

Dry needling of myofascial trigger points under ultrasound guidance reduce the symptoms of peripheral neuropathy

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Background and aims

Low back pain (LBP) involves both **myofascial and neuropathic components** of pain.

Neuropathic pain is a widespread problem, require continuous consumption of medications. Muscle spasticity might evoke nerve compression, dry needling (DN) of myofascial trigger points (MTrP) under ultrasound (US) guidance is effective method for treatment myofascial pain [1,2] restoring posture [3] and can be effective for neuropathic pain.

The aim

was to evaluate efficacy of dry needling under US guidance for treatment myofascial and neuropathic components of LBP.

Materials and Methods

We included 23 patients, 10 males and 13 females, aged 27-75 years (the average was 52 years) with clinically diagnosed chronic low back pain with neuropathic component.

with clinically diagnosed low back pain over 3 month with neuropathic component and reduced motility in spine, pelvis and lower extremity. All patients had symptoms over 3 month, underwent general exam, including MRI, laboratory, neurologic, orthopedic tests.

We conducted precise physical tests and neuromuscular ultrasound using M-mode and evaluated nerves and motion in intervetebral spaces, pelvis, intrinsic foot and leg muscles.

We conducted ultrasound survey at the levels of predicted nerve injury.

Patients received DN of MTrP under US guidance according to approach by **R.Bubnov** [1,2], considering nerve entrapment area.

Visual analogue scale (VAS, 0-10) and Leeds Assessment of Neuropathic Symptoms and Signs (LANSS) scores were measured before, immediately after, 24 hours, and 7 days after intervention.

Approach

1. Clinical definition zone of possible trigger point—pain syndrome with typical referred pain pattern registration.
2. Trigger point palpation. Palpation of a hypersensitive bundle or nodule of the muscle fiber of harder than normal consistency. Localization of a trigger point is based on the sense of feel, assisted by patient expressions of pain, and by visual and palpable observations of local twitch response [1].
3. Using precise physical tests, extensive neuromuscular ultrasound using M-mode to evaluate muscle thickness, CSA and motion, different patterns of decreasing motility, contractility (muscle contracted / rested thickness) in involved muscles [5].
4. When the affected muscle is detected, ultrasonography examination is performed for myofascial trigger point visualization using gray-scale, Doppler, and sonoelastography [1-2].
5. After the visual identification of the trigger point, dry needling was performed—acupuncture needles were inserted into MTrP to elicit the LTR effect. The needle was held in the tissue until complete disappearance of the LTR which could be considered similar to the phenomenon of the 'needle grasp,' which has been attributed to the muscle fibers contracting around the needle, and was held tightly in place to increase the resistance to further move the inserted needle.
6. Ultrasound control after procedure.
7. Visual analog scale (VAS) scores (0–10) were recorded throughout the study period before, immediately after, and 24 h after the procedure.

References:

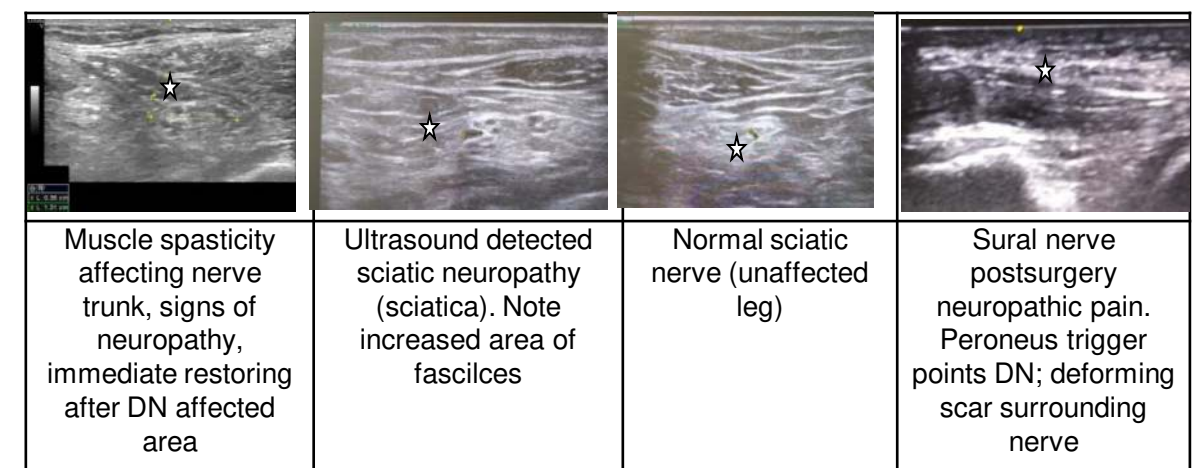
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Results

After 7 days, VAS scores showed pain improvement from 7.3 to 2.3; LANSS scores improved from 16 to 4. In diabetic and postherpetic neuropathy cases we obtained similar results as in rest of patients ($p < 0.05$). US demonstrated improvement nerve structure, increasing motility, contractility (muscle contracted / rested thickness) on M-mode during functional tests and walking in all levels. Improvement of neuropathy signs as decrease of fascicles diameter from 2 to 0.9 mm measured on US in sciatic nerve, both in tibial, peroneal portions, data correlated with self-assessment pain decrease ($r > 0.8$).



Note: basic (central) TrPS on the back, evoking knee pain; and SIJ hypomobility and needling on the controlateral site (L)



Case presentation

The case of low back pain and sciatica

Female 67 y.o. Diabetes M type 2, obesity

Complains during one month on low back pain and sciatic pain, moderate neuropathic pain

Dx

Evaluation physical, ultrasound (grey scale, M-mode):

Hypomobility was detected in the thoracic, lumbar level, right sacroiliac joint (SIJ).

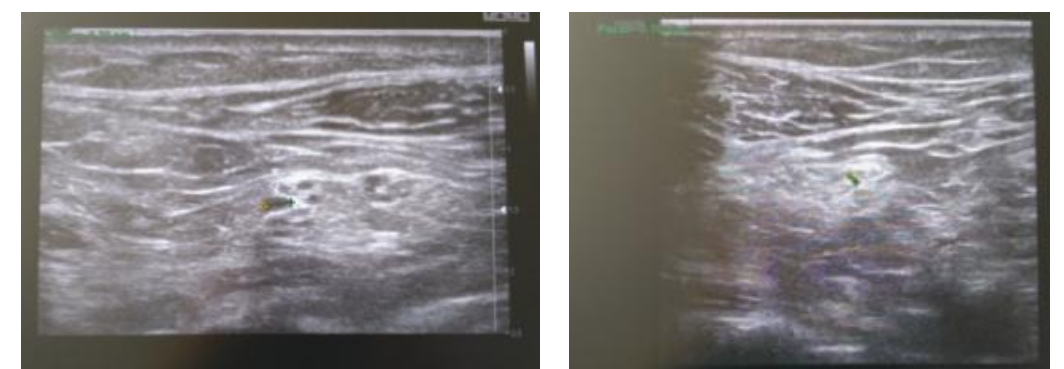
Ultrasound revealed neuropathy in the right side (sciatic pain) contrary to the left side.

Trigger points detected in multifidus muscles – correlated with sites of hypomobility and areas of spasticity in quadratus lumborum, soleus, plantar muscles, etc.

Thx

Dry needling of multiple TrPs – 2 sessions (multifidus, pelvic, foot, plantar area)

Effect: Full recover. **Recommendations** given



Ultrasound detected sciatic neuropathy (left) vs normal nerve (right) –after treatment

Conclusions

Dry needling under US guidance effectively reduce myofascial pain, ameliorate symptoms of neuropathy and local muscle hypomotility in low back pain. Further research needed for development US patterns and study causation in chain spasticity-tractility- motion-neuropathic pain.