Case Report

Thoracic Spine Spasms Secondary to Hemorrhagic Intestinal Ulcer

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A case of thoracic spine spasms secondary to a bleeding duodenal ulcer is presented. A 41-year-old male with 14-week history of thoracic spine spasm was treated with bed rest, spinal manipulation, physical therapy, medication, and a thoracolumbar brace. Subsequently, a provocative thoracic discogram performed at T9-T10 created periscapular pain and also reproduced the presenting thoracic spasms. Intradiscal electrothermal annuloplasty (IDET) was performed at the T9-T10 level, but without sustained relief. The patient presented to a spine center for evaluation. The diagnosis of thoracic discogenic disease was suspected. A second provocative thoracic discogram was performed and failed to reproduce his thoracic spasms. Three weeks after being referred to a chronic pain management physician, the patient presented to a local emergency room with hema-
temesis. An endoscopic evaluation revealed a bleeding duodenal ulcer. Following medical treatment of the duode-
nal ulcer with a proton pump inhibitor the patient had com-
plete resolution of his thoracic spasms. This represents the first reported case of thoracic spine spasms as an ini-
tial presenting symptom of a bleeding peptic ulcer.

Key Words: Thoracic spine muscle spasms, thoracic spine
pain, intestinal ulcers, peptic ulcer disease, hemorrhagic ulcers

Muscular spasms are an involuntary local contraction that
involves an entire muscle, which are not relieved with
voluntary effort (1, 2). Spasms typically develop as a re-
flex reaction to an irritative focus (3). Internal disc dis-
ruption, facet joint syndrome, radiculopathy, or osseous
pathology are some of the disorders that can elicit spasms
in the thoracic region. Typically, these etiologies present
with concurrent pain when spasms are present. An un-
common etiology of thoracic pain and spasm is pathol-
ogy intrinsic to the gastrointestinal system such as duode-
nal ulcer, gastric ulcer, pancreatitis, ulcerative colitis, and
cholecystitis (4-6). Peptic ulcers are holes extending
through the mucosa into the muscularis propria of the
esophagus, stomach, or duodenum. Thoracic spinal pain
may be the only initial symptom of hemorrhagic duo-
denal ulcer (7). To date, thoracic spine spasm without back
pain has not been reported as an initial presenting symp-
tom for peptic ulcer disease.

We report a case of a patient presenting with spasms of
the thoracic muscles without concurrent pain due to hem-
orrhagic peptic ulcer disease.

CASE REPORT

A 41-year-old man presented to us approximately five
months following the spontaneous onset of acute thoracic
spasms. These spasms were localized to the 8th and 9th
thoracic vertebral level and extended approximately two
centimeters caudal to the inferior angle of the right
scapula. He described the spasms as a “severe cramp”,
but denied a concurrent burning, aching, or throbbing
quality. Two days after their onset the intensity of the
spasms dramatically increased. He was assessed at a
local emergency room. Ibuprofen 600mg, cycloben-
zaprine, and several days of bed rest were prescribed. Two
weeks later, there was no improvement, leading to a chi-
ropractic evaluation. A series of manipulations were per-
formed over a four week period. He simultaneously par-
ticipated in physical therapy for a three month duration.
This program provided no relief of the patients’ symp-
tomatology.

Two months after the onset of the spasms, the patient vis-
ted a chronic pain management clinic. Following his
initial evaluation the patient was simultaneously given
tall, 150 pounds, and had a blood pressure of 110/80mmHg. Lower extremity muscle girth appeared symmetrically at the right 10th and 11th ribs. There was a very mild depression of the superior endplate of vertebral bodies T10, T11, and T12. Magnetic resonance imaging of the cervical and thoracic spine showed a mild central disc herniation at C3-4, small left lateral disc herniations at T5-6, T6-7, and T7-8. At T9-10, a small right-sided disc herniation was present minimally compressing the spinal cord. There was no associated nerve root compression. No significant foraminal or central canal stenosis was seen. No evidence of discitis, abscess, or cyst formation was present.

The old discography, post-discography CAT scan, and IDET fluoroscopic films were subsequently obtained. The anterior-posterior and lateral discography films demonstrated good placement of all needles. The CAT scan demonstrated a right posterolateral tear at T8-9, a bilateral posterolateral tear at T9-T10, and a left posterolateral tear at T10-11. Review of the IDET fluoroscopic films showed proper placement of the thermal catheter.

After assimilating the information obtained from prior records, his history, and our physical exam the diagnosis of thoracic discogenic disease was suspected. The patient’s symptoms were considered to be originating from the same thoracic disc level (T9-10) or emanating from the level above (T8-9). The patient underwent a repeat provocative thoracic discogram to evaluate T8-9 and T9-10. This failed to reproduce his usual symptoms. Due to our inability to provide a specific diagnosis, the patient was referred for pain modulation techniques. The patient received intensive training on how to cope with pain, in-
cluding distraction and relaxation techniques. All previous opioid medications were discontinued and dilaudid rectal suppositories were dispensed.

Approximately three weeks later, the patient suffered an episode of hematemesis, and worsening of the thoracic spine spasm and the post-discography scapular pain. He was evaluated at a local emergency room. Workup revealed a hemorrhagic duodenal ulcer and a gastroenterologist was consulted. Four weeks later, following treatment of the duodenal ulcer with omeprazole 20mg/day, the patient experienced complete resolution of thoracic back spasms and pain.

DISCUSSION

An enormous amount of literature exists about thoracic spine pain, however, there is a paucity of literature about isolated thoracic spasms (7). Although it is well understood that thoracic spinal pain can be either spinal or extraspinal in origin (Tables 1 and 2), a similar comment cannot be offered concerning thoracic spasms. Perhaps the reason there is no literature about isolated thoracic spasms is, because to date, it has not been recognized as a potential symptom of intra-abdominal pathology or its occurrence is rare.

Pain experienced in a part of the body that is considerably removed from the tissue causing the pain is termed referred pain. Any stimulus that excites pain nerve endings in diffuse areas of the viscera causes visceral pain. Such stimuli include ischemia of the visceral tissue, chemical damage to the surfaces of the viscera, spasm of the smooth intestinal muscle, distention of the intestine, or stretching of the intestinal ligaments (8). Essentially all true visceral pain originating in the abdominal cavities is transmitted through small unmyelinated sensory nerve fibers that run with the sympathetic nerves; type C nerve fibers. These fibers travel from the duodenum through the superior mesenteric ganglion and celiac ganglion. From these ganglions, the pain fibers travel to the T8 thru T12 segments via the lesser or lowest thoracic splanchnic nerves (9). The mechanism of muscle spasm has not been elucidated to complete satisfaction even in experimental animals, but perhaps it is through this aforementioned neural pathway that spasms were elicited in the parathoracic musculature.

<table>
<thead>
<tr>
<th>Table 1. Common spinal sources of thoracic spinal pain</th>
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<tbody>
<tr>
<td>Costotransverse arthralgia/synovitis</td>
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<tr>
<td>Costovertebral arthralgia/synovitis</td>
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<tr>
<td>Infection</td>
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<tr>
<td>Neoplasms</td>
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<tr>
<td>Primary Metastatic</td>
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<tr>
<td>Neurogenic disorders</td>
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<td>Amyotrophic lateral sclerosis</td>
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<tr>
<td>Multiple sclerosis</td>
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<tr>
<td>Neurosyphilis</td>
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<tr>
<td>Stress reaction</td>
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<tr>
<td>Thoracic disc herniation</td>
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<tr>
<td>Thoracic discogenic pain</td>
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<tr>
<td>Thoracic facet joint mediated pain</td>
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<td>Thoracic spinal stenosis</td>
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<tr>
<th>Table 2. Common extraspinal sources of thoracic spinal pain</th>
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<tr>
<td>Intrathoracic</td>
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<td>----------------</td>
</tr>
<tr>
<td>Angina pectoris</td>
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<tr>
<td>Aortic aneurysm</td>
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<tr>
<td>Carcinoma</td>
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<tr>
<td>Mitral valve prolapse</td>
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<td>Myocardial infarct</td>
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<td>Pericarditis</td>
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<td>Pleurisy</td>
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<td>Pneumonia</td>
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<td>Pneumothorax</td>
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<td>Pulmonary embolism</td>
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This represents the first published case of spasms of thoracic musculature due to a hemorrhagic duodenal ulcer. In this case, the patients' thoracic spine spasms and scapular pain were erroneously attributed to discogenic disease. Schellhas et al (10) analyzed retrospectively the results of thoracic discograms performed on 100 outpatients. They found that the clinical presentation(s) of thoracic disc disease are highly variable and often mimic visceral conditions. In retrospect, there was no clue to demonstrate this patient had intra-abdominal pathology.

CONCLUSION

In conclusion, hemorrhagic ulcers should be included in the differential diagnosis when a patient presents with thoracic spasms without concurrent back pain. This represents the first published case of spasms of thoracic muscles due to a hemorrhagic duodenal ulcer. In this case, the patients’ thoracic spine spasms and scapular pain were erroneously attributed to discogenic disease.

REFERENCES

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