

## **Cauda Equina Syndrome by Disc Herniation with Posterior Limbus Vertebra : A Case report**

Aeri Jang<sup>1\*</sup>, Junhee Lee<sup>1</sup>, Yongjae Cho<sup>2</sup>, Hasuk Bae<sup>1†</sup>

Ewha Womans University, Department of Rehabilitation Medicine<sup>1</sup>, Ewha Womans University, Department of Neurosurgery<sup>2</sup>

### **Introduction**

Fracture of the limbus vertebra is an uncommon diagnosis and is thought to Result from herniation of the nucleus pulposus through the ring apophysis prior to fusion isolating a small segment of the vertebral rim. The most common site for the presence of limbus vertebra is the anterior margin of the vertebral body usually at the superior anterior margin in the lumbar vertebrae. Therefore, Posterior limbus vertebra is an uncommon finding. Clinical signs usually limit those of lumbar disc herniation, and include a history of low back pain and/or leg pain. We report a case of posterior limbus vertebra Resulting in cauda equina syndrome.

### **Case**

After returning from the Taekwondo academy, An 11-year-old man has been suffering from lower back pain. 3 days later, when he went down the stairs, he felt tingling sensation in both soles and weakness of both legs was developed, and he visited our emergency department. On neurologic examination, motor examination of lower extremities revealed bilateral ankle dorsiflexor, long toe extensor and ankle plantarflexor 1/5 with intact reflexes. Plain radiography showed a bony fragment projecting posteriorly from the body of the fourth lumbar vertebra (Figure 1). The magnetic resonance imaging(MRI) of the lumbar spine revealed compression of cauda equina (Figure 1). The patient received emergent decompressive laminectomy of L4 without post-operative complication. After 2 weeks from operation, he was transferred to department of rehabilitation medicine for comprehensive rehabilitation. A follow up examination, at transfer, 2 and 4 weeks after transfer, revealed improved motor power in both lower extremities (Table 1). According to motor recovery, Korean version of Spinal cord Independent measure(KSCIM) improved from 66 to 85. At the day of transfer, the patient's functional ability was limited to standing with both arm assist. Through the comprehensive rehabilitation, the patient's functional status was improved, as a Result, he was able to gait with monocane with supervision on discharge.

### **Conclusion**

This case suggested that cauda equina syndrome could be occurred by posterior fracture of limbus vertebra. The patient shows good prognosis compared with other cases of disc herniation with limbus vertebra, because of the his young age, emergent operation and early comprehensive rehabilitation.

Table 1. Manual muscle testing at admission, transfer, 2 weeks follow up and 4 weeks follow up after transfer

	At admission		At transfer		2 weeks follow up		4 weeks follow up	
	Right	Left	Right	Left	Right	Left	Right	Left
Elbow flexor	N	N	N	N	N	N	N	N
Wrist Extensor	N	N	N	N	N	N	N	N
Elbow extensor	N	N	N	N	N	N	N	N
Finger flexor	N	N	N	N	N	N	N	N
Finger abductor	N	N	N	N	N	N	N	N
Hip flexor	N	N	N	N	N	N	N	N
Knee extensor	N	N	N	N	N	N	N	N
<b>Ankle dorsiflexor</b>	<b>T</b>	<b>T</b>	<b>F-</b>	<b>P+</b>	<b>F-</b>	<b>P+</b>	<b>F+</b>	<b>F</b>
<b>Long toe extensor</b>	<b>T</b>	<b>T</b>	<b>P+</b>	<b>P+</b>	<b>P+</b>	<b>P+</b>	<b>F-</b>	<b>F-</b>
<b>Ankle plantaflexor</b>	<b>T</b>	<b>T</b>	<b>P+</b>	<b>P+</b>	<b>F-</b>	<b>F-</b>	<b>G</b>	<b>G</b>



Figure 1. Pre-operative plain radiography (arrow; a small segment of limbus vertebra), Post-operative plain radiography, Pre-operative T2-weighted magnetic resonance image.