational Value</p> <p>The videos</p> <p>Organization</p> <p>All of them</p> <p>Uncommon focal neuropathies was a wonderful lecture</p> <p>Its useful</p> <p>Video demonstrations</p> <p>Case based discussions with excellent</p> <p>The presentation was very good and rich in contents</p> <p>Practice</p> <p>The respected teachers have very nice way of presentation as slow mod talk which act as a strong assistance effect for more concentration</p> <p>this event gave me the opportunity to work better</p> <p>Good presentable professors</p> <p>Meetings experts in field and sharing their</p>
<p>QUE AND ANSWERS... ALL QUESTIONS COVERED ...GREAT ...DEMO BY DR TAWFIK</p> <p>Comprehensive</p> <p>Online, made available to view again</p> <p>The Virtual Course</p> <p>Basic approach to visualizing and understanding what you see</p> <p>willingness of speakers to answer all questions</p>	<p>Normal NMUS scan</p> <p>information</p> <p>video demo of tracing tibial, fibular & sural nerves/ fundamentals of muscle US/ Basic neuromuscular report</p> <p>Extremely useful concise content</p> <p>all of it was great</p>		

Follow the educational activities on Fb through >>>>

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...The ENMUS page www.facebook.com/EGYPTIANNMUS