Somatic Pain Disorder — Diagnostic Criteria and Brain Imaging

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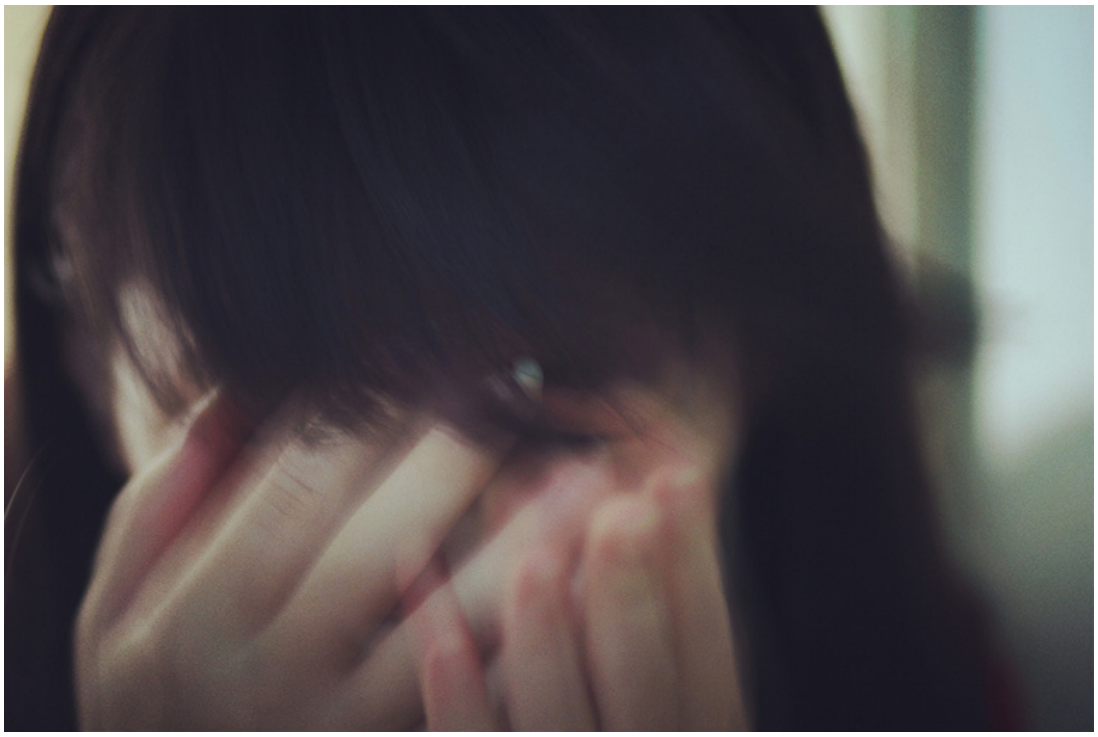
Somatic pain disorder is very common in the general population, especially in females. The previous history of sexual, physical or emotional abuse might increase the risk of chronic pain syndrome and somatic pain disorders. The diagnosis is based on the DSM-IV criteria. Brain imaging studies have identified novel therapeutic targets which are very promising in the management of chronic pain. The current treatment options include antidepressants, group psychotherapy, and the proper explanation of the nature of the symptoms and the most likely cause.



Definition of Somatic Pain Disorder

Patients with multiple somatic pains that cannot be explained by a known medical condition or effect of any drug or alcohol. It is characterized by:

- The pain can’t be connected to any known medical disorder.
- Psychological factors play an important role in the onset, severity and exacerbation of the pain.
- The pain is not produced internally and better accounted for by a mood disorder, anxiety or psychiatric condition.
- The pain causes distress and impairment in social, academic, occupational or

any other areas of functioning.

Epidemiology of Somatic Pain Disorder

The estimated lifetime prevalence of somatic pain disorder in a recent community-based German study was 4.1% in males and 8.2% in females; therefore, the female gender has been recognized as a possible risk factor for chronic pain disorders and other somatization disorders.

Somatic pain disorder seems to be **more common in subjects with a family history of anxiety disorders or somatization disorders**. This might be related to environmental influences, epigenetic changes due to these environmental influences or genetic predisposition.

Certain genetic mutations are yet to be identified for the predisposition to somatic pain disorder. **Certain genetic polymorphisms** in the opioid receptors have been linked to chronic pain syndromes, fibromyalgia, and somatic pain disorder. For instance, the over-expression of OPRM1 in fibromyalgia is linked to the severity of the condition.

Childhood experiences, especially traumatic ones, have also been linked to an increased risk of somatic pain disorder. Sexual, physical and emotional abuse, in addition to depression, has also been shown to increase the risk of somatization disorders in general and somatic pain disorder in particular.

Clinical Features of Somatic Pain Disorder

The main symptom of somatic pain disorder is that of **continuous or recurring chronic pain** that can be localized to the head, neck or back; joint or abdomen; or to the breast.

Positive evidence of the role of psychological factors includes the following:

- Onset of pain occurs after a stressful event.
- Exacerbation linked with a stressful event and relief from symptom after the removal of the stress factor.
- Secondary gain.
- Pain out of proportion of any medical finding.
- Disability out of proportion to such reported pain.

The severity of somatic pain disorder can be classified as **mild, moderate or severe** based on the following clinical features:

- Persistent and serious thoughts about the symptoms.
- The presence of high levels of anxiety.
- Excessive energy and time devotion to helping with these symptoms.

When one of these features is observed in the patient, the classification is known as mild. Patients with moderate somatic pain disorder have two or more of these three features. Finally, patients with severe somatic pain disorder have two or more of these clinical features in addition to the presence of other somatic symptoms that are not pain.

Diagnostic Criteria for Somatic Pain Disorder

The DSM-IV criteria for the diagnosis of somatic pain disorder consist of the following points.

1. The pain should be the **predominant symptom** in the patient and should result in a significant disruption of daily life activities.
2. This should be **associated with excessive feelings, thoughts and behaviors** that are directed against pain.
3. The symptoms should be **continued for six months or recurrent for six months or more** and cannot be explained by any other medical condition.

Patients who meet the above-mentioned criteria are diagnosed with somatic pain disorder which can be further classified into persistent and mild, moderate or severe. Persistent somatic pain disorder is defined as the marked and severe pain for six months or longer without any intervening periods of recovery in between.

Brain Imaging in Somatic Pain Disorder

Before 2010, the main goal of brain imaging in chronic pain disorders was to answer research-only questions and provide new insights into the role of the cortex in the perception of pain. Recently, novel and targeted therapies for chronic pain syndromes including fibromyalgia have emerged based on the results of brain imaging. Nowadays, it is safe to say that cortical perception of pain in patients with somatic pain disorder is impaired.

The first kind of studies in pain perception was concerned with structural connectivity. **Magnetic resonance diffusion tensor imaging studies (MR-DTI)** make it possible for the radiologist to visualize the connectome of the cortex and understand how certain brain regions relate to each other. MR-DTI showed impaired structural connectivity patterns in the somatic sensory cortex in patients with somatic pain disorder.

Magnetic resonance imaging studies with quantification of the gray matter showed that patients with chronic pain syndromes have reduced neocortical gray matter content compared to healthy controls.

Metabolic studies using magnetic resonance spectroscopy showed **metabolic derangements mainly in the prefrontal cortex and amygdala** in patients with chronic pain.

Additionally, **NMDA-glutamate receptors were found to be impaired** in patients with somatic pain disorder. Based on these results, research has been going on the utility and effectiveness of D-cycloserine (DCS) in the management of chronic pain.

D-cycloserine given systemically or injected locally in the prefrontal cortex has been found to improve pain perception in animal models. These findings are very promising as they can improve our current treatment options for chronic pain in humans.

Treatment of Somatic Pain Disorder

The treatment of somatic pain disorders has several goals.

Firstly, one should **explain the cause and nature of the symptoms** and the patient should be assured that these symptoms are not due to any life-threatening condition. For instance, a patient with chronic head pain might be afraid of brain tumors and, once this possibility is excluded, this issue should be directly addressed with the patient.

The second goal of the treatment plan should be **ensuring regular follow-ups** that are not symptom-driven. If the patient is instructed to return to you only when the symptoms

recur, he or she might become convinced that these symptoms are organic in nature and he or she might become dependent on you.

The third goal of your treatment plan should be **treating depression or anxiety disorders**. Antidepressants, especially selective serotonin reuptake inhibitors, have shown some efficacy in chronic pain syndromes and fibromyalgia. Amitriptyline was also found to be effective in the management of somatic pain disorders.

Type of therapy that can be used:

- Counseling
- Behavioral methods (behavioral-cognitive therapy)
- Biofeedback
- Family therapy (focus on communication and appropriate responses)
- Relaxation training (progressive muscle relaxation, induced self-hypnosis)

Group therapy and family therapy is also essential in the management of somatic pain disorders. Patients should understand that their symptoms, despite being inorganic, are real and are understandable to us. They should be assured that we understand how such symptoms can significantly affect their quality of life.

Novel therapeutic options with transcranial direct current stimulation or transcranial magnetic resonance imaging with neuromodulation of the GABArgic system in the prefrontal cortex are promising. These options are still not clinically approved.

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