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Spontaneous Clinical and Radiological Resolution of a Large Extruded disk in the Lumbar Spine

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Abstract

Low back ache arising due to a herniated lumbar disk with radicular pain to the lower limbs is a commonly occurring problem evaluated by spine surgeons. Conservative treatment has usually been proposed for an acute disk prolapse in cases without significant motor or sensory deficit. Spontaneous radiological regression of an extruded herniated disk with complete symptomatic recovery has occasionally been reported. A case of conservatively treated large extruded lumbar disk is described who showed complete radiological resolution, along with regression of the clinical symptoms.

Keywords: Extruded lumbar disk, conservative treatment, clinical and radiological resolution.

Introduction

Low back ache due to lumbar disk herniation is a commonly encountered illness by spine surgeons worldwide. This can cause significant disability and functional limitation to patients which also translate into high economic burden. Decision regarding conservative or surgical treatment is often variable in cases without significant neurological deficit and is dependent on the clinician or the patient based on the severity of the symptoms [1]. Spontaneous regression of an extruded herniated disk with complete symptomatic recovery has occasionally been reported. Multiple mechanisms for the regression of a herniated disk have been proposed. We describe a patient with large sequestrated lumbar disk prolapse who showed complete symptomatic recovery along with radiological resolution.

Case Report

A 32-year-old female had presented with low back ache with pain radiating to the right lower limb along the lumbar (L) 5 and sacral (S) 1 dermatome of 3 months duration. Her backache and radicular pain had worsened with restriction of her activities of daily living for the past 1 month. She did not complain of any limb weakness, sensory loss or bladder involvement, and on examination her straight leg raising on the right was 45°. Her motor power in both lower limbs was 5/5 with normal deep tendon reflexes. She had decreased sensation to pain and touch in the right S1 dermatome. The magnetic resonance imaging (MRI) of the lumbar spine had revealed a prolapsed, extruded, and caudally migrated intervertebral disk at L5/S1 indenting the thecal sac and the exiting root at L5/S1 level on the right side (Figs. 1 and 2). In view of her MRI findings and persistent pain of 3 months duration, she was advised L5/S1 microdiscectomy. However, she was not willing for the same and opted for medical management. She was managed conservatively, initially with bed rest, anti-inflammatory medications along with oral prednisolone and muscle relaxants (Chlorzoxazone) for 2 weeks which resulted in subjective improvement of her pain. Although her pain did not completely subside, she was able to carry out her activities of daily living without the need for analgesics. Three months later her back pain and radicular pain worsened, she had difficulty in carrying out her normal activities but did not want a surgical procedure. Her physical examination did not show any worsening of her neurological status, she was again advised bed rest, local infrared heat treatment, transcutaneous electrical nerve stimulation, and oral analgesics with muscle relaxants. A week after starting treatment, this time again she recovered to the extent that she did not need any medication and could perform her activities of daily living although with some discomfort. Gradually, with passage of time, she had two more similar episodes over a period of 1 year, where her back ache would recur and subsided with conservative treatment. At present, 2 years after her initial diagnosis, she is now completely pain free and has had a repeat MRI showing near complete

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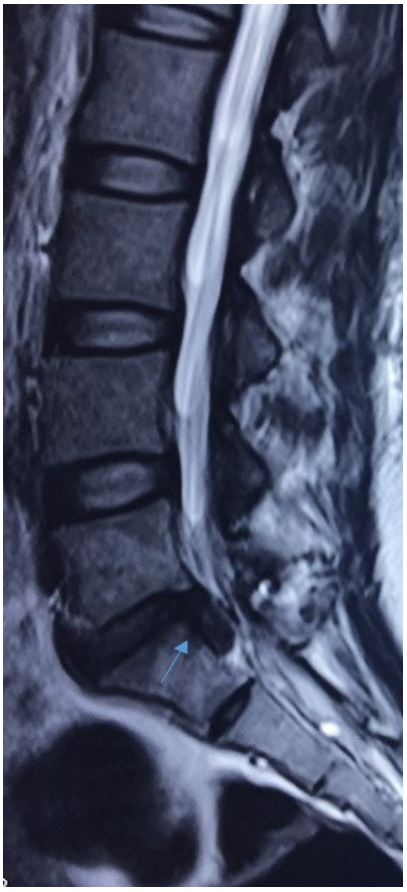

Figure 1: Sagittal T2-weighted (wt) sequence of MRI lumbar spine showing caudally migrated sequestrated L5/S1 disk (arrow).

resolution of the extruded disk (Figs. 3 and 4).

Figure 3: Sagittal T2 wt image shows near complete resolution of the L5 S1 extruded disk.

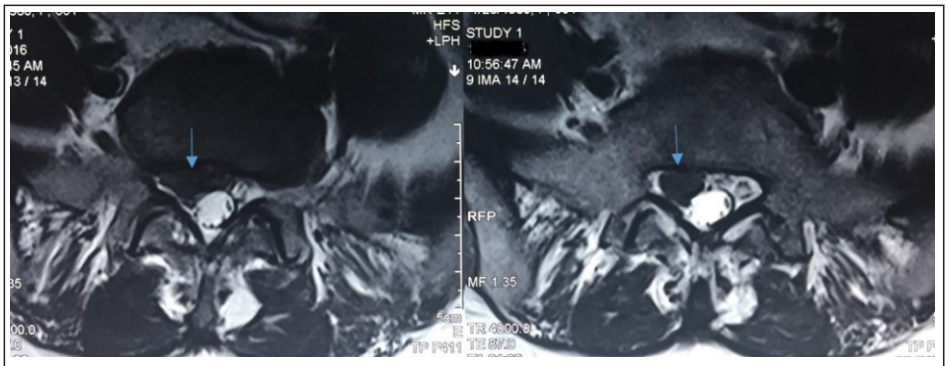

Figure 2: Axial T2-weighted MRI images of lumbar spine showing sequestrated disk indenting the right (arrow) exiting root.

Discussion

Disk protrusion in the lumbar region is a common ailment affecting quality of life, decreased functional ability, and loss of productivity. It ranks number one among diseases with the most years lived with disability [2].

Lumbar disk herniation may be classified as protruded, extruded, or sequestrated. There are multiple mechanisms proposed in the literature for spontaneous regression of herniated disks. Dehydration within the nucleus pulposus and volume shrinkage, mechanical retraction of the herniated disk material into the annulus fibrosus, and enzymatic degradation with phagocytic reduction through immune mediators are three most common. Among the varieties of herniated disks, sequestrated fragments were found to regress earliest in most reports [1, 3, 4, 5, 6], the reason postulated is that the sequestrated free disk fragment is no longer in contact with the parent disk and is unable to receive nutrients, thus undergoes dehydration and shrinkage earlier [1, 5]. It is also postulated that the sequestrated disk unlike other disk herniation's initiates an inflammatory response and neovascularization, along with immune mediated cell degradation, which includes production of matrix proteinase, increasing of cytokine levels, enzymatic degradation, and macrophage phagocytosis [3, 4, 5]. The subsequent increase in blood flow to the free fragment also explains why sequestrated disks enhance on Gadolinium contrast. The patient group with protruded disks takes the longest to resolve radiologically as the age group is usually younger and the nucleus pulposus of the protruded disk is rich in collagen fibers and cartilage cells which require a longer absoption

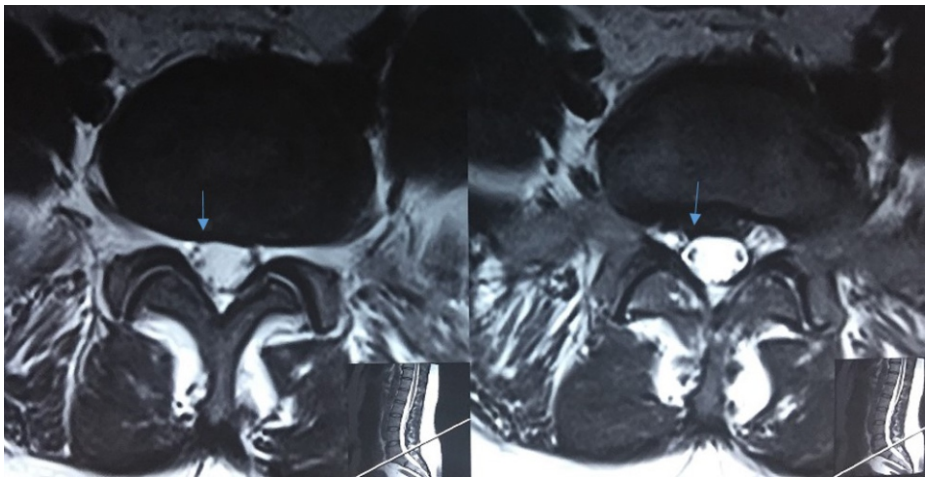

Figure 4: Axial T2 wt MRI images showing resolution of the prolapsed disk (arrows).

time [5].

The MRI predictors of spontaneous regression include the type of herniation, sequestrated more than protrusions, and extruded. T2 hyperintensity on MRI is a direct predictor as it implies an inflammatory response around the herniated disk, contrast enhancement is another predictor, wherein the thickness of enhancement is more important than the area of enhancement which is an indicator of the intensity of inflammatory response [5, 7].

Many cases of acute lumbar disk prolapse with severe back ache and radicular pain who do not have significant motor weakness or sensory loss may be managed conservatively with bed rest, analgesics, steroids, and anti-inflammatory medication, along with physical therapy. Conservative treatment ideally should be tried for about 6 weeks [2] in these patients as long as the patient is not in debilitating pain and invasive procedures should be reserved for those who develop motor weakness, significant sensory loss, or bladder involvement while on a trial of conservative treatment. If the patient is unable to bear the pain and functional disability, while the conservative treatment is being tried, an epidural/root block may be offered and if significant relief is not attained the patients may themselves request an invasive procedure. In selecting, the therapeutic approach for a patient one must take into consideration, physical examination findings, clinical/radiologic features, and preference of the patient [2]. In the literature, there is not an established correlation between the clinical examination findings and the size of the herniated disks on MRI scans [2, 8]. Clinical improvement may occur without any evident morphological changes and symptomatic recovery may precede radiological changes [2, 9]. This may be attributed to a gradual decrease in pressure on the neural structures by the herniated disk and also a progressive resolution of the inflammatory response [2]. Surgical treatment should be offered to patients with persistent pain in spite of prolonged conservative treatment, whose clinical findings correlate well with the radiological data. On the other hand, patients who decline surgical treatment should be made aware that their symptomatic recovery will be slower.

Conclusion

The size of disk herniation does not always correlate with the intensity of the symptoms. Loss of productivity and delayed return to employment should be informed while on conservative trial. Patients without significant sensory/motor deficit can recover clinically and show spontaneous radiological regression with conservative treatment. Although "wait and watch" policy constitutes the first step, surgical intervention may become unavoidable in case of further neurological worsening.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the Journal. The patient understands that his name and initials will not be published, and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

Conflict of Interest: NIL; **Source of Support:** NIL

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