Case Report

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Spontaneous Regression of Large Herniated Lumbar Disc with Remission of Symptoms

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Abstract

In adults and older age group, Low back pain is very common reason for seeking medical attention. Herniated lumbar disc accounts for majority of cases in them, requiring a refinement in management strategy. However, spontaneous disappearance of large herniated lumbar disc has been reported very rarely in the literature till the time being. The authors here report a distinctive case of spontaneous regression of a large extruded lumbar disc in a 50 year old male. The patient presented with remarkably large lumbar extruded disc with backache and progressive neurological deficits. Patient was advised for surgical discectomy but he was lost to follow up. Later on the disc regressed spontaneously as evident on MRI scan done after 6 months along with improvement in clinical symptoms. This paper has reviewed various literature & also discussed possible mechanism of disc regression with its impact on outcome.

Keywords: Lumbar Disc Herniation; Spontaneous Regression; MRI; Foraminal Stenosis; Cauda Equina Syndrome.

Introduction

Low backache is a frequent symptom in adult and older age group patients of herniated lumbar disc. However spontaneous regression of large herniated lumbar disc along with disappearance of clinical symptoms in patients without any surgical treatment are reported rarely [3,4]. First reported case of herniated lumbar disc regression by *Guinto* [6] in 1984 using computed tomography (CT) as a imaging tool has opened the door for others to analyze the phenomenon behind this. In this article the authors have done a comprehensive literature review, in context to an infrequent case of spontaneous regression of large herniated lumbar disc. The study also focuses on the clinical and radiological characteristics of patients undergoing spontaneous regression of herniated disc.

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Case Presentation

The index case is a 50 years old male patient having history of low backache for 5 years with back stiffness. Five years prior, the patient experienced moderate intensity back pain while carrying a heavy box, but lumbar X-ray was normal and the patient was successfully treated with physiotherapy. The patient again came back with complain of a one-month history of severe backache in addition to left buttock and leg pain after a strenuous maneuver at the work. The patient complained of difficulty in walking and severe pain radiating to left lower limb and had left ankle & extensor hallucis longus (EHL) weakness (2/5) on examination. Straight leg raising test was positive on left side at 20 degree. One month after the acute onset of symptoms, Magnetic Resonance Imaging (MRI) of the lumbar spine was done and it revealed a large, left-sided L5-S1 extruded disc fragment. The fragment was compressing thecal sac and left L5 nerve root **(Figure 1,2)**. The patient was advised definitive surgery, but patient could not be followed up due to unavoidable personal reasons.

Six months later, the patient came back with subsidence of backache, radiculopathy along with improvement in power of left ankle & EHL from 2/5 to 4/5. Straight-leg rising test was negative and patient was able to raise his legs up to 60 degrees. A repeat MRI at this time revealed complete resolution of the extruded disc fragment **(Figure 3,4)**. It was decided to manage the patient conservatively with regular physiotherapy. Follow-up examination 6 weeks later showed marked clinical improvement with 4+/5 power in left ankle and EHL. Sensation,

Fig. 1: Aaggital section T2 MRI LS spine - s/o hypo intense extruded disc at L5-S1 level

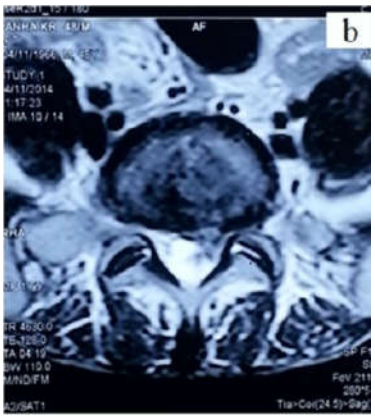

Fig. 2: T2 axial view s/o extruded disc at L5-S1 level with left foraminal stenosis

Fig. 3: T2 sagittal section mri 6 months after first MRI shows completely resolved disc material at same level

Fig. 4: T2 axial section 6 months after first MRI shows completely disappeared disc material

reflexes, bowel and bladder functions remained undisturbed.

Discussion

Lumbar disc herniation (LDH), with annual incidence of 5 per 1000 adults is one of the frequent cause of radiculopathy [7]. Currently, five subtypes of LDH are observed in the literature: Bulging Discs, Focal Protrusions, Broad-Based Protrusions, Extrusions, and Sequestrations (most severe form).[1] Regression of herniated disc have been described at different levels [4,6,7]. Various hypothesis have been given in the literature regarding this phenomenon. The first hypothesis states retraction of herniated disc into the intervertebral disc space that was protruding through annulus fibrosus but not separated from it [5,7,10]. The second hypothesis states that the disc regression is due to gradual dehydration leading to shrinkage [5,7,10]. The last hypothesis takes into account enzymatic degradation and phagocytosis of cartilaginous tissue due to inflammatory reaction and neovascularization of disc herniation [5,7,10]. The vascular mechanism of the resorption is the local reaction around the disc fragments, proliferation of the blood vessels and migration of the phagocytes towards disc material. The present case has shown spontaneous regression of large extruded lumbar disc which could be due to the fact that larger fragments have a higher water content that may regress through dehydration/shrinkage, retraction and inflammation-mediated resorption [3,4].

Magnetic resonance imaging (MRI) have become

imaging of choice to evaluate disc and its pathologies. Spontaneous regression of herniated large lumbar disc is very rare and have been reported in very few studies supported by MRI evidence for the same [4]. In such studies, MRI often shows rim enhancement due to contrast material accumulation within the vascularized granulation tissue surrounding the avascular sequestrated disc and it disappears or regresses markedly in 75-100% of cases of spontaneous regression [8,12].

Sixty three percent of patients have shown a decrease in disc protrusion in the analysis done by *Bozzao et al.* [4] Sixty eight out of 160 enrolled patients have reported decreased herniated lumbar disc volume 2 months after the development of symptoms in the series published by *Autio* [2] well documented by MRI. Other studies have documented approximately 35-63% spontaneous regression of herniated lumbar discs on follow up during a 6 month to 1 year period [7]. In a retrospective cohort study, *Saal and Saal* demonstrated that lumbar disc herniation with radiculopathy can be successfully treated with non operative procedures resulting in "good to excellent" outcomes for approximately 90% of patients [9]. In another study, *Takada and Takahashi* reported that the time period for spontaneous regression of the herniated mass by >50 % varied from 3 to 12 months [3]. However, studies showing follow up of large extruded lumbar disc with its spontaneous regression are not present in literature

Neurological deficits are present in 50-90% of patients with a herniated lumbar disc [11]. Surgical intervention is needed as an emergency when bladder symptoms or progressive neurological deficits are present. In the absence of these symptoms, 75-90% of patients with acute sciatica due to a protruded lumbar disc experience a resolution of symptoms without surgery [7]. Clinical improvement frequently correlates with radiographic disc regression but direct relationship is still debatable [7].

Due to progressive neurological deficits, this patient was offered surgical treatment at initial presentation but as patient was lost to follow up, he could not be operated on time and on next follow up he came with disappearance of symptoms clinically and regression of extruded large disc radiologically. Thus delay in surgery can be considered as a management options in such patients. But surgical intervention should be considered strongly in the presence of Cauda Equina Syndrome, progressive neurological deficits, intractable backache.

Spontaneous regression of herniated large lumbar disc is an infrequent yet plausible phenomenon and its clinical relevance cannot be ruled out entirely while deciding management of such cases. However, surgical intervention cannot be withheld on account of this unpredictable event. But the idea of delaying the surgery combined with more frequent follow up to keep a check on neurological deficit and look for spontaneous regression, as a management option for such cases can be explored.

Conclusion

Spontaneous regression of a large herniated disc is a rarity. The spontaneous regression may be due to the fact that larger fragments have a higher water content and may regress through dehydration/ shrinkage, retraction and inflammation-mediated resorption. This knowledge suggests delaying surgical intervention combined with frequent follow up in cases of large herniated disc as a management option provided the condition of patient remains same or improve on follow up. But the feasibility of such management option require further studies.

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