Case report

Lumbar disc cyst with contralateral radiculopathy

Kishore Tourani1, Belman Murali1, Akshay Sahoo1, Dandu Ravi Varma1, Narayan Prasad2

1Department of Radiology & Imaging and 2Department of Orthopedics, Care Hospital, Road No.1, Banjara Hills, Hyderabad 500 034, Andhra Pradesh, India.

Article history

Received 18 August 2012
Revised 20 August 2012
Accepted 21 August 2012
Early online 25 August 2012
Print 31 August 2012

Abstract

Disc cysts are uncommon intraspinal cystic lesions located in the ventrolateral epidural space. They communicate with the nucleus pulposus of the intervertebral disc and cause symptoms by radicular compression. We report a unique case of lumbar disc cyst that was associated with disc herniation and contralateral radiculopathy. A 22 year old male presented with one month history of backache radiating to the left leg. Magnetic Resonance Imaging (MRI) showed L3-L4 disc herniation with annular tear and cystic lesion in the extradural space anterior to the thecal sac on right side, which increased in size over a period of 3 weeks. L3 laminectomy and bilateral discectomy and cyst excision was done with partial improvement of patients symptoms.

Key words: Intervertebral disc, degeneration, cyst, lumbar, radiculopathy

© 2012 Deccan College of Medical Sciences. All rights reserved.

Lumbar disc herniation with compressive radiculopathy is very common. Disc herniation with disc cyst causing compressive radiculopathy is rare.

Case report

A 22 year old male patient presented with low backache, radiating to the left leg for one month prior to presentation. There was no history of trauma. On physical examination, he had foot drop on left side. Straight leg raising test was positive on left side at 30 degrees and on right side at 90 degrees. Ankle reflex was sluggish on left side. Sensory system was normal. Magnetic Resonance Imaging (MRI) of lumbar spine showed radial annular tear in the L3-L4 disc on the right side, with a thin rim of fluid collection posterior to it, without significant nerve root compression (Fig 1). There was a focal disc protrusion on the left side causing nerve root compression. He was advised conservative management.

After 3 weeks he presented to our institute with increasing pain and weakness of left lower limb. MRI was repeated, which revealed increase in the fluid collection at L3-L4 level extending superiorly and inferiorly beyond the disc level and also extending towards intervertebral foramen on right side (Fig 2). Disc protrusion on the left side was similar to that of previous MRI.

The patient was operated with laminectomy at L3 level with excision of the cyst and bilateral discectomy. The cyst was found to have continuity with the annular tear and contained clear serous fluid. On histopathologic examination, the cyst showed thin fibrous wall and a few cartilagenous fragments within the clear fluid. There was no evidence of hemosiderin or synovial cells. Patient had partial relief from pain and was allowed to walk on first postoperative day.
Tourani K et al.
Lumbar disc cyst with contralateral radiculopathy

Fig 1. Initial MRI. Right parasagittal T2 (A) and T1 (B) weighted images and axial T2 weighted images at the level of L3-L4 intervertebral disc (C) reveal small disc cyst on right side and focal foraminal disc protrusion on left side.

Fig 2. Follow up MRI (after 3 weeks). Images corresponding to those in figure 1 reveal increase in the vertical extent and thickness of the disc cyst. The left sided foraminal disc protrusion is unchanged.

Discussion

Disc cysts are rare, considering the frequent occurrence of prolapsed intervertebral discs, with which these lesions are usually associated. Our case is interesting because it gives an insight about the natural history of disc cysts. This patient had two MRI studies with a gap of 3 weeks between them. During this period, the disc cyst progressed from a thin rim of fluid to a large cystic collection. Since the patient is young and MRI did not show evidence of disc dessication, it is likely that disc was well hydrated. Extension of the nucleus pulposus through annular tear would have been responsible for formation of a thin collection, which progressively enlarged over the next 3 weeks. This collection increased in size and extended above and below the disc level and also into the right intervertebral foramen.

Our case is also atypical in the sense that the cyst presented with contralateral radiculopathy. Most patients with disc cysts present with ipsilateral radiculopathy, while some patients have bilateral
radiculopathy\textsuperscript{1}. Disc cyst presenting with contralateral radiculopathy has not been reported earlier in literature. In our case, while the cyst was located in the anterior epidural space on the right side, a focal disc protrusion seen on the left side. The causal relationship between the disc cyst and the symptoms can be demonstrated by the increase in severity of left sided radiculopathic symptoms with an increase in size of the disc cyst, though there was no change in the extent of left sided disc protrusion. There have been several reports of presentation of disc herniation with contralateral symptoms. Stretch on the contralateral nerve root and release of various substances such as lactic acid, glucoproteins, cytokines, phospholipase, and nitric oxide have been proposed as the mechanism for contralateral pain in these cases\textsuperscript{2}. A similar mechanism may have played a role in our case, where expression of similar inflammatory mediators by the disc cyst may have been responsible for the chemical irritation of the contralateral nerve root.

Most of the disc cysts are spontaneous or associated with minor trauma. They seem to be more common among young males\textsuperscript{3} of Asian origin compared to their Western counterparts. Our patient was 22 years old and had no prior history of trauma. Several theories have been put forward to explain the pathogenesis of these lesions. Chiba and coworkers\textsuperscript{4} proposed that disc cysts are due to epidural hemorrhage as a result of rupture of fragile epidural veins. This hypothesis appears unlikely as majority of the cases reported in literature did not show evidence of hemosiderin. Kono and coworkers\textsuperscript{5} hypothesized that extruded fluid from herniated disc material provokes inflammatory response, leading to reactive pseudo membrane formation and development of discal cyst. This is validated by our case where minimal fluid was detected initially in association with an annular tear, which eventually formed large cyst containing clear fluid in 3 weeks time.

The natural history of disc cysts is unclear. Spontaneous regression of the lesions has been reported occasionally\textsuperscript{6,7}. Most cases have been treated with surgery or minimally invasive endoscopic procedures. One case of recurrence after surgery has been reported by Lee and coworkers\textsuperscript{8}. We preferred surgical procedure over endoscopic procedure as patient had cyst on one side and disc protrusion and radiculopathy on other side.

**Acknowledgments:** None

**Conflict of interest:** None

**References**