Journal of Spine
ISSN: 2165-7939

Xu et al., J Spine 2015, 4:4
DOI: 10.4172/2165-7939.1000236

Case Report Open Access

Occult Thoracic Spinal Stenosis: A Case Report and Literature Review

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Abstract

Background context: "Occult" thoracic spinal stenosis refers to the lack of the typical manifestations, it easily lead to clinical misdiagnosis and missed diagnosis. No previous case of "Occult" thoracic spinal stenosis with tuberculosis in L5/S1 has been reported.

Purpose: To highlight the exactly diagnosis of occult thoracic spinal stenosis accompanying lumbar disease.

Study design: This is a case report of "Occult" thoracic spinal stenosis with tuberculosis in L5/S1.

Methods: Clinical examination, magnetic resonance imaging, CT and surgical resection.

Results: After thoracic surgery, low back pain and leg pain of the patient relieved markedly and anti-tuberculosis medications were continued for lumber pathology. On 12 months follow-up, her JOA score increased from 9 preoperatively to 10 postoperatively. Neurological function recovery rate was 100%.

Conclusions: The "Occult" thoracic spinal stenosis can lead only lower motor neuron dysfunction; more attention should be given, especially accompanying lumbar disease.

Keywords: Thoracic spinal stenosis; Tuberculosis; Spine surgery

Classifications: Surgical, Deformity, Infection

Case Presentation

A 61 year old female, complain of low back pain with sciatica on lateral side of left leg in 10 months, aggravating for 3 months. The leg pain was severe but uncertain, usually aggravated when standing up in bed and relieved after certain amount of walking. Neither fever nor night sweats were noticed, with body weight loss of 5 kg since onset of the pain.

Physical examination

No obvious tenderness on left side of L5/S1 was found and no radiating pain was elicited on both lower limbs. Straight leg raising tests were negative on both sides. Hypoesthesia was noticed on dorsal part of the left foot. Motor functions of both lower limbs were normal. Physiological reflexes existed and pathological reflexes were not elicited.

The lumbar CT and MRI showed L5-S1 vertebral body destruction, the patient was enrolled for lumbar tuberculosis (Figure 1). No all of the symptoms could be explained by the pathology in the lumbar spine. For instance, the left leg pain usually aggravated when changing body positions. She needed to support her trunk with one of her upper limb when she was brushing her teeth. Through meticulous study of the MRI, a mild hypertrophy of yellow ligament in T10-12 was noticed, moreover, the inflammatory lesions in L5/S1 was in chronic phase. Further physical examination showed percussion pain on T10-12 spinous process. Additional thoracic MRI and CT verified T10-12 yellow ligament ossification, thoracic spinal canal stenosis (Figure 2).

Posterior decompression with pedicle screw fixation was accomplished (Figure 3). After surgery, her low back pain and leg pain relieved markedly and anti-tuberculosis medications were continued for lumber pathology. On 12 months follow-up, her JOA score increased from 9 preoperatively to 10 postoperatively. Neurological function recovery rate was 100%.

Discussion

Thoracic spinal stenosis is caused by degeneration, hypertrophy or ossification of the ligaments within the spinal canal. With typical

Figure 1: preoperative CT and MRI showed tuberculosis in L5/S1, Senosis and yellow ligament ossification in T10-12.

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Received June 04, 2015; **Accepted** July 08, 2015; **Published** July 10, 2015

Citation: XU H, Miao J, Bai J, Zhang J, Xi Q (2015) Occult Thoracic Spinal Stenosis: A Case Report and Literature Review. J Spine 4: 236.doi:10.4172/21657939.1000236

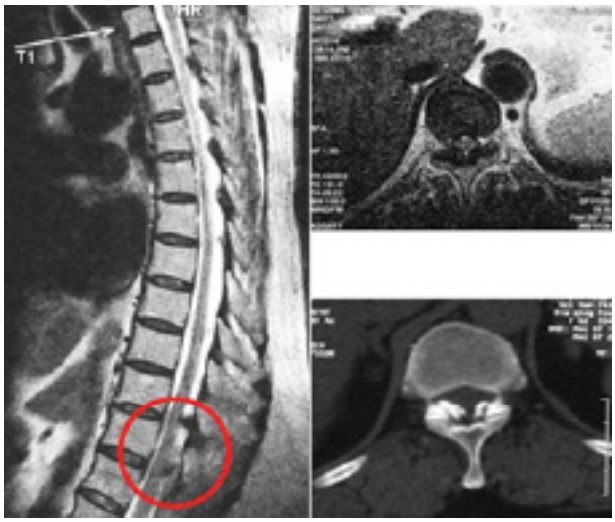

Figure 2: MRI showed ossification of yellow ligament and stenosis in T10-12. CT showed: ossification of yellow ligament with stenosis.

Figure 3: postoperative X-ray showed decompression and fusion from T10-12.

symptoms such as sensory disturbance in the trunk, chest band sensation, clumsiness of lower limbs, and hyperreflexia of physiological reflexes, pathological reflexes and sphincter dysfunction. According to relative radiological data, diagnosis is usually not difficult [1]. "Occult" thoracic spinal stenosis refers to the lack of the typical manifestations, also known as "atypical" thoracic spinal stenosis; with diverge clinical symptoms, physical signs, only a small percentage of them are consistent with radiological data. And "Occult" thoracic spinal stenosis is usually accompanied with lumbar stenosis. As a result, it easily leads to clinical misdiagnosis and missed diagnosis [2,3].

However, there have been a few reports of patients with a combination of lumbar and thoracic spinal stenosis [4-9]. Fushimi et al. [5] described six patients who suffered unexpected acute neurological deterioration at a mean of 7.8 days (6 to 10) after lumbar decompressive surgery. Five had progressive weakness and one had recurrent pain in the lower limbs. There was incomplete recovery following subsequent thoracic decompressive surgery. Hioki et al., [6] reported a 76-year-old man combined epiconus and cauda equina syndrome due to multilevel spinal canal stenosis of the thoracolumbar spine, whose symptoms was relieved via anterior and posterior approaches. Normally, MRI scan is performed by spinal anatomical site, such as cervical, thoracic and lumbar spine. Surgeons will select which part to check according to the symptoms and physical exam signs. Unfortunately, atypical compression to the spinal cord may be missed occasionally because of obscure history or careless physical exams. In this case, the stenosis in T10-12 was missed at the time of admission.

52% to 85% of thoracic stenosis occurs in lower thoracic spine [10]. Conus medullaris is involved in T10-12 stenosis. The compression to conus medullaris is characterized by combination of both upper and lower motor neuron dysfunction. Sometimes only lower motor neuron dysfunction is manifested [11]. A unilateral lower limb radiating pain and intermittent claudication are easily misdiagnosed as lumbar spinal stenosis or lumbar disc herniation [12]. In this case, the patient manifested with merely cauda equine symptoms, similar case was reported previously [13].

The intermittent claudication caused by thoracic stenosis is different to that caused by lumbar stenosis. For thoracic stenosis, flexion of lumbar spine doesn't relieve symptom, whereas, it is clumsiness not pain that occurs after walking, with pathological reflexes in lower limbs. While, extension of lumbar spine will aggravate symptoms in lumbar stenosis [14,15].

The author emphasized the following tips for diagnosis of occult thoracic spinal stenosis: 1. depending on thorough history collection and physical exam. Try not to draw a conclusion by merely radiological data without physical exam. Misdiagnosis will lead to unnecessary surgeries. 2. To clarify the responsible level by combining radiological data and clinical manifestation. 3. Emphasize the importance of differential diagnosis with relative pathologies. More attention should be given to occult thoracic stenosis to avoid misdiagnosis.

References

1. Ahn DK, Lee S, Moon SH, Boo KH, Chang BK, et al. (2014) Ossification of the ligamentum flavum. Asian spine journal 8: 89-96.
2. Amato V, Giannachi L, Irace C, Corona C, et al. (2012) Thoracic spinal stenosis and myelopathy: report of two rare cases and review of the literature. Journal of neurosurgical sciences 56: 373-378.
3. Kang KC, Lee CS, Shin SK, et al. (2011) Ossification of the ligamentum flavum of the thoracic spine in the Korean population. Journal of neurosurgery Spine 14: 513-519.
4. Kim BS, Kim J, Koh HS, Park SJ, Chung CH, et al. (2010) Asymptomatic Cervical or Thoracic Lesions in Elderly Patients who Have Undergone Decompressive Lumbar Surgery for Stenosis. Asian spine journal 4: 65-70.
5. Fushimi K, Miyamoto K, Hioki A, Hosoe H, Takeuchi A, et al. (2013) Neurological deterioration due to missed thoracic spinal stenosis after decompressive lumbar surgery: A report of six cases of tandem thoracic and lumbar spinal stenosis. The bone & joint journal 95: 1388-1391.
6. Hioki A, Miyamoto K, Hosoe H, Fukuta S, Shimizu K, et al. (2008) Two-stage decompression for combined epiconus and cauda equina syndrome due to multilevel spinal canal stenosis of the thoracolumbar spine: A Case report. Archives of orthopaedic and trauma surgery 128: 955-958.
7. Takeuchi A, Miyamoto K, Hosoe H, Shimizu K, et al. (2004) Thoracic paraplegia due to missed thoracic compressive lesions after lumbar spinal decompression surgery. Report of three cases. Journal of neurosurgery 100: 71-74.
8. Valls PL, Naul LG, Kanter SL (1990) Paraplegia after a routine lumbar laminectomy: report of a rare complication and successful management. Neurosurgery 27: 638-640.
9. Ko SB, Lee SW, Shim JH (2011) Paraplegia due to Missed Thoracic Meningioma after Laminotomy for Lumbar Spinal Stenosis: Report of Two Cases. Asian spine journal 5: 253-257.
10. Wiseman DB, Stokes JK, Toselli RM (2002) Paraparesis in a black man brought

on by ossification of the ligamentum flavum: Case report and review of the literature. Journal of spinal disorders & techniques 15: 542-545.

11. Park BC, Min WK, Oh CW, Jeon IH, Kim SY, et al. (2007) Surgical outcome of thoracic myelopathy secondary to ossification of ligamentum flavum. Joint, bone, spine : revue du rhumatisme 74: 600-605.

12. Matsumoto Y, Harimaya K, Doi T, Kawaguchi K, Okada S, et al. (2012) Clinical characteristics and surgical outcome of the symptomatic ossification of ligamentum flavum at the thoracic level with combined lumbar spinal stenosis. Archives of orthopaedic and trauma surgery 132: 465-470.

13. He S, Hussain N, Li S, Hou T (2005) Clinical and prognostic analysis of ossified ligamentum flavum in a Chinese population. Journal of neurosurgery Spine 3: 348-354.

14. Aizawa T, Sato T, Sasaki H, Kusakabe T, Morozumi N, et al. (2006) Thoracic myelopathy caused by ossification of the ligamentum flavum: clinical features and surgical results in the Japanese population. Journal of neurosurgery Spine 5: 514-519.

15. Palumbo MA, Hilibrand AS, Hart RA, Bohlman HH, et al. (2001) Surgical treatment of thoracic spinal stenosis: a 2- to 9-year follow-up. Spine 26: 558-566.