

Dry needling under ultrasound guidance of trigger points in neck and shoulder effective for different types of headache

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Background and aims

Myofascial Trigger Points (MTrPs) treatment of the head and neck muscles can reduce frequency, intensity, and duration of attack in patients with tension-type headache (TTH) and migraine. Recently we proposed a new approach of trigger point therapy, performing precise muscle dry needling (DN) under ultrasound (US) guidance.

The aim was to evaluate efficacy of deep DN of myofascial trigger points (MTrPs) in neck and shoulder muscles to treat chronic headaches.

Methods

We included 24 patients (15 females, 38±6 years old) with intensive chronic persistent or recurrent one- or two-sided pain in temporal and/or occipital areas. Treatment approach by R.Bubnov [1,2] was applied that included ultrasound identification of MTrPs with following DN under US guidance using steel 28G needles to elicit local muscle response (LTR, 'needle grasp'). Visual analogue scale data (VAS0-10) were measured before and after the interventions.

Approach [1-2]

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.
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.

Case presentation – Migraine



CASE - F, 48 y.o. **chronic migraines. Shoulder dysfunction, posture imbalance.**

Functional US testing – both shoulders impingement: movement restriction - abduction under 90 degrees (after manipulation =180 degrees).

MTrPs were detected in the shoulder rotators muscles, head, neck oblique muscles – see figures; and + in pterygoid med. Muscle.

Excessive local twitch response during needling detected on M-mode; effect after needling, decreasing levels of headaches / migraines

2 session needed

Conclusions

MTrPs DN under ultrasound guidance is effective to treat headaches, evoked by myofascial disorders.

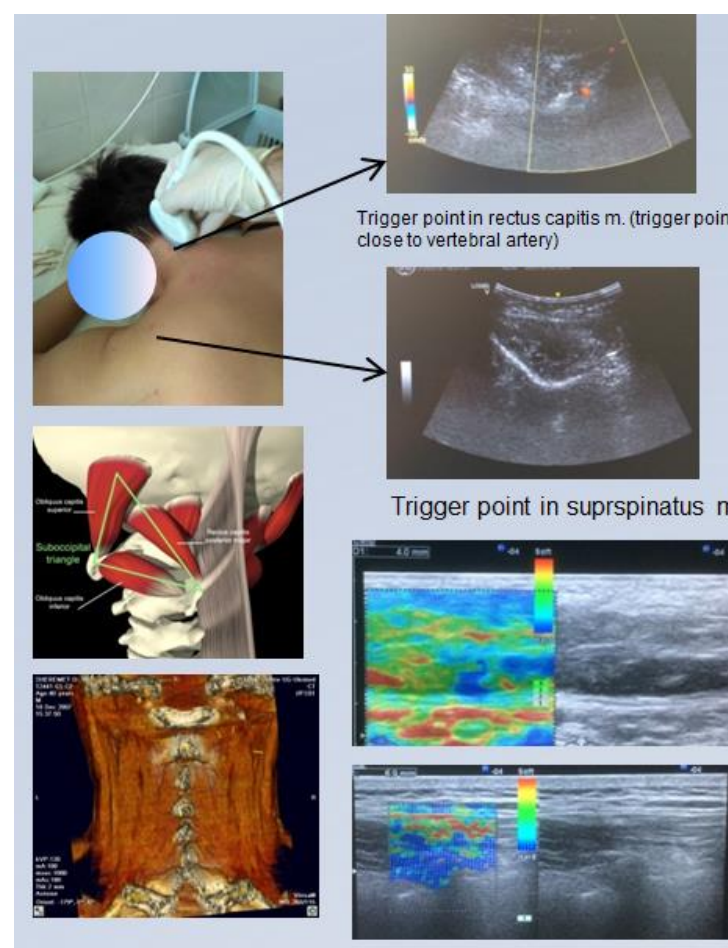
Shoulder dysfunction is associated with headaches and neck pain.

Further profound studies needed to establish unified Dx and Tx protocol.

Results

Main active MTrPs were diagnosed in rectus and obliquus capitis inferior muscles, the additional (latent) MTrPs were defined and effectively needled in the ipsilateral shoulder rotator muscles. In one session 1-3 needles were inserted, 1-2 sessions applied to each patient. Retention of needles correlated with LTR and clinical effects. In seventeen patients pain decreased by a VAS of 90% ($p < 0.01$) pain relief was sustainable during one month after procedure; seven patient received another session after 2-3 weeks after first session. Preliminary data showed decreasing levels of migraine type attacks in 6 patients.

Case presentation - Tension-type headache



CASE - **tension-type headache, associated with shoulder dysfunction**

Functional US testing - left shoulder impingement: movement restriction - abduction at 90 degrees (after manipulation =180 degrees).

MTrPs were detected in the shoulder rotators muscles, head, neck oblique muscles – see figures; immediate effect after needling.

1 session needed

Case presentation – acute head and neck pain



CASE - M, 55 y.o. **acute pain in neck and occipital region (left side). Shoulder dysfunction, posture imbalance.**

Functional US testing – left shoulder impingement (restored after manipulation). MTrPs were detected in the shoulder rotators muscles, head, neck oblique muscles;

1 session needed

References

1. Bubnov RV: The use of trigger point “dry” needling under ultrasound guidance for the treatment of myofascial pain (technological innovation and literature review). *Lik Sprava* 2010, 5-6:56-64.
2. Bubnov RV: Evidence-based pain management: is the concept of integrative medicine applicable? *EPMA J* 2012, 3(1):13.
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