

## Case Report



# Posterolateral Lumbar Fusion For Idiopathic Anterior Fusion of Lumbar Vertebral Bodies: A Case Report

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### ABSTRACT

We performed bilateral posterolateral lumbar fusion in a 12-year-old girl who had disabling discogenic low-back pain associated with idiopathic anterior fusion of lumbar vertebral bodies. At the end of 2-years follow-up period, she had only minimal low back pain without disability. ©2006, Firat Üniversitesi, Tıp Fakültesi

**Key words:** Idiopathic anterior lumbar body fusion, discogenic pain, treatment, posterolateral lumbar fusion.

### ÖZET

#### İdiopatik lomber vertebra anterior füzyonunda posterolateral lomber füzyon: olgu sunumu

İdiopatik lomber vertebra anterior füzyonuna bağlı diskojenik kökenli şiddetli bel ağrısı olan 12 yaşındaki kız olguda, bilateral posterolateral füzyon yapıldı. İki yıllık takip süresinin sonunda rahatsızlık vermeyen hafif bir bel ayrısı dışında sorun yoktu. ©2006, Firat Üniversitesi, Tıp Fakültesi

**Anahtar kelimeler:** İdiopatik lomber vertebra anterior füzyonu, diskojenik ağrı, tedavi, posterolateral lomber füzyon.

Fusion of the vertebral bodies may be congenital, acquired or idiopathic (1-4). In some patients, pain may originate from discs within the fused motion segments without impinging on neural structures which known as discogenic pain and a significant reduction in pain was observed with combined anterior and posterolateral fusions (5-7).

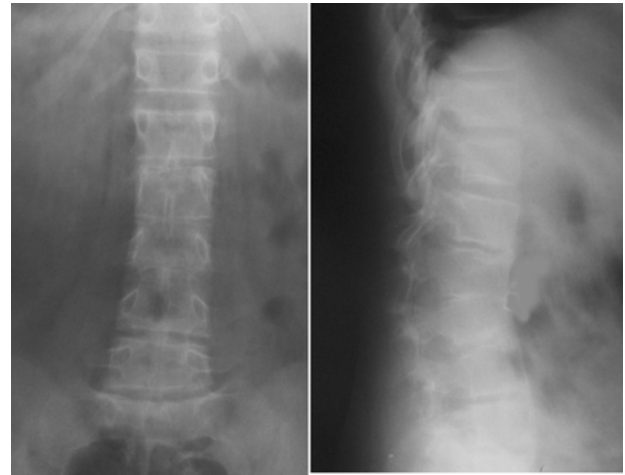
We performed bilateral posterolateral lumbar fusion in a 12-year-old girl who had low-back pain associated with idiopathic anterior fusion of lumbar vertebral bodies and tethered cord.

### CASE REPORT

A 12-year-old girl presented at our clinic with a history of low back pain. She sometimes had low-back pain from 5-years-old, but no reason was found in different medical centers. The pain was discomfortable during last 3-month which not resolved with conservative treatment.

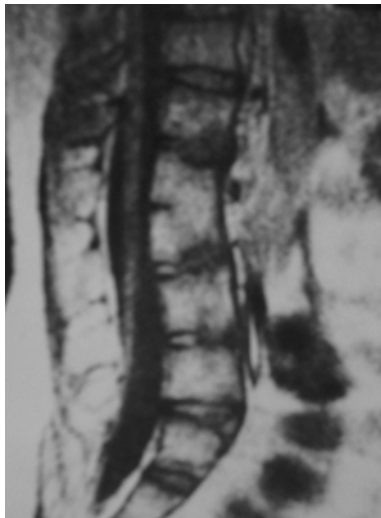
Physical examination revealed marked restriction of lumbar motion and mild lumbar kyphosis. Neurological examination was normal. Plain radiographs of the spine revealed anterior body fusion of L1 to L5 vertebra with mild kyphosis at L2-L3 level (24 degrees by the Cobb method) (Fig. 1). No motion at fusion area was observed on standing flexion-extension radiographs. MRI showed anterior body fusion of L1 to L5 vertebrae, abnormal lumbar discs and tethered cord (Fig. 2). There were no pathologic laboratory findings, tuberculosis and brucellosis tests were negative. Patient was diagnosed as idiopathic anterior lumbar body fusion and we thought that minimal disc motion was the reason of the low-back pain

(discogenic pain). Discography was not performed for determined the potential causes for pain. Bilateral posterolateral fusion of L1 to L5 vertebra was performed by using 60 cc allograft and fixated with posterior instrumentation (Fig. 3). Eight months after the operation, radiological fusion was complete and instrument was extracted. At the end of 2-years follow-up period, there was no lumbar motion on physical and radiological examinations. Local kyphosis angle was 20 degrees at L2-L3 levels. She had only minimal low back pain without disabling (Fig. 4).

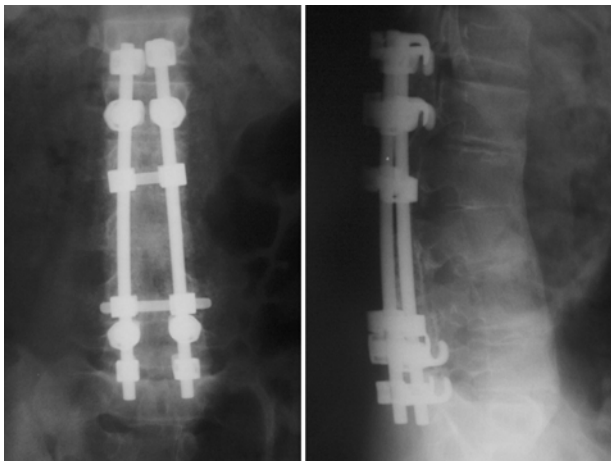


**Figure 1.** Preoperative anteroposterior and lateral radiographic views of lumbar region shows anterior lumbar body fusion of L1 to L5 and 24 degrees local kyphosis at L1-L2 levels.

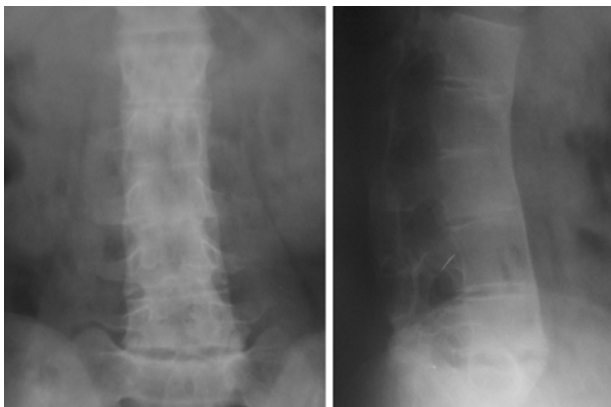
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**Figure 2.** Preoperative magnetic resonance image shows a low lying conus with a thickened filum terminale and abnormal lumbar discs.



**Figure 3.** Early postoperative anteroposterior and lateral radiographic views. Bilateral posterolateral fusion of L1 to L5 was performed.



**Figure 4.** At the end of 2-year follow-up period, anteroposterior and lateral radiographic views of solid posterolateral fusion.

## DISCUSSION

In childhood, osseous fusion may developed after discitis (2). Our case sometimes had low back pain during childhood, but she had no history of other symptoms of discitis (2). Lumbar fusion may be congenital in our case because tethered cord may be seen with congenital spine deformities (4). Our case may be a progressive noninfectious anterior vertebral fusion (1). So, we did not know that anterior lumbar fusion was congenital or acquired in our case, and we classified it as idiopathic anterior lumbar body fusion.

Major symptom of our case was low-back pain. Many spine surgeons believe that discography is indicated to determine whether a disc that appears abnormal on MRI is a source of pain (5,6,8,9). Discography is not a routine test and remains controversial (10). In our case, lumbar discs were abnormal on MRI and we classified the low-back pain as discogenic without performing the discography.

Tethered cord is a pathologic fixation of the spinal cord and it may be symptomatic or asymptomatic, and untethering is unnecessary in all cases (4,11). Tethered cord without neurological and urological symptoms may be treated conservatively (11). In contrast to neurological and urological symptoms, pain symptom was never the sole indication for surgery for tethered cord (11) and our case had only low back pain which we classified it as discogenic. So, our case was treated conservatively for tethered cord.

In the treatment of patients with disabling low-back pain, combined anterior and posterior lumbar fusion has become a standard operative procedure (12-14). The advantage of this combined fusion is removal of disc space movement which is a pain source (12-14). In our case, there was idiopathic anterior lumbar body fusion with disabling low back pain which not resolved with conservative treatment. We made bilateral posterolateral lumbar fusion for prevent the disc space movement and pain relief. Our case had minimal low back pain at the end of 2-years follow-up period.

Discogenic pain may arising from within the fused segment of the spine (5,7). One explanation for discogenic pain in a solid fusion is that micromotion of the fused segments allows for mechanical stimulation of disrupted discs (15). The treatment of discogenic pain also is controversial. Several longitudinal studies strongly suggest that fusion is useful for discogenic pain (5,8,9). Posterolateral lumbar fusion increases axial stiffness by only 40% and anterior interbody fusion increases stiffness by 80% (15). It is showed that combined anterior and posterior fusions were successful for pain relief for discogenic pain (5-7). Colhoun et al performed varying combinations of anterior or posterior fusion for discogenic pain with a success rate of 52% to 89% (6). Weatherly et al performed anterior interbody fusion in four patients with low back pain in the presence of a solid posterolateral lumbar fusion and all of them had complete relief of pain (7). Barrick et al performed anterior interbody fusion in 18 cases for discogenic pain in the presence of a solid posterolateral lumbar fusion and pain improved in 16 cases (5).

If disabling discogenic low back pain associated with anterior vertebral fusion and conservative treatment is failed, bilateral posterolateral fusion is a good choice for relieving symptoms.

**REFERENCES**

1. Andersen J, Rostgaard-Christensen E. Progressive noninfectious anterior vertebral fusion. *J Bone Joint Surg (Br)* 1991; 73: 859-862.
2. Brown R, Hussain M, McHugh K, et al. Discitis in young children. *J Bone Joint Surg (Br)* 2001; 83: 106-111.
3. Korres DS, Babis GC, Paraskevaku H, et al. Spontaneous interbody fusion after controlled injuries to the spine: an experimental study in rabbits. *J Spinal Disord* 2000; 13: 31-35.
4. Suh SW, Sarwark JF, Vora A, et al. Evaluating congenital spine deformities for intraspinal anomalies with magnetic resonance imaging. *J Pediatr Orthop* 2001; 21: 525-531.
5. Barrick WT, Schofferman JA, Reynolds JB, et al. Anterior lumbar fusion improves discogenic pain at levels of posterolateral fusion. *Spine* 2000; 25: 853-857.
6. Colhoun E, McCall IW, Williams L, et al. Provocation discography as a guide to planning operations on the spine. *J Bone Joint Surg (Br)* 1988; 70: 267-271.
7. Weatherly CR, Prickett CF, O'Brien JP. Discogenic pain persisting despite solid posterior fusion. *J Bone Joint Surg (Br)* 1986; 68: 142-143.
8. Kuslich SD, Ulstrom CL, Griffith SL, et al. The Bagby and Kuslich method of lumbar interbody fusion. *Spine* 1998; 23: 1267-1279.
9. Vamvanij V, Fredrickson BE, Thorpe JM, et al. Surgical treatment of internal disc disruption: an outcome study of four fusion techniques. *J Spinal Disord* 1998; 11: 375-82.
10. Weinstein J, Clavary W, Gibson S. The pain of discography. *Spine* 1988; 13: 1344.
11. Van der Meulen WDM, Hoving EW, Staal-Schreinemacher A, et al. Analysis of different treatment modalities of tethered cord syndrome. *Childs Nerv Syst* 2002; 18: 513-517.
12. Kozak JA, O'Brien JP. Simultaneous combined anterior and posterior fusion. An independent analysis of a treatment for the disabled low-back pain patient. *Spine* 1990; 15: 322-328.
13. Liljenqvist U, O'Brien JP, Renton P. Simultaneous combined anterior and posterior lumbar fusion with femoral cortical allograft. *Eur Spine J* 1998; 7: 125-131.
14. O'Brien JP, Holte DC. Simultaneous combined anterior and posterior fusion. *Eur Spine J* 1992; 1: 2-6.
15. Lee CK, Langrana NA. Lumbosacral spinal fusion: A biomechanical study. *Spine* 1984; 9: 574-581.

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