A Case of Cervical Spondylosis presenting Meralgia Paresthetica-Like Symptoms

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ABSTRACT

A 42-year-old man suffering from not only meralgia paresthetica-like symptom at bilateral thigh for 8 months but paraparesis after lumbar surgery for L5/S disc herniation was admitted to our hospital. MRI and CT scan revealed an anterior cervical spinal cord compression at C5/6 level by a horn-like osteophyte in addition to the disc herniation at the same level. The patient was successfully treated by an anterior decompression for the cervical disease to be free of both meralgia-like paresthesia and paraparesis.

Key words: cervical spondylosis, meralgia paresthetica-like symptom

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Introduction

Meralgia paresthetica has been found to occur after surgery such as anterior iliac-crest bone-graft harvesting, anterior pelvic procedures, prone positioning for spine surgery, neurinoma of the lateral femoral cutaneous nerve (LFCN) and upper lumbar degenerative diseases. We report a rare case of a 42-year-old man suffering from meralgia paresthetica-like symptom due to a cervical spondylosis for a long time after surgery for lumbar disc herniation. He was successfully treated by the anterior decompression of the cervical spondylotic lesion.

Case report

A 42-year-old man suffering from low back pain and sciatica (left→right) visited an orthopedic surgeon on April, 2003. He had a past history of C hepatitis and diabetes mellitus (DM). MRI and myelo-CT revealed a L5/S disc herniation (central type). The nerve root block was not effective. He requested a surgical treatment.

The orthopedic surgeon removed the herniated disc (3 g) by posterior approach but after the surgery the patient suffered from pain, tingling and numbness of the anterolateral aspect of bilateral thigh that was thought to be due to the compression of the LFCN during the lumbar surgery. The meralgia-like paresthesia continued and aggravated in spite of the medical treatment with NSAIDs and local nerve block at the inguinal region. Moreover his lower extremities became gradually paralytic. MRI before the first operation for L5/S disc herniation revealed a central

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type disc herniation that disappeared on the follow-up MRI after a half year from the lumbar surgery.

He visited to our hospital 7 months after the lumbar surgery. His chief complaint was a dysesthetic pain of the bilateral anterolateral thigh and motor weakness of lower extremities. He requested us to examine another spine lesion in addition to the lumbar lesion. The DM had been already treated well by insulin for three years.

**Neurological examination**

Cranial nerves were normal. The bilateral gastrocnemius muscles were atrophic. Bilateral patellar and Achilles tendon reflexes were hyperactive and right Babinski reflex was observed. The muscle power of bilateral lower extremities was weak (4/5; MMT). No positive reaction was observed to the straight leg raising test.

He was ataxic on left one-foot standing. Hypesthesia, analgesia, thermohypesthesia of bilateral anterolateral thigh were objectively observed (Fig.1). He also suffered from an intractable pain with paresthesia at the same area of bilateral thigh while compression of the bialateral inguinal ligament produced no aggravation of the meralgia-like paresthesia at bilateral thigh.

**Laboratory data**

The data on admission to our hospital revealed mild liver injury and well-controlled DM: AST 71 U/L (8-38), ALT 108 (4-44) U/L, BS 177 mg/dl (70-110), HbA1c 5.8% (4.3-5.8); (normal value).

**Neuroimaging**

X-ray of the cervical spine revealed a narrow intervertebral space at C5/6 with the restricted anteflexion.

MRI (Fig. 2) before the second operation for the cervical spondylosis disclosed a deformity of the anterior half of the spinal cord at C5/6 due to the compression by an osteophyte and disc herniation together with an intramedullary high intensity lesion on T2-weighted image (so called snake-eye sign). A horn-like osteophyte was observed at the caudal edge of the C5 vertebral body protruding into the spinal canal on CT scan (Fig.3).

**Fig.1 Preoperative neurological examination**

Paresthesia, hypesthesia, analgesia, and thermohypesthesia

MRI of the thoracic spine showed no lesion of the thoracic spinal cord.

**Operation**

On March, 24, 2004 the operation was performed under general anesthesia. Intraoperative findings revealed that the osteophyte behind the C5 compressed the dura mater and the spinal cord markedly in addition to the disc herniation.

An intervertebral body fixation with titanium cages was done after enough decompression including the removal of the horn-like osteophyte, herniated disc migrating into the posterior longitudinal ligament and the thick posterior longitudinal ligament.

**Postoperative course**

The paresthesia and pain of the bilateral thighs improved just after the operation. Moreover the motor weakness of lower extremities recovered well in a few days after the operation. He was discharged without any neurological deficit but impotence on the 12th day after the operation. Postoperative MRI revealed good decompression of the cervical spinal cord without any damage (Fig. 4).
Fig. 2: Preoperative MRI of the cervical spine. Preoperative MRI (a,b) showed a deformity of the anterior part of the cervical spinal cord with intramedullary high intensity change on T2-weighted-image on transaxial image at C5/6.

Fig. 3: Preoperative CT. Preoperative CT scan of the cervical spine revealed a horn-like osteophyte which developed from C5 vertebrae body accompanying a bone marrow.

Fig. 4: Postoperative MRI revealed a good anterior decompression and anterior intervertebral body fusion with titanium-cages.
Discussion

Meralgia paresthetica is usually considered to be a benign disorder involving the lateral femoral cutaneous nerve. Various causes have been reported in the literature such as a neurinoma [18], a military belt [5], tight trousers, hip surgery, inflammatory diseases, obesity, spinal stenosis, or uterine leiomyoma [16]. Iatrogenic meralgia paresthetica [7] has been reported as a compression neuropathy due to prone position for lumbar surgery. But the symptom continued over 8 months. This is unusual because the compression neurapraxia continues almost a few months [13]. Mirovsky [13] reported that direct injury of the LFCN during harvesting the bone from the anterior iliac crest was the only cause of the long-lasting meralgia-paresthetica (one-year after surgery). Moreover he mentioned that in all the other patients the injury to the nerve had a more benign course, and 89% completely recovered 3 months after surgery. The DM can be a causative factor in our case but it had been well controlled by insulin for three years that was objectively confirmed by the data on admission. Moreover motor weakness of lower extremities aggravated gradually in addition to the dysesthetic pain of the bilateral thigh. Meralgia paresthetica due to a disc herniation were usually reported at L1/2 or L2/3 [3, 16] that can be explained by the origin of the LFCN from the nerve roots at L2 and L3 [16]. MRI revealed no lesion at L1,2,3 in our case. In addition, the spinal lesion at L5/S shows a common sign as an absent ankle jerk while our case showed hyperreflexia of the ankle jerk [11].

The anterior compression of the cervical spinal cord by a horn-like osteophyte together with disc herniation might have produced meralgia–like paresthesia due to the compression neuropathy of the spinothalamic tract in our case in addition to the gradually aggravating paraparesis due to the deformity of the lateral portion of the spinal cord influencing the lateral corticospinal tract. The DM may be one of the underlying cause of the miscellaneous myelopathy including meralgia-like paresthesia of bilateral thigh that was a rare symptom of the cervical spondylotic myelopathy. We can not find out any such case reports in the literature. But previous papers showed some cases with cervical spondylosis that were suffering from paresthesia of lower extremities in other sites [8]. The authors proposed that the compression of the ventro-lateral column of the spinal cord may induce paresthesia or pain in some part of lower extremities due to the irritative effects of the cervical lesions of the conducting fibers; and the rarity of these pains probably depends on the infrequency of that type and degree of pathological change that can irritate the fibers and yet not block conduction through them. In the large series of O'Connell, he mentioned about the very uncommon occurrence of the compression myelopathy due to cervical spondylosis but poor prognosis when it occurred in spite of the surgical treatment [14]. In our case, MRI of the cervical spine before the second operation revealed a deformity of the anterior part of the spinal cord including both anterior and lateral spinothalamic tract at C5/6 disc level with intramedullary T2 high intensity change. Both of these deformity and intensity change improved after the anterior decompression. So it is noteworthy that the intramedullary high-intensity lesion on T2 weighted image was the reversible change that was curable by surgical decompression in our case. The reason why this lesion induced meralgia paresthesia-like symptom can not be accurately explained now. MRI image with higher Tesla (three or four) may reveal intramedullary micropathology in the near future studying the metabolic or physiological change of the conducting fibers of the spinothalamic tract.

This is a rare case report that the anterior decompression of the cervical spinal cord successfully cured the myelopathic symptoms including not only meralgia-like dysesthetic pain at
bilateral thighs lasting eight months after lumbar surgery for the small disc herniation at L5/S but also paraparesis.

References

Reviewer's comment: Yasunobu Itoh, M.D.
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This is a rare case report that a patient with cervical spondylotic myelopathy presented meralgia paresthesia-like symptom at bilateral thigh and was successfully treated by an anterior cervical decompression and fusion to be free of these symptoms. Some cases with cervical spondylotic myelopathy suffering from paresthesia of lower extremities in various sites were described in the literature, and these cases were often seen in our clinical experience. This report gives us a novel knowledge that the compression of the ventro-midline of the spinal cord at the level of C5-6 may induce myelopathy including symmetrical meralgia paresthesia-like symptom.

Reviewer's comment: 高安 正和（岡崎市民病院 脳神経外科学）

本症例報告は、他科で施行された腰椎椎間板ヘルニア手術後に両側大腿部にmeralgia paresthetica様の痛みを生じ、8ヶ月後に頸椎症に対して前方除圧固定を行ったところ、脊髄症状とともに大腿部の痛みも消失したという、たいへん興味深いとの機序が不可解な症例報告である。頸椎症状の増悪により上肢の症状がほとんどなく下肢症状が主になることは時々経験する。本例ではC5-6椎間板レベルの圧迫であり、C7髄節以下の傷害ということになるのでこういったケースと考えてもよいと思われる。ただし、非常に限局した両側大腿部の痛みをどのように説明するのが問題である。ここで述べられているmeralgia parestheticaについては脊椎脊髄椎管内障後に発症した5例の報告が、Sanabria EAMらにより本誌に掲載されているので参照されたい（Spinal Surgery 17: 195, 2003）。さて、このメカニズムを考察することは、パズルの解き方のように興味深い。著者らも考察の中でいくつか言及しているが、どれも有力ではなく、最終的に機序は不明である。私の推測は今のところ次のようである。腰椎ヘルニアの手術後に、腰椎症による外側大腿神経の圧迫のため実際にmeralgia parestheticaが発生したが、その後の頸椎性脊髄症の悪化により大腿部の痛みの関値がmodifyされ（おそらく抑制系総合の影響）、痛みをより強く感じるようになった。頸椎の前方除圧固定により脊髄の痛みの抑制系の機能が回復し、痛みが軽快したのではないか？結論は出ませんがみなさんも自分自身で説明自体が挑戦でしょう。