비수술적 치료 후 자연소실된 경추추간판탈출증

증례보고

포천중문의과대학교 분당차병원 통증클리닉과, 목포한국병원 신경외과, 조선대학교병원 마취통증의학과
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Spontaneous Regression of a Radiculopathic Cervical Herniated Disc following Non-surgical Treatment

- 3 case reports -

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The spontaneous regression of herniated cervical discs is not a well established phenomenon. However, we encountered the 3 cases of spontaneous regression of severe radiculopathic herniated cervical discs that were treated using a non-surgical method. Each of the patients were treated with a combination of manipulation, dry needling and analgesics. In each case, the symptoms improved within 12 months of treatment and magnetic resonance imaging (MRI) conducted at that time revealed marked regression of the herniated disc in all cases. These cases provide additional examples of spontaneous regression of herniated cervical discs documented by MRI following non-surgical treatment. (Korean J Pain 2008; 21: 84 – 88)

Key Words: cervical disc herniation, non-surgical treatment, spontaneous regression.

It is well known that spontaneous regression of lumbar disc herniation occurs.1-4 In 1985, Teplick and Haskin5 demonstrated the spontaneous regression of lumbar disc herniation for the first time using computed tomography (CT) analysis and it has since been established that conservative treatment of cervical disc herniation can provide effective alleviation of symptoms, ultimately leading to spontaneous regression.5-7 Additionally, since Krieger and Maniker8 first used MRI to demonstrate that spontaneous regression of a herniated cervical disc had occurred in 1992, many more cases of spontaneous regression have been reported.9,10 Although herniated soft discs in the cervical area can regress naturally within a few months, surgical treatments are required in many cases due to the occurrence of intractable severe pain during the acute phase. However, as long as no neurological deficits are associated with the herniated disc, effective pain management until spontaneous regression of the disc occurs can allow surgery avoided while still providing a good treatment outcome. Here, the authors report three cases of successful regression and outcome in response to conservative treatment of a herniated disc consisting of non-surgical dry needling and manipulation of the lesion caused by the herniated cervical disc.
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CASES

Case 1

A 68 year old male dextromanual patient who was unable to conduct his normal activities or sleep due to severe neck pain and severe radiating pain in the left C7 dermatomal distribution was admitted to our institute 3 days after his symptoms developed. An MRI taken at the time of admission (Fig. 1A, B) revealed that the normal cervical lordotic curve had been lost and that there were multiple degenerative changes of the cervical vertebra, as well as a disc that was significantly herniated to the left at the C6 – C7 level.

On the day of admission, the cervical lordotic curve was corrected by manual manipulation, and dry needling was then conducted using an injection needle (23 gauge, 6 cm) on the pathologic C7 myotome and sclerotome. The major points of dry needling were around the inferior angle of the scapula from where the teres major muscle is initiated, around the neck of the humerus where the long head of the triceps brachii is initiated, and around the facet joint area between C6 and C7. In addition, dry needling was conducted around the humerus head where the infraspinatus muscle and the teres minor muscle are attached to the humerus, around the outer medial border of the scapula where the muscle belly of the infraspinatus muscle is attached to the scapular bone, around the superior angle of the scapula where the levator scapulae muscles are attached, and around the inner medial border of the scapulae where the rhomboideus major muscle and the rhomboideus minor muscle are attached. When possible, dry needling was conducted until the maximal twitching response obtained. The patient reported that the pain subsided in response to treatment on the first day.

The patient was then treated by manipulation and dry needling a total of 3 times over the next 2 weeks. In addition to the physical treatment, the patient also took medicine for the first 4 weeks following admission. The patient’s visual analog scale (VAS) score improved from 9 points at the time of admission to 3 points after 1 week of treatment and to 2 points after 2 weeks of treatment. After 12 months, the patient’s symptoms were completely alleviated and there were no abnormal findings in the sensory, motor or reflex signs. In addition, follow-up MRI conducted after 12 months revealed that the cervical lordotic curve had recovered to normal, the protruded disc had disappeared completely and that no root compression was present (Fig. 1C, D).

Case 2

A 44 year old dextromanual male reported to our facility after developing neck muscle spasms and severe radiculopathic pain that radiated to the right upper extremity of his C7 dermatomal distribution. MRI performed at the time of admission revealed a loss of the cervical lordotic curve and protrusion of the disc to the right at the level
of C6–C7 (Fig. 2A, B). The patient’s pain subsided in response to treatment that consisted of manipulation, dry needling and an analgesic similar to the treatment administered to the patient described in case 1.

The patient underwent 2 additional manipulation and dry needling treatments during the first week following admission and another 2 treatments during the second week following admission. The patient’s VAS score decreased from 10 points to 5 points after the first week of treatment, and then to 2 points after the second week of treatment. After approximately 12 months, the patient’s VAS score had decreased to 1 and the patient had no sensory, motor or reflex abnormalities. In addition, follow-up MRI conducted after 12 months revealed that the cervical lordotic curve had recovered to normal, the protruded disc had disappeared completely and that no root compression was present (Fig. 2C, D).

Case 3

A 36 year old male dextromanual patient was admitted to our institute because he was unable to conduct normal activities due to severe neck pain and severe pain radiating into the left thumb. MRI conducted at the time of admission (Fig. 3A, B) revealed that the normal cervical lordotic curve was lost and that disc herniation to the left side had occurred at C5–C6.

The patient’s symptoms subsided after manipulation and dry needling treatment on the C6 myotome and sclerotome. The patient received 2 additional manipulation and dry needling treatments during the two weeks following his initial admission. In addition, the patient received pain...
medical for 4 weeks following admission. The patient’s VAS score improved from 9 points to 4 points after 1 week of treatment, and then to 2 points after 2 weeks of treatment.

A follow up examination performed after 12 months revealed that no special neurological abnormalities were present and that his symptoms had disappeared completely. In addition, X-ray and MRI follow up revealed that the cervical lordotic curve had recovered to normal, the protruded disc had disappeared completely and that no root compression was present (Fig. 3C, D).

**DISCUSSION**

Cervical disc herniation typically presents with symptoms such as complex radiculopathy, myelopathy, or both. Myelopathic patients usually undergo early surgical treatment due to concern regarding irreversible deterioration leading to neurologic deficits or to the occurrence of intractable severe pain. However, surgical intervention of the cervical spine can cause serious complications. Fountas et al. published a retrospective review of complications associated with anterior cervical discectomy and fusion in 1,015 patients. The results of their study revealed a mortality rate of 0.1% and a morbidity rate of 19.3%, with the most common complication being development of isolated postoperative dysphagia, which was observed in 9.5% of the patients. Other complications observed included postoperative 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, and several reports have revealed that such treatment often has a good clinical outcome. Since Krieger and Maniker first used MRI to confirm that spontaneous regression of a herniated cervical disc, various patterns of spontaneous regression of cervical disc herniation have been reported upon MRI analysis. In addition, Maingne and Deligne evaluated 21 cervical disc herniation patients treated using non-surgical methods that were evaluated by follow-up CT. The results of their study revealed that large herniations were reduced by greater than 75%, which was thought to be a result of the sequestrated herniated disc acting as a foreign body in the epidural space and being resorbed. In addition, Saal et al. evaluated 26 patients that underwent non-surgical treatments for cervical disc herniation and found that 24 of these patients were treated successfully without surgery, with 20 patients experiencing good or excellent recovery. Furthermore, their study revealed that only two patients required surgery, and 21 of the patients were able to return to the same job they had prior to being injured. Moreover Matsumoto et al. reported that cases of cervical disc herniation involving median-type and/or diffused type herniation without serious neurological deficits responded well to conservative treatments and that the herniated disc regressed spontaneously in 10 out of 27 patients. In cases in which the nerve root is severely compressed by the protruding disc, the surgical treatment should be considered because of the severe pain that can occur; however, non-surgical treatments may be attempted in such cases if the pain can be rapidly resolved and effectively managed.

Several non-surgical methods can be used to treat herniated cervical discs, including physical therapy and pharmacologic treatments. However, it is difficult to ameliorate the radiculopathic pain that occurs due to cervical disc herniation using these methods alone. Chu reported that EMG at tender points on myofascial bands tended to improve symptoms. In addition, needling of these points has been found to induce motor endplate activity and twitches, which leads to greater relief than needling random points. Furthermore, several other studies have shown that dry needling treatment effectively treats cervical pain in patients. Recently, the following three primary methods of dry needling were described: the myofascial trigger point model, the radiculopathy model, and the spinal segmental sensitization model. In the myofascial trigger point model, dry needling is used primarily to treat the myofascial trigger points (MTrPs), which are defined as hyperirritable spots in the skeletal muscle that are associated with hypersensitive palpable nodules in a taut band. Dry needling an MTrP is most effective when local twitch responses (LTR) are elicited. The radiculopathy model, which was developed by Dr. Chan Gunn, involves intramuscular stimulation instead of dry needl-
According to Gunn, myofascial pain is always secondary to peripheral neuropathy or radiculopathy; therefore, myofascial pain is reflection of neuropathic pain in the musculoskeletal system. This model is designed to treat muscle shortening that occurs due to neuropathy and leads to supersensitive nociceptors being compressed and causing pain. The spinal segmental sensitization model, which was developed by Dr. Andrew Fischer, combines aspects of Travell and Simons trigger point model and Gunn’s radiculopathy model. Fischer proposed that the cycle of discopathy, paraspinal muscle spasm and radiculopathy consist of paraspinal muscle spasms, which are frequently responsible for compression of the nerve root, narrowing of the foraminal space, and a sprain of the supraspinous ligament with radicular involvement. According to Fischer, the most effective methods for relief of musculoskeletal pain are preinjection blocks, needle and infiltration of tender spots and trigger points, somatic blocks, spray and stretch methods, and relaxation exercises.

In conclusion, here we report three cases in which cervical disc herniation patients improved in response to manipulation and dry needling therapy. MRI conducted to evaluate these patients 12 months after treatment revealed that spontaneous regression of the herniated disc had occurred.

REFERENCES