

Abdominal Trigger Points and Psychological Function

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Myofascial trigger points (TPs) are a poorly understood phenomenon involving the myofascial system and its related neural, lymphatic, and circulatory elements. Compression or massage of a TP causes localized pain and may cause referred pain and autonomic phenomena. The authors describe a 58-year-old woman who experienced precipitation of substantial psychological symptoms directly related to her treatment for a lower abdominal TP. Her symptoms resolved after 2 weeks of receiving high-velocity, low-amplitude manipulation and soft tissue massage. Particularly in the abdomen, TPs may be associated with psychological reactions as well as physical aspects of bodily function.

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Myofascial structures make up the largest organ in the body and constitute approximately half of the body's mass.¹ Somatic dysfunction affecting myofascial structures may thus have a substantial impact on muscle functions and visceral hemostasis. One manifestation of somatic dysfunction is the myofascial trigger point (TP) defined by Simons et al² as "a hyperirritable spot, usually within a taut band of skeletal muscle or in the muscle's fascia, that is painful on compression and that can give rise to characteristic referred pain, tenderness, and autonomic phenomenon." We describe the case of a 58-year-old woman who had onset of severe psychological symptoms as a direct consequence of abdominal myofascial TP management. To the best of our knowledge, this is the first case of this type reported in the medical literature.

Report of Case

A 58-year-old woman seeking a second opinion presented to a general medical clinic with right lower quadrant abdominal pain. Her primary care physician had not determined a definite cause. The pain had started about 15 months previously when her annual contract as a public school teacher had not been renewed. She had difficulty finding another position and later experienced interpersonal conflict and stress in her new workplace. Then, she quit teaching altogether because of stress and because she did not get a renewal contract with her new position. During this time, the abdominal pain had been present intermittently but had become more persistent during the past few months. She described the pain as an aching sensation in her right lower abdomen that worsened with movement.

Results of urinalysis, blood chemistry analysis, liver function test, and complete blood cell count were normal, as were levels of thyroid stimulating hormone, vitamin B₁₂, and

folate. Results of a computed tomographic scan of the abdomen and pelvis were unremarkable.

The patient's medical history was unremarkable except for complaints of recurrent nonspecific pain in various parts of her body. She had never been hospitalized, undergone surgery, had substantial injury or concussion, or misused alcohol or drugs. She was not taking any prescription medications. The patient had been evaluated by a psychiatrist, who told her that she may have depression and a personality disorder. Treatment with sertraline was recommended, but the patient declined.

On presentation to the clinic, the patient was somewhat talkative and anxious. Physical examination revealed right lower abdominal discomfort on palpation (rated as 6 on a pain scale of 1 to 10, with 10 indicating the worst pain ever experienced) without guarding. Paravertebral muscle tension and somatic dysfunctions of the lower thoracic and upper lumbar region were present. Also detected was a distinct TP consisting of a palpable exquisitely tender nodule (rated as 9 on a scale of 1 to 10 when pressure was applied) about 1 cm in diameter within taut fibers of the right external oblique muscle in the area between the anterior superior iliac spine and McBurney point. Pressure on this TP caused radiation of pain to the epigastric area and, to a lesser degree, to her back. A smaller, less tender TP was present at the left anterior pectoral muscle.

High-velocity, low-amplitude manipulation and soft tissue massage were used to manage the thoracolumbar somatic dysfunctions. The TPs were managed by applying gentle digital pressure as recommended by Simons et al.² When pressure was applied to the abdominal TP, in addition to local pain and referred pain in the epigastrium, the patient often had concurrent emotional symptoms, including spontaneous crying and feelings of distress. She had intrusive memories of the stressful events leading to her loss of employment and reexperienced the same emotions she had felt during those stressful times. The phenomenon was reproducible with reapplication of pressure to the TP. The patient experi-

enced no emotional distress with pressure to the TP in the pectoral region.

Over the next 2 weeks, the patient was treated 3 times per week, and both the abdominal TPs and emotional distress brought on by application of pressure to the abdominal area resolved. She was referred to a psychotherapy program in which she actively participated. She continued to refuse any psychotropic medications. In the subsequent year, she did not have recurrence of the abdominal pain.

Discussion

There is no universally accepted explanation of the causes and symptoms of TPs.³ Trigger points are more likely to be present in patients with perpetuating factors, particularly postural and other mechanical disorders, including somatic dysfunction.⁴ Other factors that may contribute to their occurrence include anemia, endocrine dysfunction, nutritional deficiencies, chronic infections, and psychological stressors.² Kuchera⁵ indicated that TPs may be "a particular subset of somatic dysfunction" and that they "represent impaired or altered function of the myofascial system and its related neural, lymphatic, and circulatory elements." Thus, they are more than a localized area of tenderness; they may represent spinal or central nervous system dysfunction. Trigger points are part of the whole person's overall function and therefore are related to the neural, lymphatic, and circulatory elements of the body. For example, an identified TP may disappear when osteopathic manipulative treatment techniques are applied to a vertebral dysfunction in a dermatomal relationship to the TP. Managing a TP can sometimes result in resolution of the corresponding vertebral somatic dysfunction.⁶ Acupuncture applied to TPs may also affect emotional states, although the mechanism by which this could occur has been largely unexplored.⁷

The pathophysiology of TPs is poorly understood. Hubbard and Berkoff⁸ used electromyography to simul-

taneously record trapezius TPs with adjacent non-tender fibers of the same muscle in healthy participants and in 2 patient groups—1 group with tension headaches and 1 group with fibromyalgia. They found spontaneous and sustained electromyographic activity and spike discharge in the 1- to 2-mm nidus of all TPs but no such activity in non-TP areas.⁸ The researchers postulated that the TP activity was generated by efferent sympathetically induced hyperactivity of the muscle spindle.⁸ Hocking³ proposed that TPs may be produced by central nervous system–maintained global changes in α motor neuron functioning. Electromyographic activity in TPs (but not adjacent non-tender muscle) has been shown to increase during mental activity (mental arithmetic).⁹

Gastrointestinal complaints are among the most common psychosomatic symptoms encountered by physicians. Anxiety and depression are common in patients with abdominal pain of unknown origin.¹⁰ In some cases, chronic pelvic pain may indicate the presence of psychological disturbances or problems, and somatization may be a factor in the production of these symptoms.¹¹ Somatization is thought to be related to an inability of brain receptors to screen or inhibit bodily sensation and to sensitize pain receptors. Somatosensory amplification is theorized to serve a critical role in somatization. Neural correlates of cognitive-affective amplifiers have been postulated to be integrated into a neurocircuit for somatosensory amplification with some of the anatomical components, including the anterior cingulate gyrus, insula, amygdala, hippocampal formation, and striatum.¹²⁻¹⁴ Somatosensory amplification is closely related to depression, anxiety, and hostility.^{15,16}

The patient described in the current case report meets criteria for a diagnosis of somatic symptom disorder (previously known as hypochondriasis). This disorder is characterized by 6 months or more of a general and nondelusional preoccupation with having a serious disease, owing to misinterpretation of bodily symptoms. Cognitive features include attention focused on somatic

symptoms and attribution of normal bodily sensations to physical illness. Because of the strong focus on somatic concerns, the disorder is most often encountered in medical settings, and physicians need to be aware of a possible psychological component to somatic complaints.¹⁷

We postulate that somatosensory amplification or a related phenomenon may have occurred with the present patient, which resulted in the production of TPs and her unusual presentation and behavior. Our findings suggest a possible relationship between abdominal TPs and certain aspects of psychological and neurophysiological functioning in some cases.

Conclusion

The presence of abdominal TPs may indicate that the patient has an underlying psychological issue. We propose that TPs may reflect not only pathologic aspects of the myofascial system and its physical elements, but also psychological and neurophysiological components for some patients. Treatment in a holistic manner may require assessing and addressing psychological issues in certain patients with TPs, specifically those with abdominal TPs. Further research in this area is needed, particularly exploration of therapeutic opportunities to modify neurocircuit activity through medication, psychotherapy, and osteopathic manipulative treatment techniques.

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