

Spinous Process Tenderness Syndrome: A Newly Discovered Disorder

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Introduction

Tens of thousands of patients who are plagued by a number of nonspecific symptoms including dizziness, palpitation, chest tightness, epigastric pain, back pain and tinnitus, have been diagnosed as cervical vertebra disease, coronary heart disease, chronic gastritis, or neurosis. However, treatments based on those diagnoses are ineffective to improve these patients' symptoms. Our recent years of research has decoded the mystery of the disorder in this patient population, for that we have named Spinous Process Tenderness Syndrome (SPTS). This article is to share our findings with readers.

Discovery of SPTS

In clinical work, ineffectiveness of treatment for a disease often time is due to lack of understanding for the nature of the disease, which is the case for SPTS. Failure to significantly improve patients' symptoms suggests the treatment may not have been targeting the root cause of the disorder.

In the early 1990s, some clinicians, especially those who engaged in Chinese traditional massage, have reported the association between spine problems and some systemic symptoms. Unfortunately, these clinician did not further investigate to reach a systemic and generalized understanding of this disorder.

In our past 30 years of clinical treatment and long-term follow-up work, we observed that in addition to thoracic region, patients with ailment in other regions of spine also could have systemic symptoms as described earlier. To have a better understanding for this disorder, from January 2010 to August 2014, we observed 754 cases of SPTS (116 males and 638 females, average age of 47.4 ± 2.3 years, 55.4% had been treated by other medical institutes) at the First Teaching Hospital of Tianjin University of Traditional Chinese Medicine.

All these patients complained of one or more clinical symptoms including chest tightness, heart palpitations, back pain, dizziness, fatigue, joint pain, stomachache, and tinnitus. Physical examination revealed variant degree of tenderness over one or more segments of spinal column, predominantly C3-T5, less frequently T7-T11, and occasionally lumbar region. The following table presents the incidence of each symptom among these patients and the corresponding spinal column region where tenderness was noted (Table 1).

There were no positive findings in laboratory examinations and imaging examinations including ECG, X-ray and gastroscopy. All patients were excluded from other possible diseases based on standard exclusion criteria.

Based on the only common finding in this patient population - spinous process tenderness hence, the term, Spinous Process Tenderness Syndrome (SPTS), was noted.

Symptom	Incidence (%)	Affected spinal segment
Chest tightness	362 (48.03)	C7-T5
Palpitation	320 (42.46)	T2-T7
Back pain	292 (38.75)	C7-L1
Dizziness	250 (33.18)	C3-T5
Weakness	222 (29.47)	C7-T11
Arthralgia	154 (20.42)	C7-L1
Epigastric pain	140 (18.56)	T3-T7
Tinnitus	41 (5.34)	C3-T5

Table 1: Clinical findings in SPTS patients (n=754).

Hypothetic Etiology and Pathogenesis of SPTS

Based on the clinical findings and our treatment experience with anti-inflammatory strategies, we believe SPTS is caused by an aseptic chronic inflammation in spinous process over cervical, thoracic and/or lumbar region. Región [1]. The inflammation associated fibrous tissue degeneration, scarring or cords of fibrous tissue adhesion lead to compression/irritation of surrounding nerves [2], nearby nerve roots, vertebral arteries, spinal cord and autonomic nerves. The resulting dysfunction of autonomic nervous system is presented as symptoms of the organs that are dominantly innervated by the affected nerves [3]. Thus, SPTS is considered to be a rheumatic autoimmune disease.

Diagnosis of SPTS

Major clinical manifestations: Nonspecific symptoms including dizziness, palpitation, chest tightness, epigastric pain, back pain, fatigue, arthralgia or tinnitus, etc.

Physical examination: There is various degrees of tenderness on the areas of body surface by pressing the spinous process.

Laboratory and imaging examination: There are no positive findings associated with clinical symptoms such as spine or joint X-rays, electrocardiogram, heart or abdomen color doppler, gastroscopy, rheumatic or immune laboratory examinations, etc.

Exclusion Criteria of SPTS

The patients who have above symptoms while suffering from hypertension, coronary heart disease, arrhythmia, rheumatic heart disease, myocarditis, Heart failure, arthritis, cervical spondylosis, thoracic spine disease, lumbar spine disease, gastritis, gastric ulcer, duodenal ulcer, cholecystitis, gallstones, and Meniere 's syndrome.

Differential Diagnosis of SPTS

It is not difficult to distinguish SPTS from cervical spondylosis, coronary heart disease and gastric ulcer for that SPTS lacks remarkable findings in laboratory and imaging examinations that are clearly present in those other conditions.

SPTS might be confused with spinous process inflammation as that those patients also have tenderness in the spinous process. Notably, the majority of spinous process inflammation is caused by chronic ligament injuries from sedentary and long-term weight-bearing activities. The resulting clinical symptoms are predominantly the spine local findings, such as significant back pain and reduced range of motion, with mild or no systemic symptoms. Whereas clinical symptoms in SPTS are predominantly systemic ones, and the local pain occurs only when spinous process is pressed.

As SPTS patients mostly are mid-aged women, SPTS might be misdiagnosed as coronary heart disease, climacteric syndrome and neurosis. In these cases, a thorough systemic examinations should be conducted and a positive finding of spinous process tenderness and lack of other remarkable findings would support diagnosis of SPTS.

Treatment for SPTS

Based on the etiology and pathogenesis of SPTS, the treatment strategy involves three aspects: eliminate pathogeny, reduce irritation, and medication. As SPTS is caused by chronic inflammation, it is important to treat the underlying disease such as periodontitis, rhinitis, pharyngitis, and inflammatory condition in urinary system. Additionally, massage to the affected spinal region should be avoided because an irritation to local tissue may worsen the condition and slow the recovery process. With these two measures, mild SPTS can be expected to be cured.

Note, our recommendation of reducing local tissue irritation for SPTS might appear to be contradictory to the referenced reports that massage spine ameliorated symptoms of "gastric duodenal disease" and "coronary artery disease". However, it is not clear if the disorders described in these reports are SPTS, nor if the effect of massage is temporary rather than curative in the reported cases. Therefore, our

approach and that reported in the referenced publications are not to be compared side by side, respectively.

For severe SPTS cases, anti-inflammatory drugs are recommended. Most often Nimesulide and Xinghuang, and occasionally glucocorticoids, are used for SPT treatment. Nimesulide is a nonsteroidal anti-inflammatory drug. Xinghuang is a compound pharmaceutical product containing traditional Chinese medicines (artificial bezoar, herba sarcandrae, porcine bile paste, urena lobata, pearl powder, cornu bubali, panax, pseudo-ginseng, and red yeast rice) and western medicine (indomethacin). Pharmacologic effects of Xinghua include antiseptis, improving blood circulation and resolving blood stasis, reducing swelling and pain, and inhibiting inflammatory mediators induced increase of vascular permeability. To minimize adverse gastric reaction and other side effects, Nimesulide and Xinghua should be taken after meals and the treatment duration should not exceed 2 weeks. Of note, patient drug allergy history should be clarified and those patients who are allergic to these medicines should not take these medicines.

Typical Case

Xu, female, 54, visited our clinic on November 24, 2013 and complained of chest tightness, palpitation, back pain and fatigue over one year. Previously she had received treatment in several other medical institutions, but was not clearly diagnosed with any specific disease. Taking nitroglycerin and other drugs did not relieve her symptoms. She denied a history of hypertension or coronary heart disease. Results of ECG, echocardiography, cardiac enzymes and ESR examinations were all negative. Physical examination revealed pain over C7-T5 spinous process, most prominently over T3-T5. She was diagnosed as SPTS and instructed to stop her massage therapy for her back pain and to take 0.64 g of Xinghua, 3 times a day after meals. With this treatment, her symptoms were alleviated at the second day of treatment and were basically disappeared by one week.

References

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