

Lumbar vertebral growth plate displaced into the spinal canal

A case report of a 15-year-old boy

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Fracture of the lumbar cartilage plate is very uncommon. When the fragment protrudes into the spinal canal, the symptoms may mimic a protruded lumbar

intervertebral disc. This may delay proper surgical treatment and may reduce the chance for neural tissue recovery.

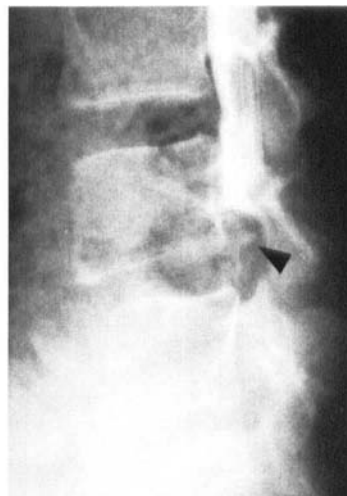
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A 15-year-old boy, while lifting a 60-kg bag of rice, felt sharp pain in the low back area, radiating to both calves. The following day motion of the lumbar spine caused pain, both feet were numb and the dorsiflexors of the ankle and great toe were weak on both sides. 4 days after the injury, the patient had paravertebral muscle spasm and limitation of lumbar motion. Straight leg raising was to 40° bilaterally. The Achilles tendon reflex was absent on both sides. The dorsiflexors of the ankle and great toe and plantar flexors of the great toe on both sides were decreased to grade IV. There was numbness along the fifth lumbar and first sacral dermatome. A lateral lumbosacral radiograph was first misinterpreted as normal, while later review revealed a faint area of opacity projecting from the inferior surface of the fourth lumbar vertebral body into the spinal canal, diagnosed as a protruded L4-5 intervertebral disc (Figure 1). After a 3-week period of bed rest and medication, the patient felt no improvement, and he had progressive motor weakness to grade III on both sides. Lumbar myelography, performed 4 weeks after the injury, revealed an extradural filling defect with complete

Figure 1. A 15-year-old boy with a fractured vertebral growth plate displaced into the spinal canal.



The lateral radiograph shows a faint area of opacity (arrow) projecting from the postero-inferior surface of L4 into the spinal canal.



The lateral myelogram shows the extradural filling defect with complete block at the lower half of L4. The faint area of opacity (arrow) is more noticeable.



The CT-scan of the lower half of L4 shows that the osteochondral bone mass from the fracture of the growth plate has protruded into the spinal canal.

blockage of the contrast media at the lower part of L4, suggesting an extruded intervertebral disc at L4-5. After reevaluation of the clinical and radiographic findings, we suspected that the extradural defect was a possible fragment from the vertebral end plate which protruded into the spinal canal. A CT-scan revealed the protrusion of an osteochondral mass from the lower part of L4 into the spinal canal.

A partial laminectomy of L4-5 was done 1 month after injury. A hard, dome-like mass was felt in front of the dural sac at the lower part of L4. The fourth and fifth lumbar nerve roots were severely compressed by the mass. The lesion felt somewhat like a fractured callus. After removing the bone fragment the nerve roots were free and the dural sac was pulsatile.

The radiating pain and numbness of both legs were improved 3 days postoperatively and there was full sensory recovery in 2 weeks. The dorsiflexors of the foot and big toe and the flexor hallucis longus returned to normal strength after 3 months.

Discussion

To our knowledge, only one case of rupture of the vertebral end-plate into the spinal canal has been reported during the past decade (Techakapuch 1981). As the fracture of the vertebral end-plate cannot be reduced or regress automatically by conservative treatment, delayed surgical decompression may prolong or lessen the recovery of the nerve roots. The lateral radiograph of the lumbar spine early after injury was difficult to interpret, but the CT-scan was useful in differentiating the displaced fracture of the lumbar vertebral end-plate from the herniation of the intervertebral disc. We also found that the fragment from the cartilage plate of the fourth lumbar vertebra could compress the fourth lumbar nerve roots. This is in contrast to the herniation of the intervertebral disc between the fourth and fifth lumbar vertebra that usually affects the nerve roots distally from the fifth lumbar nerve roots.

Reference

- Techakapuch S. Rupture of the lumbar cartilage plate into the spinal canal in an adolescent. A case report. *J Bone Joint Surg (Am)* 1981; 63 (3): 481-2.