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Case Report

Filum Terminale Lipoma with Herniated Intervertebral Disc Treated with Traditional Korean Medicine: A Case Report

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ABSTRACT

Filum terminale lipoma is an inherited lumbosacral abnormality that can cause tethered cord syndrome. This report describes an unusual case of lumbago and sciatica, pain suspected to be caused by a filum terminale lipoma where a herniated intervertebral disc had occurred. The patient was hospitalized for 43 days and received integrative Korean medicine treatment, including acupuncture, pharmacopuncture, Chuna therapy, cupping therapy, physiotherapy and herbal medicine. Treatment effectiveness was assessed using the numerical rating scale, Oswestry Disability Index, European Quality of Life 5-Dimensions, and patient symptoms. After inpatient treatment, the pain the patient suffered was significantly reduced, and the evaluation indices scores reflected this. Integrative Korean remedies may be an effective option for lower back pain and lower extremity symptoms which are caused by filum terminale lipoma where a herniated intervertebral disc has occurred. Additional clinical research is required to support this observation.

Introduction

Filum terminale lipoma (FTL) is a common intraspinal fatty lump that is contained within the filum terminale resulting in spinal cord tethering, but is not attached to the conus medullaris. Although this may be associated with tethered cord syndrome (TCS), it is unclear whether a patient with FTL pathology will be asymptomatic, or present with tethered spinal symptoms [1-4].

TCS is an uncommon neurological disorder that presents as back or leg pain, weakness, and urinary dysfunction [5], and is characterized by signs and symptoms of excessive tension on the spinal cord. Most cases are related to spinal dysraphism. TCS can be present in any age group although, presentations differ according to age and the underlying pathological conditions. Pain, orthopedic deformities, cutaneous signs, and neurological deficits are the most common symptoms [6].

Several patients with lumbago and sciatica have been treated with integrative Korean medicine, and several articles have been published on the treatment of lumbago and sciatica with integrative Korean medicine. However, FTL has not been treated with integrative Korean medicine treatment. In this report, the outcome of a patient with suspected FTL, herniated intervertebral disc, lumbago, and sciatica who was treated with integrative Korean medicine is presented.

Case Report

Patient

OOO (M/38)

Chief complaint (onset)

Lower back pain and left leg sciatica that radiated from the left sacrum to the left popliteus along the bladder meridian (December

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2019).

Past medical history

Herniated intervertebral disc of the lumbar spine (2020). Height:171cm, weight:81kg, smoker: (-ve), drinker: (-ve), occupation: laborer.

Patient characteristics

Height: 171 cm,
Weight: 81 kg,
Smoker: (-ve),
Drinker: (-ve),
Occupation: laborer.

Present illness

In December 2019, there was onset of lower back pain and left leg sciatica. In January 2020, following lumbar magnetic resonance imaging at Local Orthopedics, the patient was diagnosed with herniated lumbar disc. He was hospitalized, underwent a medical procedure, and was taking painkillers for 2 weeks with the level of pain improving. However, after returning to work, the pain worsened.

Therefore, he visited the Jaseng Hospital of Korean Medicine on January 29th, 2020 and was admitted on January 31st, 2020.

Duration of treatment

The patient was treated from January 31st, 2020 to March 13th, 2020 (43 days of hospitalization).

Radiology

Lumbar magnetic resonance imaging (Fig. 1) was performed on February 1st, 2020, and revealed.

① L3/4 - Disc bulging.
② L4/5 - Herniated Intervertebral Disc, left central to subarticular protrusion.
③ L5/S1 - Herniated Intervertebral Disc, central protrusion.
④ Degenerative lumbar spondylosis.
⑤ FTL, L2-S1.

Fig. 1. T1 weighted sagittal plane central view of a lumbar MRI scan. The MRI scan shows filum terminale lipoma extended from L2 to S1.

Patient confidentiality

Medical records containing the patient's personal information were obtained after approval from the Institutional Review Board of the Jaseng Korean Medicine Hospital (IRB File no.: 2020-04-001).

Treatment

Pharmacopuncture therapy

Shinbaro pharmacopuncture (Jaseng Wonoe Tangjunwon, Namyangju, Korea) was administered at EX-B2 (left facet joint between the 4th and 5th lumbar spines and left facet joint between the 5th lumbar spine and sacrum). Pharmacopuncture (up to 2 mL) was performed per session using a disposable 26- gauge × 11/2" (38 mm) needle, with a 3- mL syringe (Sinchangmedical, Gumi, Korea), and was performed twice a day.

Acupuncture therapy

Electroacupuncture (3 Hz) was performed using standard, disposable, sterile 0.25 mm × *30 mm stainless steel needles (The Dongbang acupuncture equipment manufacturer, Boryung, Korea). Electroacupuncture was performed at BL22, BL23, BL24, BL25, BL26, GV3, GV4, GV5, GB 39, SP6 and Ashi points for 15 minutes, twice a day.

Cupping therapy

Wet and dry cupping therapy was administered at, GB29, BL23 points twice a day for 15 minutes. To prevent infection, sterilized disposable cups (The Dongbang acupuncture equipment manufacturer, Boryung, Korea) were used.

Herbal medicine

Chungpajun-H decoction (120 mL/package), Chungwoongbaro-Hwan (tablet), and Gwanjulgo (tablet) were prescribed (Table 1). Chungpajun-H and Chungwoongbaro-Hwan were taken 3 times a day and Gwanjulgo once a day during the hospitalization period (Table 1).

Chuna therapy

The patient was manipulated with Chuna therapy once a day. Joint distraction, joint mobilization and spine and joint manipulation for the lumbaosacral spine and pelvis were performed.

Physical therapy

The patient underwent spinal manipulation, traction, extracorporeal shock wave therapy and medicinal steaming therapies for the lumbar spine once a day.

Evaluation

Numerical rating scale (NRS)

The NRS was used to measure the severity of subjective pain, which is expressed as a score 1 to 10 (10 = worst imaginable pain, 1 = absence of pain) [7]. The patient was evaluated on the day of admission, the 15th day of hospitalization, and the day of discharge.

European quality of life 5 dimensions (EQ-5D)

The EQ-5D was used to evaluate quality of life. The maximum score is 1, which signifies a high quality of life [8]. The patient was rated on the day of admission, the 15th day of hospitalization, and the day of discharge.

Table 1. The Composition of Herbal Medicines.

Herbal medicines	Herbal components
Chungpajun-H (decoction)	Lasiosphaera Seu Calvatia 7.5 g, Acanthopanacis Cortex 5 g, Cibotii Rhizoma 5 g, Eucommiae Cortex 5 g, Achyranthes bidentata Bl. 5 g, Saposhnikovia Radix 5 g, Atractylodis Rhizoma Alba 2.5 g, Geranii Herba 2.5 g, Amomi Fructus 2.5 g, lycyrrhizae Radix 1.6 g, Zingiberis Rhizoma 1.25 g, Scolopendra morsitans L 0.25 g
Chungwoongbaro-Hwan (tablet)	Eucommiae Cortex 0.34 g, Cibotii Rhizoma 0.34 g, Achyranthes bidentata Bl. 0.18 g, Acanthopanacis Cortex 0.18 g, Saposhnikovia Radix 0.18 g, Bovis Fel 0.09 g, Atractylodis Rhizoma Alba 0.09 g
Gwanjulgo (tablet)	Rehmannia Glutinosa 3.27 g, Apis indica Radoszkowski 1.63 g, Poria Cocos 1.63 g, Panax Ginseng 0.82 g, Cervus Elaphus 0.34 g, Achyranthes bidentata Bl. 0.20 g, Asini Gelatinum 0.10 g

Oswestry disability index (ODI)

The ODI evaluates disability in patients with lumbago. It is measured from 0 to 100. The higher the score, the higher the degree of disability and pain [9]. The patient was evaluated on the day of admission, the 15th day of hospitalization, and the day of discharge.

Progress note

After the previous discharge in January 2020, when the patient underwent a medical procedure, he experienced severe waist pain and severe numbness of the left leg preventing him from walking for more than 5 minutes, and disrupting his sleep. Upon admission to Haeundae Jaseng Hospital of Korean Medicine, his painkillers were stopped to enable an accurate evaluation of his pain. On the day of admission, the NRS, ODI, EQ5D scores for lumbago and left leg sciatica were 5, 57.78, and 0.303, respectively. After the 8th day of hospitalization, numbness of the left lower leg slowly reduced, but numbness in the posterior femoral region still remained.

On the 13th day of hospitalization, he walked for more than 30 minutes without any pain and numbness.

On the 15th day of hospitalization, the NRS scores for lower back pain and left leg sciatica were both 4. The ODI score decreased to 37.78, and the EQ5D score increased to 0.659.

On the 20th day of hospitalization, left leg discomfort reduced, and on the 24th day, hypnalgia improved.

On the 26th day, the NRS scores for lower back pain and left leg sciatica both decreased to 3, but he felt pain in the sacrum when he took bigger strides.

On the 30th day, he experienced little pain whilst walking. On the 40th day, the numbness in the left leg had almost gone.

On the day of discharge, the NRS scores for lower back pain and left leg sciatica were both 3. The ODI score decreased to 20.00 and the EQ-5D score decreased to 0.841 (Figs. 2-4).

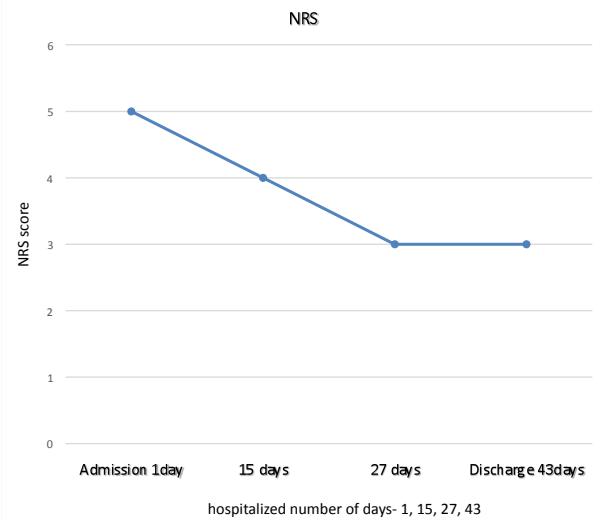

Fig. 2. Changes in NRS score for lower back pain and left leg sciatica from admission to discharge from hospital.
NRS, numerical rating scale.

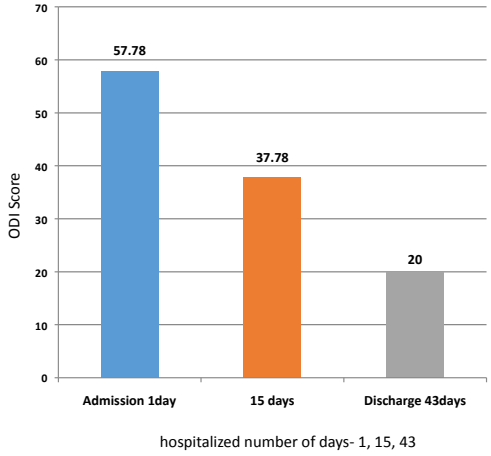

Fig. 3. Changes in ODI from admission to discharge from hospital.
ODI, Oswestry disability index.

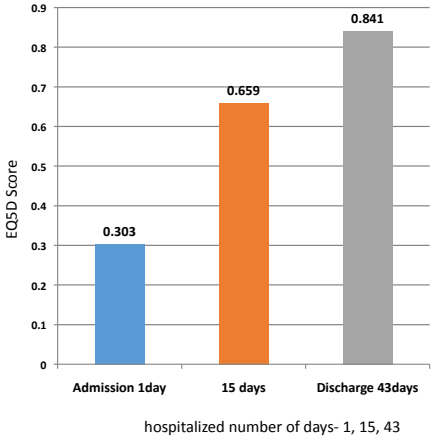

Fig. 4. Changes in EQ5D index from admission to discharge from hospital.
EQ5D, European quality of life 5 dimensions.

Discussion

Tethered cord syndrome (TCS) is a developmental neurological disorder caused by an abnormally low conus medullaris. It typically presents in childhood, but it may persist undetected until adulthood, with possible associations with an intradural lipoma. Patients with coexisting abnormalities (e.g., myelomeningocele) and clear clinical symptoms (e.g., progressive leg weakness, urinary incontinence) may require surgical treatment. The goal of surgery is to de-tether the spinal cord to relieve spinal cord stretching. Nevertheless, the indications for surgery remain controversial [10].

To date there has been no case report on FTL in Korean medicine. Therefore, integrative Korean remedies, similar to the herniated intervertebral disc and spinal stenosis treatment from previous studies, were administered to relieve the excessive tension on the spinal cord and soothe neuropathic pain [11,12].

The patient suffered from lower back pain and left leg sciatica caused by a suspected FTL and herniated intervertebral disc. His symptoms improved significantly with integrative Korean medicine treatment that included acupuncture, pharmacopuncture, Chuna therapy, cupping therapy, physiotherapy and herbal medicine. He was hospitalized for 43 days. After admission, the NRS scores for lower back pain and left leg sciatica decreased from 5 to 3. The ODI score decreased from 57.78 to 20. The EQ5D score increased from 0.303 to 0.841. Therefore, the pain was mitigated, and the nyctalgia and discomfort during walking had almost disappeared.

It was hypothesized that Shinbaro pharmacopuncture (which contains GCSB-5) at EX-B2 would be crucial to relieve the patient's symptoms because, it has anti-inflammatory effects that correlate with the inhibition of inducible nitric oxide synthetase and cyclooxygenase-2 expression [13], EX-B2 also, reduces neuropathic pain by downregulating the neuroglial activity of the spinal dorsal horn and dorsal root ganglion, through expression of calcitonin gene-related peptide and transient receptor potential cation channel subfamily V member 1 [14]. Additionally, GCSB-5 promotes nerve regeneration and stimulates motor function recovery by reducing oxidative stress [15]. These chemical mechanisms reported in other studies may have suppressed the inflammatory response and reduces the excessive pressure that caused neuropathic pain, which occurred around the conus medullaris or nerve roots. In turn, this may have reduced the lower back pain and sciatica, and promoted the recovery of muscular activities.

Dry needling and cupping therapy were used to control chronic lower back pain. Acupuncture, through deep dry needling has been reported to be effective for the management of pain associated with muscle trigger points [16,17].

Chuna therapy was uesd to reduce pain and develop functional improvement for musculoskeletal diseases [18].

Since this study reports only 1 case, more patients are required to conclude that the lumbago and sciatica pain were caused by FTL alone, even though herniated intervertebral disc treatment in Western medicine was ineffective. An electromyography is needed for a more accurate diagnosis, however this procedure was not available at the time of this study. Interestingly, the symptoms the patient complained of were serious, but the NRS score the patient gave was only 5, The ODI scores before and after treatment were dramatically different, but the decrease of NRS score was small from 5 to 3, which is inconsistent. The NRS and ODI scores are subjective to the patient. Maybe the NRS and ODI score performed after leaving the hospital would have been revealing. Despite these limitations, this case is important since it was first Korean Medicine study to reporte improved FTL symptoms following conservative treatment. Additionally, we demonstrated that integrative Korean medicine treatment can relieve severe lumbago and sciatica. Thus, we support the use of integrative Korean medicine treatment to relieve lower back pain and sciatica, even if the cause of the pain is unknown. Further studies are required to investigate the pathology of FTL and substantiate these findings.

Conflicts of Interest

The authors have no conflicts of interest to declare.

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