

Reflex anoxic seizures (RAS) during dry needling

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Abstract

Background: Trigger pain points are commonly found on the trunk, especially in the neck and shoulders. Dry needling is an effective treatment option in musculoskeletal pain caused by trigger pain points.

Case description: A 28-year-old female patient who had persistent upper back pain underwent dry needling on both rhomboid and trapezius muscles for the first time. During the insertion of the sixth needle, the patient presented a tonic-clonic seizure lasting 20-30 seconds. After the seizure, her neurological examination without any findings, while her magnetic resonance imaging scan of the brain, electroencephalogram (EEG) of wakefulness, and sleep-deprived EEG showed no abnormal findings. Her condition was diagnosed as reflex anoxic seizure, which is a benign, self-limiting condition that is typically provoked and does not require medical treatment.

Conclusion: Although it is an infrequent adverse event, healthcare professionals should be aware of reflex anoxic seizure, which could be triggered by dry needling, and therefore always perform this procedure with adequate first aid facilities available on site. HIPPOKRATIA 2019, 23(1): 45-46.

Keywords: seizure; trigger point; dry needling

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Background

Trigger pain points (TPPs) are discrete nodules within a taut band of skeletal muscle that can either be spontaneously painful or painful only upon palpation¹. They are classified as active or latent according to whether they cause spontaneous pain or not. The mechanism of the formation of TPPs is not fully known. However, the proposed theories include muscle overload and overuse, calcium dysregulation of type I fibers due to metabolic overload, and decreased perfusion to the postural muscles, which lead to ischemia¹.

TPPs are most commonly diagnosed via physical examination. However, they can also be visualized by sonography and elastography of the tissue². Treatment modalities include physiotherapy, massage, transcutaneous electrical nerve stimulation, ultrasound, medication injection, or dry needling³. There is moderate quality evidence in the literature suggesting that dry needling is more effective than no treatment, sham dry needling, and other treatments in the short-term treatment of musculoskeletal pain⁴. Dry needling effectively reduces pain, increases pressure pain threshold, and improves function in the immediate to 12-week treatment period⁴. Several possible mechanisms through which dry needling provides pain relief are peripheral and central pain modulation, as suggested in gate control pain modulation theory, central pain modulation through the effects of the endogenous opioid system, central sensitization, and disruption of the TPP⁵. It is generally considered a safe method with infrequent severe adverse events⁶. Usual adverse events

are bruising, bleeding, pain during treatment, and pain after the treatment, whereas uncommon and rare adverse events are an aggravation of symptoms, drowsiness, headache, nausea, fatigue, altered emotions, shaking, itching, claustrophobia, and numbness⁶. Although they are infrequent, some serious adverse events that can occur following this procedure include cardiac tamponade, hematoma, infection, nerve injury, and pneumothorax^{5,7}.

Case description

A 28-year-old female patient presented with chronic back pain. On her examination, she had TPPs on both upper trapezius and rhomboid muscles. She had a normal neurological examination, without radiating pain to arms, neither weakness in the hands or arms, nor sensory loss. Home exercise therapy and dry needling of the trigger points were planned. Dry needling was performed while the patient was sitting. During the dry needling, the patient lost consciousness and had a tonic-clonic seizure lasting for about 30 seconds. She did not suffer urinary incontinence or tongue biting. As the seizure ceased, she recovered immediately, with a feeling of anxiety. Her vital signs were within the normal range (heart rate: 65 /min, blood pressure: 110/75 mmHg, respiratory rate: 14 /min). After the seizure, a repeated neurological examination showed no abnormal findings. It was detected from her past medical history that this was the first event of a seizure. She was using no medication that could potentially cause seizures at the time. A brain magnetic resonance imaging (MRI) scan, an electroencephalogram (EEG) of wakeful-

ness, and a sleep-deprived EEG were obtained, none of which revealed any abnormalities. Upon consulting with neurologists, the patient received no medication for seizures, and her pain was treated with massage, taping, and home exercises. Dry needling was not repeated. She had no recurrence of seizures during a one-year follow-up.

Discussion

Reflex anoxic seizures (RAS) are seen predominantly in infants and young children but have been reported in adults as well⁸. RAS, also known as “convulsive syncope” and “syncope-induced convulsion”, represent a benign, self-limiting condition that is typically provoked by a sudden pain and does not require medical treatment⁹. A noxious stimulus causes a vagally mediated brief asystole, which is responsible for the convulsive syncope, which subsequently leads to transient cerebral ischemia. In the typical presentation, the patient is initially flaccid, later tonic with rigid extension and clenched jaw, which is followed by a generalized convulsion. Recovery is spontaneous in around 30 to 60 seconds¹⁰. Once the seizure occurs, management involves the recovery position of the patient, preventing trauma, and providing airway clearance.

The study of Lin et al demonstrated that syncopal spells during blood donation are accompanied by convulsions in 12-42 % of the cases, and a convulsive syncope occurred in 0.03 % of all blood donors¹¹. They have observed that tonic extensor spasm was the most common convulsive movement; nevertheless, complex convulsive phenomena simulating epileptic seizures also occurred¹¹. In our case, the patient had a tonic-clonic activity, which resembled an epileptic seizure. Due to the diagnostic challenges, misdiagnosis of RAS and other syncopes as epilepsy is not rare. Studies carried out in various settings have reported misdiagnosis rates between 4.6 % and 30 %¹². Characteristic features of RAS that may be useful in differentiating it from epilepsy are the prodromal symptoms such as diaphoresis, presyncope, and warmth, which are common, the pallor usually observed, the fact that RAS usually does not occur at the supine position, and eyes are fixed and deviated upward, the duration of the convulsion is less than a minute, and the most common postictal symptoms are brief haziness, fatigue, diaphoresis, and nausea¹³. On the other hand, common traits of epilepsy are the prodromal cry, incontinence, tongue biting, lateral eye deviation, and seizure lasting for a few minutes and postictal confusion¹³. It is suggested to study structural heart disease further, especially if recurrent episodes happen. Cardiological evaluation of the patient may include head-up tilt test, electrocardiogram, echocardiography, and stress testing, Holter monitoring 48 hours, implantable loop recorder, and invasive electrophysiologic study, depending on the age of the patient and other risk factors¹⁴.

In conclusion, this is the first case to our knowledge that reports a first-time reflex anoxic seizure during a dry needling session. Although it is a very rare adverse

event of this procedure, healthcare professionals should be aware of this and preferably perform dry needling at the supine position, and always with adequate first aid facilities available on site. RAS could be easily misdiagnosed as epilepsy.

Conflict of Interest

Authors declare no conflict of interest.

Acknowledgement

The patient gave written consent for the publication of this report.

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