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Case report

Acupuncture and Spontaneous Regression of a Radiculopathic Cervical Herniated Disc

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Key Words

acupuncture; cervical disc herniation; magnetic resonance imaging; spontaneous regression

Abstract

The spontaneous regression of herniated cervical discs is not a well-established phenomenon. However, we encountered a case of a spontaneous regression of a severe radiculopathic herniated cervical disc that was treated with acupuncture, pharmacopuncture, and herb medicine. The symptoms were improved within 12 months of treatment. Magnetic resonance imaging (MRI) conducted at that time revealed marked regression of the herniated disc. This case provides an additional example of spontaneous regression of a herniated cervical disc documented by MRI following non-surgical treatment.

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1. Introduction

Since Guinto, et al. reported a case of spontaneous regression of a herniated lumbar disc in 1984 [1], this phenomenon in lumbar discs has been well documented and discussed [2-4]. However, there have been fewer reports of spontaneous regression of cervical disc herniation (CDH) [5-7], especially ones confirmed by magnetic resonance imaging (MRI) [8-10]. Recently, a patient with CDH who was treated at our hospital experienced this exceptional condition after 12 months of conservative treatment. In the following report, we will present this case and discuss the condition.

2. Material and methods

A 59-year-old female patient who was unable to conduct her normal activities or sleep due to intense neck pain and severe radiating pain in the right C7 dermatomal distribution was admitted to our institute a day after her symptoms developed. The patient had a preference for traditional Korean medicine. Despite analgesic injection, she could not maintain a supine position owing to insufferable pain from the day of admission. MRI at 15 days after the admission (Fig. 1) revealed multiple degenerative changes of the cervical vertebra, as well as a disc that was significantly herniated to the right at the C6-C7 level. On physical examination, her motor power (esp. wrist flexion) was assessed as grade 4+; the Spurling test was positive on the right side.

Details of the treatment are reported in Table 1 based on the Standards for Reporting Interventions in Clinical Trials of

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Table 1 Detailed interventions based on the STRICTA (Standards for Reporting Interventions in Clinical Trials of Acupuncture) [11]

Intervention	Item	Description
Acupuncture rationale	1	Style of acupuncture: traditional Korean medicine
		Reason for the treatment provided, based on historical context, literature sources and/or consensus methods, with references where appropriate: This study employed a style of Chinese and Korean acupuncture and followed the Korean acupuncture training curriculum at traditional Korean medical schools [12].
		Extent to which treatment was varied: The patient received individualized acupuncture treatment that focused on specific symptoms. Point selection was based on the general principle of acupuncture and traditional Korean medicine.
Needling details	2	Number of needle insertions per subject per session (mean and range where relevant): Disposable stainless-steel needles (0.3 x 40 mm, Dongbang) were inserted into the skin and up to 15 needles were inserted per treatment.
		Names (or location if no standard name) of points used (uni-/bilateral): The most frequently targeted local points were GV16, BL11, TE10, GB20, BL10, GB21, and BL12, and the most frequently treated distant points were SI3, TE3, and LI4.
		Depth of insertion, based on a specified unit of measurement or on a particular tissue level: The depth of needle insertion varied with the thickness of the skin and of the subcutaneous fatty tissue at the site of the acupuncture points; it was usually 1~1.5 cm.
		Response sought (eg, de qi or muscle twitch response): Brief contraction of the muscle fibers or de qi sensation.
		Needle sensation (eg, manual, electrical): Both manual and electrical stimulation were applied. First the needle was rotated by an experienced doctor with the index finger and thumb in an alternating clockwise and counter-clockwise fashion at a rate of three to five rotations per second. After the manual stimulation, electrical stimulation was given for 20 mins by using a battery-operated, four-channel electrostimulator that generated low-frequency, square-wave (2-10 Hz) pulses of 1 ms duration for 10 mins.
		Needle retention time: Doctors allowed 15 (minimum) to 30 (maximum) mins between insertion of the last needle and cessation of treatment.
		Needle type (diameter, length and manufacturer or material): Disposable stainless steel needles (0.3 x 40 mm, Dongbang).
Treatment regimen	3	Number of treatment sessions: 121 treatment sessions.
		Frequency and duration of treatment sessions: 5 weeks of 5 treatments per week, followed by 48 weeks of two treatments per week.
Other components of treatment	4	Details of other interventions administered to the acupuncture group (eg, moxibustion, cupping, herbs, exercise, lifestyle advice): In addition to needling, cupping, acupotomy, Scolopendrid pharmacopuncture, traction and herbal medicine were applied. Scolopendrid pharmacopuncture' 0.5 ml was injected every session. Acupotomy needles were inserted 10 times during the past 12 months. Traction was applied every two days over a period of 5 weeks and was parallel to acupuncture treatment. The patient was diagnosed as pattern of congealing cold with blood stasis. We prescribed "Gamiwogongtang" based on the pattern. Herbal medicine was to be taken three times per day over a period of 5 weeks parallel to acupuncture treatment.
		Setting and context of treatment, including instructions to practitioners, and information and explanations to patients: The patient was informed about the diagnosis and the effect of Scolopendrid pharmacopuncture and acupuncture.
Practitioner background	5	Description of participating acupuncturists (qualification or professional affiliation, years in acupuncture practice, other relevant experience): The physician had used acupuncture in practice for 22 years.
Control interventions	6	In this study, there's no control or comparator.

Acupuncture(STRICTA) [11]. She received individualized acupuncture treatment that focused on specific symptoms. The most frequently targeted local points were GV16, BL11, TE10, GB20, BL10, and GB21, BL12 and the most frequently treated distant points were SI3, TE3, and LI4. She could barely sleep for the first two weeks. She received analgesics, non-steroidal anti-inflammatory drugs and a muscle relaxant for only four weeks. She also received physiotherapy over a period of 5 weeks while admitted.

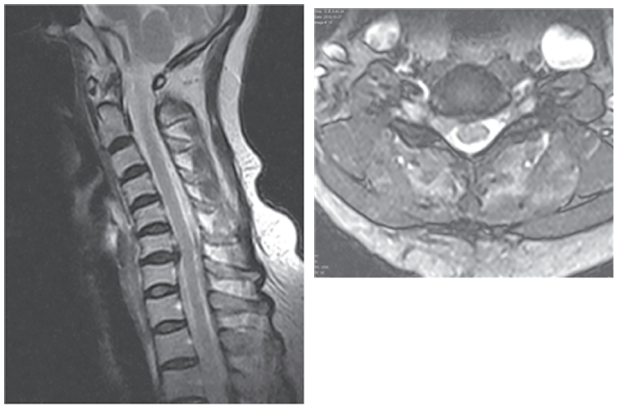

Figure 1 Radiological findings of a 59-year-old female patient who had a C6-7 disc herniation. T2-weighed imaging shows compression of the nerve root at C6-7.

3. Results

The patient's visual analog scale (VAS) score improved from 10 points at the time of admission to 3 points after 2 weeks of treatment (Fig. 3). After 12 months, the patient's symptoms were completely alleviated, and no abnormal sensory, motor or Spurling test findings were observed. In addition, follow-up MRI conducted after 12 months revealed that the protruded disc had disappeared completely and that no root compression was present (Fig. 2).

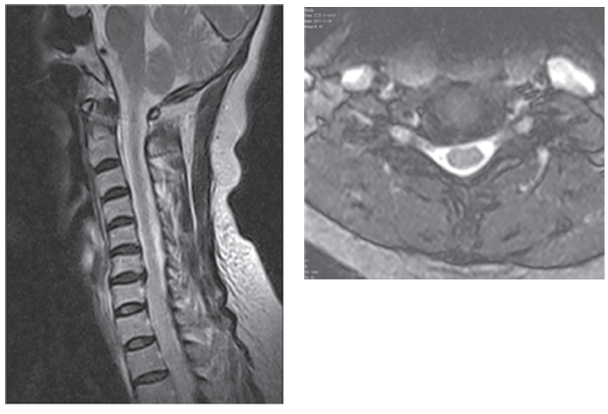

Figure 2 Sagittal and axial MRI obtained during a 12-month follow-up examination revealed that the herniated disc had disappeared.

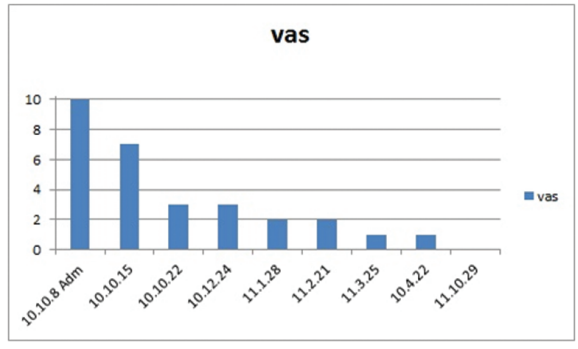

Figure 3 Changes in the rating scale for pain intensity.

4. Discussion

Since the first report of spontaneous regression of a herniated cervical disc by Krieger and Maniker in 1992 [5], several other authors have also reported this rare phenomenon [6-10]. According to the guidelines of the U.S. Department of Health & Human Services [13], anterior surgical nerve root decompression via anterior cervical discectomy with or without fusion in patients with cervical radiculopathy is recommended for rapid relief (within 3-4 months) of arm and neck pain, weakness, and/or sensory loss compared to physical therapy or immobilization with a cervical collar. In the absence of knowledge about the natural history of a herniated disc, doctors are apt to choose surgical treatment. However, surgical intervention of the cervical spine can cause serious complications. Fountas et al. [14] published a retrospective review of complications associated with an anterior cervical discectomy and fusion in 1,015 patients. The results of their studies revealed a mortality rate of 0.1% and a morbidity rate of 19.3%, with the most common complication being development of isolated postoperative dysphasia, which was observed in 9.5% of the patients. Other complications observed included post-operative hematoma (5.6%), recurrent laryngeal nerve palsy (3.1%), dural penetration (0.5%) and esophageal perforation (0.3%).

The possibility of such complications makes non-surgical treatment for cervical disc herniation desirable. Spontaneous regression of CDH with acupuncture treatment can be regarded as a benign natural course that occurs in some patients with herniated cervical disc. Several traditional Korean medical methods have been used to treat herniated cervical discs. Lee et al. [15] reported that Carthmi-Flos herbal acupuncture therapy improve the symptoms. He evaluated 20 cervical disc herniation patients treated using Carthmi-Flos herbal acupuncture. The result of his study revealed 30% excellent, 35% good, and 35% fair. Kim et al. [16] used MRI to confirm that spontaneous regression of a herniated cervical disc had occurred in 9 patients after traditional Korean medical treatment, including acupuncture, bee venom pharmacopuncture, manipulation, and herb medicine. Shin et al. [17] reported clinical improvement made by bee venom therapy at cervical hyeopcheokhyeol in the case of upper limb disability caused by cervical herniations.

Many factors related to the regression process have been recognized, including the age of the patient, dehydration of the expanded nucleus pulposus, resorption of a hematoma, revascularization, penetration of herniated cervical disc fragments through the posterior longitudinal ligament (PLL),

the size of disc herniation, and the existence of cartilage and annulus fibrosus tissue in the herniated material. Resorption of a herniated nucleus pulposus is thought to occur via an inflammatory reaction in the outermost layer of the herniation, with macrophages as the major cellular population [18].

Acupuncture could be a useful method to facilitate the factors we mentioned. Although we report only one case of CDH, it might give clinical doctors a chance to reconsider surgery, and choose conservative treatment.

5. Conclusion

Here, we report a case in which a cervical disc herniation patient improved in response to acupuncture. MRI conducted to evaluate the patient 12 months after treatment revealed that spontaneous regression of the herniated disc had occurred. Acupuncture may be considered as an option for the treatment of patients with CDH.

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