



DRY NEEDLING UNDER ULTRASOUND GUIDANCE DECREASE NEUROPATHIC COMPONENT AND INCREASE LEVEL OF MOTION IN PATIENT WITH LOW BACK PAIN

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ABSTRACT

Introduction/Background

Dry needling (DN) of myofascial trigger points (MTrP) under ultrasound (US) guidance is effective method for treatment myofascial pain, and restoring postural imbalance. Crosslinks among TrPs, movement patterns in spine, pelvis and extremity and neuropathic pain in low back pain patients have not been studied.

The aim was to evaluate efficacy of dry needling under US guidance for neuropathic pain treatment; and restoring joints motility and muscle function in spine, pelvis and lower extremity.

Material and Method

We included 23 patients, 10 males and 13 females, (aged 18-55 years) with clinically diagnosed low back pain over 3 month with neuropathic component and reduced motility in spine, pelvis and lower extremity. We conducted precise physical tests and neuromuscular ultrasound using M-mode and evaluated nerves and motion in intervertebral spaces, pelvis, intrinsic foot and leg muscles. Patients received DN of MTrP under US guidance according to approach by Bubnov [PMID:23088743]. 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.

Results

After 7 days, VAS scores showed pain improvement from 7.6 to 2.3; LANSS scores improved from 15 to 4. US demonstrated improvement nerve structure, increasing motility, contractility (muscle contracted / rested thickness) on M-mode during functional tests and walking in all levels.

Conclusion

Our preliminary data demonstrated that DN under US guidance effectively reduce myofascial pain, ameliorate symptoms of neuropathy and local hypomotility. Further research needed for development US patterns and study causation in chain spasticity-contractility-motion-neuropathic pain.

Keywords:

low back pain; neuropathic pain; dry needling

RESULTS

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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).

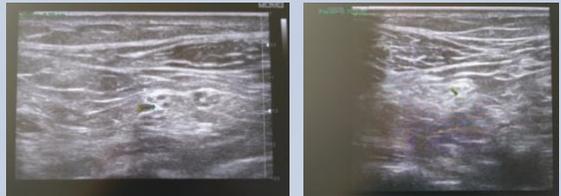
Ultrasound revealed neuropathy in the right side (sciatic pain) contrary to the left side.

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)

Case - right knee pain (largely medial)

female 67 years

- trigger points in back (multifidus R/L; quadratus lumborum R); sacroiliac joint (SIJ) hypomobility - L; additional TrPs in hip adductors muscles - R.



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

METHODS

The aim was to evaluate efficacy of dry needling under US guidance for neuropathic pain treatment; and restoring joints motility and muscle function in spine, pelvis and lower extremity.

We included 23 patients, 10 males and 13 females, (aged 18-55 years) with clinically diagnosed low back pain over 3 month with neuropathic component and reduced motility in spine, pelvis and lower extremity. We conducted precise physical tests and neuromuscular ultrasound using M-mode and evaluated nerves and motion in intervertebral spaces, pelvis, intrinsic foot and leg muscles. Patients received DN of MTrP under US guidance according to approach by R. Bubnov (PMID:23088743) [2,3]. 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 [2-7]

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 intervertebral spaces, pelvis, intrinsic/extrinsic muscles in pelvis, gluteus region, foot and ankle, etc. [5].
4. When the affected muscle is detected, ultrasonography examination is performed for myofascial trigger point visualization using gray-scale, Doppler, and sonoelastography [2-4].
5. After the visual identification of the trigger point, dry needling was performed— fine (acupuncture 28-30G) 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 [2-4].
6. Ultrasound control after procedure [2-4].
7. Visual analog scale (VAS) scores (0–10) were recorded throughout the study period before, immediately after, and 24 h after the procedure.

CONCLUSIONS

Our preliminary data demonstrated that DN under US guidance effectively reduce myofascial pain, ameliorate symptoms of neuropathy and local hypomotility. Further research needed for development US patterns and study causation in the chain of *spasticity-contractility-motion-neuropathic pain*.

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