Case Report

Spontaneous Regression of Lumbar Disc Herniation: Report of Two Cases

Mehmet ŞENOĞLU¹, Kasm Zafer YÜKSEL¹, Mürvet YÜKSEL²

¹Süçü İmam Üniversitesi Tip Fakültesi, Nöroşirüriji, Kahramanmaraş, Türkiye ²Süçü İmam Üniversitesi Tip Fakültesi, Radyoloji, Kahramanmaraş, Türkiye

Abstract

Spontaneous disc regression is described in lumbar, thoracic, cervical regions and also in various clinical situations. Although, spontaneous regression of lumbar disc herniation is a well defined clinical situation, the exact mechanism has not been adequately clarified yet. Currently, there are some suggested hypotheses. In this study, two cases with the complaint of lumbar radiculopathy and spontaneous regression of the disc herniation during their follow-up period, relevant with their clinical improvement and along with the radiological documentation of their situation, are presented. Possibility of the spontaneous regression of the lumbar discs and amelioration in some neurological symptoms with conservative therapy should be taken into account while giving a decision for operation on a patient with lumbar disc herniation.

Keywords: Lumbar disc herniation, spontaneous regression

INTRODUCTION

Neurological symptoms occurs as a result of lumbar disc herniation and frequently improve with conservative therapy. Surgery is an another treatment choice for some cases. Regression of the herniated discs has been recognized as an important factor for the prediction of good outcome with conservative treatment in the patients with radiculopathy (1,2). It is reported that sequestrated disc herniations have more inclination for spontaneous regression as compared with subligamentous and transligamentous herniations (10). However, the mechanism of regression is not well defined (1). Myelography, computed tomographic scan (CT scan) and magnetic resonance imaging (MRI) techniques can be utilized for the detection of disc regressions (3,4,5,6). The resorption time was described to be between 6 months and 1 year with serial MRI and CT scans (7,8). Although myelography can outline the decrease in the size of the extradural defect, CT is much more accurate in the direct visualization of the spontaneous regression of the herniated nucleus pulposus. MRI also gives more detailed and accurate information about the disc herniation and natural course. Regression is defined in different segments of the spine and in some different clinical conditions (4,9).

In this study, we presented 2 lumbar discopathy cases who were admitted to our clinic with the complaint of low back pain
and/or radiculopathy and developed spontaneous regression in their follow-up period.

CASE PRESENTATION

CASE 1:
Forty-seven years old man admitted to our clinic with low back and both leg pain and neurological sign of acute onset weakness in his right foot. His neurological examination revealed bilaterally positive straight leg raising test (15 degrees at right and 45 at left leg. There was also weakness on right foot dorsiflexion (Dfx) (3/5) and right big toe Dfx was (1/5). The patient had a medical exam in another hospital 13 months ago with the complaints of low back and right leg pain and diagnosed as right Lumbar Disc herniation (LDH) after MRI examination (Figure 1). Surgery was suggested to him but he refused. After a course of medical conservative therapy and bed rest, his pain symptom improved Neurological deficits remained same after the first course of conservative treatment.

He had a lumbar MRI examination because of the progression of his symptoms and recent development of foot drop on the right side, showing L3-4 extruded LDH. The spontaneous resorption of the L4-5 right LDH was also revealed which was detected 13 months ago (Figure 1). He was operated on urgently and right L3 partial hemilaminectomy, extirpation of the large extruded disc fragment from the canal, L3-4 discectomy and right L4 foraminotomy were applied as the operative procedure. No surgical intervention was planned on the right L4-5 disc space as the spontaneous regression was demonstrated with MRI pre-operatively. His pain symptom improved post-operatively and he referred to physical therapy unit because of the foot drop on the right side.

CASE 2:
Fifty four years old woman with the complaint of low back pain referred to our clinic. In her neurological examination, straight leg raising tests were negative and had no sensorimotor deficits. According to her past medical history, she was treated with the complaints of low back and right leg pain 5 years ago with the diagnosis of right L5-S1 LDH which diagnosed with MRI examination (Figure 2A, 2Ab). There were no neurological deficits at that time. She also did not accept operation at that time and treated with medical conservative therapy. She also described the relief of her pain complaint 1 week after the institution of therapy. There was also paroxysmal low back and right leg pain attacks during that time until recently which resolved also with conservative therapy. In her control MRI examination, distinct spontaneous regression of the extruded L5-S1 LDH, was detected (Figure 2B, 2Bb). She was treated with medical conservative therapy resulting in relief of her pain complaint.
DISCUSSION

Mixter and Barr defined LDH in 1934 and treated with surgical therapy for the first time (11). Increasing number of disc operations have been applied since that time. The vast majority of LDH cases can be treated without surgery with conservative measures (2). Guimto et al defined spontaneous regression of LDH for the first time in 1983. The same situation can also be detected in cervical disc herniations but with a lesser extent(5).

As normal nucleus pulposus has no vascular elements, it can not be recognized by the immune system therefore it contains no inflammatory cells. However herniated disc tissues contain those cells (12). In the situation of herniation, these tissues are recognized as an unknown antigen by the immune system and give rise to a host-immune response. The edges of the extruded disc materials are infiltrated by the mononuclear cells and they secrete inflammatory mediators to the media that contribute to neovascularization with resultant persistent chronic inflammation(13,14).

The exact mechanism of the spontaneous disc regression is not clarified currently. There are some possible hypotheses reported in the literature. The first proposed hypothesis is the retraction back into the intervertebral space. If there is bulging or herniation into the annulus fibrosis, this situation can be encountered theoretically (15). Second hypothesis is based on the concept of dehydration (shrinkage with the loss of the water content of the herniated disc material), slowly The recent studies asserted that the spontaneous regression, to be a result of enzymatic degradation and phagocytosis against the extruded disc tissue in the epidural space with inflammatory reaction and neovascularization (5,14,16,17,18). There are some pathological and experimental studies supporting this situation (10,19,20). There is also possibility that all 3 of these mechanisms take part in the spontaneous regression and disappearing of the disc material altogether (6,14,21).

It is documented with serial lumbar MRI and CT studies that large discal herniations can regress at a great extent in a time period of ranging between 6 months - 1 year. Spontaneous resorption of sequestrated or free disc fragments can be encountered more commonly as compared with the subligamentous focal herniations(9).

The surgical indications for disc disease are cauda equina syndrome, progressive and manifest neurological deficits, no response to conservative treatment for 2 weeks and frequently relapsing symptoms impeding the daily life quality of the patient (7,8,17,22). Most of the cases with LDH are treated with conservative treatment. Our first case had neurological deficits in his first admission, improved with conservative therapy, and the recent foot drop was as a result of a lately formed herniation one level above the previous herniation which resolved spontaneously.

Figure 2 (A): MRI of the lumbar spine. Sagittal T1, axial T2 weighted images obtained through the L5-S1 herniated fragment. (B): MRI of the lumbar spine taken at the same location as those in Figure 2A. Note the spontaneous disappearance of the L5-S1 large herniated fragment.
It is certain that in the settings of foot drop, emergent surgery should be instituted as it was the situation in our case.

Radiographic spontaneous disc regression is accompanied with clinical improvement in most of the cases. However, a study of non-surgically managed patients with documented disc herniations did not show a direct relationship between clinical and radiographic improvement (18). It appears, therefore, that symptomatic improvement may occur without significant morphological changes, or such clinical improvement precedes the radiographic changes. This discrepancy can be explained by the progressive decrease of pressure exerted by herniated fragments on neighboring neural structures and the gradual improvement of the inflammatory response that accompanies the herniation (20). In both of our cases, spontaneous disc regression was followed by clinical improvement.

We believe that, patients without certain indications for surgery can be managed without surgery, thinking about the probability of the spontaneous disc resorption nevertheless of the dimensions of the herniated discs in radiological studies. The concept of not treating the MRI or CT scans but the patient, should be taken into consideration advisedly in current neurosurgery practice in order to prevent irrelevant surgeries resulting in fibrosis, instability of the spine and perdition of the life quality of some patients moreover resulting in socio-economical and psychiatric problems.

In conclusion, we want to emphasize that the spontaneous regression of the disc disease can be encountered in some limited number of cases and this should also be taken into account while treating a patient without any certain indications for surgery in conjunction with the results of our cases.

Correspondence to
Mehmet Şenoğlu
E-mail: mehmetsenoglu@hotmail.com

Received by: June 30 2005
Revised by: October 05 2005
Accepted: October 07 2005

The Online Journal of Neurological Sciences (Turkish) 1984-2005
This e-journal is run by Ege University Faculty of Medicine,
Dept. of Neurological Surgery, Bornova, Izmir-35100TR
as part of the Ege Neurological Surgery World Wide Web service.
Comments and feedback:
E-mail: editor@jns.dergisi.org
URL: http://www.jns.dergisi.org
Journal of Neurological Sciences (Turkish)
ISSNe 1302-1664

REFERENCES