Article ID: WMC00593 2046-1690

Spinal Cord Tumors That Present as Chronic Abdominal Pain: Analysis of the Literature

Corresponding Author:
Dr. Mark Lyons,
Associate Professor, Mayo Clinic Arizona, 85054 - United States of America

Submitting Author:
Dr. Mark Lyons,
Associate Professor, Mayo Clinic Arizona, 85054 - United States of America

Article ID: WMC00593

Article Type: Review articles

Submitted on:10-Sep-2010, 08:03:26 PM GMT **Published on:** 10-Sep-2010, 08:39:24 PM GMT

Article URL: http://www.webmedcentral.com/article_view/593

Subject Categories:NEUROSURGERY

Keywords: Thoracic, Tumor, Meningioma, Spinal Cord, Abdominal Pain

How to cite the article: Lyons M , Windgassen E , Kinney C , Boucher O , Birch B , Patel N , Johnson D . Spinal Cord Tumors That Present as Chronic Abdominal Pain: Analysis of the Literature . WebmedCentral NEUROSURGERY 2010;1(9):WMC00593

Source(s) of Funding:

N/A

Spinal Cord Tumors That Present as Chronic Abdominal Pain: Analysis of the Literature

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Abstract

Background: Chronic abdominal pain without a structural or metabolic gastroenterological etiology can be extremely challenging to diagnose and treat. Patients presenting with an associated radicular pattern of pain may alert the clinician to a possible structural neurologic cause of the symptoms.
Methods: We present the case of a 70 year old woman who presented to our institution with an 18 month history of right upper quadrant abdominal pain. She had no associated symptoms or provoking factors. She underwent an extensive gastroenterology evaluation, including colonoscopy that was unrevealing. Ultrasound demonstrated gallstones and she was evaluated for cholecystectomy. She subsequently developed right costal margin pain. Her symptoms remained stable over the course of the next year. Follow-up general surgical evaluation was still unconvincing that the gallstones were the etiology of her symptoms. A thoracic spinal MR demonstrated a large intradural extramedullary mass at T8. Patient's neurologic exam was normal.
Results: She underwent a thoracic laminectomy and resection of a meningioma using intraoperative electrophysiological monitoring. Her abdominal pain resolved.
Conclusions: Patients can present with months to years of elusive abdominal symptoms only to be eventually found to be harboring an undiagnosed spinal tumor. We discuss the case and review the literature reports of spinal tumors masquerading as chronic abdominal pain.

Introduction

Reports of abdominal pain associated with intraspinal tumors are rare. However, patients presenting with chronic undiagnosed abdominal pain can be harboring an intraspinal tumor or other mass as the cause for their symptoms. These lesions can occur in all age groups [1-6]. The majority are in the thoracic spine and represents approximately 1% of all neurologic tumors [7]. Most of the tumors are benign. Physicians are alert to the possibility of an intraspinal process when patients present with back pain and neurologic signs and symptoms consistent with myelopathy or radiculopathy [8]. However, patients presenting with unexplained abdominal pain and no neurologic symptoms are uncommon and can be challenging to diagnose.

Methods

A 70 year old woman presented to our institution with an 18 month history of right upper quadrant abdominal pain. She initially reported right upper quadrant pain that had been present for approximately three months prior to her original presentation. The symptoms were not associated with any nausea, vomiting, diarrhea or weight loss. She had been followed for hyperplastic polyps for 12 years and had undergone multiple colonoscopies. These were mainly in the ascending and transverse colon. Previous resection of several of the polyps revealed hyperplasia. She had no complications from any of those procedures. Upon her routine follow up evaluation, she noted the onset of the right upper quadrant pain. Imaging studies had demonstrated an asymptomatic gallstone five years earlier. She was referred for consideration of a cholecystectomy for her new symptoms. It was noted that her symptoms were constant and were not related to meals or other activity. She also related more recent episodic sharp pains from just below the breast to the right lower quadrant lasting 30 seconds with spontaneous relief. Continued observation was recommended due to the atypical nature of the symptoms.
The patient was carefully followed over the next 12 months. Imaging studies demonstrated the known gallstone without any change. Standard imaging for an abdominal source of pain would not likely identify a thoracic spinal cord lesion. A hepatobiliary iminodiacetic acid (HIDA) scan showed early visualization of the gallbladder during the first hour and unremarkable tracer transit. Her right upper quadrant pain continued to be episodic, although now with some radiation to the left side. Symptoms did improve with bowel movements. Given the concern that the gallstones were not the source of the pain, a magnetic resonance .(MR) imaging studying of the thoracic

spine was obtained revealing a large enhancing intradural extramedullary mass at T8 (Illustrations 1 and 2). The patient's neurologic exam was essentially normal. She underwent a thoracic laminectomy and resection of a meningioma with intraoperative electrophysiological monitoring. Her abdominal pain resolved

Discussion

Abdominal pain associated with spinal pathology is more often reported in patients with neurologic symptoms either at time of presentation or shortly thereafter [4,8-14. Spinal cord tumors associated with abdominal pain are rare, but occur in children and adults. In children, pain is a frequent presenting symptom of spinal cord tumors usually occurring over boney segments of the spine [2,10,11,13]. However, some children can present with subacute abdominal pain without associated spinal pain [1,11,12]. Robertson reported a child with chronic abdominal pain for several months originally diagnosed as irritable bowel syndrome who eventually underwent surgery for an intramedullary spinal cord neoplasm [11]. Akiyama and colleagues described a 15 year old girl with a nearly two year history of recurrent abdominal pain worse during the night and while supine [1]. Eventually, she presented with progressive myelopathy and underwent a thoracic laminectomy with resection of an intradural extramedullary ependymoma. Following surgery, her abdominal pain completely resolved. Buck similarly described the case of a three year old female with a several week history of recurrent abdominal pain who underwent thorough gastrointestinal and urological evaluations. No structural pathology was identified and she was eventually diagnosed with functional abdominal pain. When the symptoms continued she underwent myelography which identified an intramedullary tumor. Surgical resection of a T5-T10 astrocytoma resulted in resolution of her pain [13].

Reports of adults presenting with undiagnosed abdominal pain and spinal neoplasms or abscesses often have associated neurologic symptoms or back pain at the time of presentation [8,9,11]. Cases of patients with chronic abdominal symptoms and no neurological symptoms at presentation are rare. Finstein and colleagues reported on a 71 year old woman with a four month history of right upper quadrant pain and extensive negative gastroenterology evaluation [5]. Six months after her presentation she developed back pain without neurologic symptoms and imaging demonstrated a destructive lesion in the mid thoracic spinal column. A biopsy confirmed a malignant tumor and she underwent radiation treatment which resulted in improvement of her abdominal and back pain. Eventually she developed myelopathy and required laminectomy and stabilization.A 43 year old man with two year history of epigastric and diffuse osseous pain was found to be harboring a thoracic lipoma [3]. Three years after surgical resection he remains pain free. The patient reported by Cox and Alter was a 30 year old man with an eleven month history of right flank and abdominal pain [6]. An exhaustive workup failed to identify a gastroenterological etiology. An MR revealed an intradural extramedullary mass at T11-T12, which, at time of surgery, was found to be a schwannoma. Hershfield reported several different cases of abdominal pain, including nerve entrapment syndrome, diabetic neuropathy, linea alba hernia, idiopathic abdominal pain and a case of a spinal tumor [14]. In the case of the spinal tumor, the patient presented with two year history of right upper abdominal pain with frequent radiation to the back. Multiple investigations failed to reveal a cause. The neurologic evaluation revealed upper motor neuron signs and symptoms. The patient's symptoms resolved following resection of a T6-T9 malignant neurofibroma [14].

The vast majority of patients presenting with abdominal pain without a structural or metabolic etiology will not be harboring an undiagnosed spinal tumor. Often, these patients are referred to neurologists and neurosurgeons for inexplicable pain. As our case demonstrates, chronic abdominal pain with atypical features should alert the clinician to consider a structural neurologic source for the patient's pain. A pain history that is inconsistent with gallbladder or appendix related syndromes, along with radicular features, may be clues to the possibility of a neurologic source of the pain [6, 13]. Our patient's chronic intermittent history made the diagnosis elusive. Patients with significant intraspinal lesions and no neurologic symptoms can develop neurologic symptoms rapidly [1,5,8-10]. In our case, the mechanism for the radiating abdominal pain was most likely due to thoracic nerve root compression with resultant thoracic radiculopathy and spinothalamic tract injury.

Conclusion(s)

This case of a thoracic meningioma as the etiology for an 18 month history of undiagnosed abdominal pain highlights the importance of the clinical history and the possibility of a structural neurologic cause. Given the

rarity of spinal neoplasms presenting with such a history, one should not conclude that all such patients need to undergo spinal axis imaging as part of the workup. Careful clinical analysis and selection are recommended before pursuing a neurologic evaluation in chronic abdominal pain patients. However, awareness of atypical clinical features in the setting of a negative gastroenterological evaluation may prompt the neurologist or neurosurgeon to consider a structural neurological etiology, especially in younger children. Magnetic resonance imaging remains the most sensitive diagnostic imaging tool for identifying intraspinal tumors.

References

1. Akiyama H, Tamura K, Takatsuka K, Kondo M. Spinal cord tumor appearing as unusual pain. Spine. 1994; 19(12):1410-12.
2. Drexler DL, Grill BB, Ashwal S. Spinal cord tumor-associated syrinx mimicking abdominal epilepsy: a rare cause of childhood abdominal pain. J Pediatr Gastroenterol Nut. 1989; 9:524-7.
3. Elefheriadis N, Papaloukas C, Elefheriadis, D, Pistevou-Gompaki P. Upper gastrointestinal complaints as a consequence of thoracic spinal tumor. Acta Gastroenterol Beligca. 2006; 68(3):388-91.
4. Fang S-B, Hsiao C-H, Tseng C-L. Spinal Burkitt's lymphoma manifesting as nocturnal abdominal pain and constipation: a case report. Ann Tropical Paediat. 2003; 23:215-9.
5. Finstein JL, Fox EJ, Chin K, Alvandi F. Abdominal pain in a 71-year-old woman. Clin Orthopaedics Rel Research. 2006; 453:341-7.
6. Cox JM, Alter M. Schwannoma: challenging diagnosis. J Manip Physiol Ther. 2001; 24(8):526-8.
7. McCormick PC, Post KD, Stein BM. Intradural extramedullary tumors in adults. Neurosurg Clin N Am. 1990; 1:591-608.
8. Etus V, Akansel G, Ilbay K, Koc K, Ceylan S. Multiple sclerosis and coexisting intradural extramedullary spinal cord tumor: a case report. Neurol Sci. 2002; 23:119-22.
9. Lim ECH, Med M, Seet RCS. Abdominal pain from a thoracic epidural abscess. J Gen Intern Med. 2006; 21:C8-10.
10. Aithala GR, Sztriha L, Amirlak I, Devadas K, Ohlsson I. Spinal arachnoid cyst with weakness in the limbs and abdominal pain. Pediatr Neurol. 1999; 20:155-6.
11. Robertson PL. Atypical presentation of spinal cord tumors in children. J Child Neurol. 1992; 7(4):360-3.
12. Jooma R, Torrens MJ, Veerapen RJ, Griffith HB. Spinal disease presenting as acute abdominal pain: report of two cases. Brit Med J. 1983; 287:117-8.
13. Buck E, Bodensteiner J. Thoracic cord tumor appearing as recurrent abdominal pain. Am J Dis Children. 1981; 135(6):574-5.
14. Hershfield NB. The abdominal wall. A frequently overlooked source of abdominal pain. J Clin Gastroenterol. 1992; 14(3):199-202.

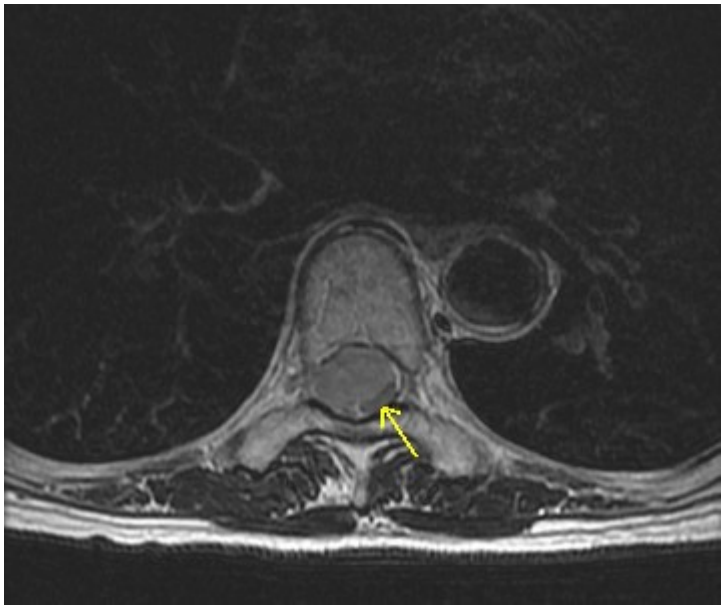
Illustrations

Illustration 1

Sagittal T-2 weighted MR demonstrating a large T8 intradural extramedullary mass.

Illustration 2

Axial T-2 enhancing T8 intradural meningioma. Severe compression of thoracic cord (arrow).



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