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Delayed vertebral diagnosed L4 pincer vertebral fracture, L2-L3 ruptured vertebral lumbar disc hernia, L5 vertebral wedge fracture - Case report

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ABSTRACT

An association between delayed ruptured lumbar disc hernia, L5 vertebral wedge fracture and posttraumatic L4 pincer vertebral fracture (A2.3-AO classification) at different levels is a very rare entity. We present the case of a 55 years old male who fell down from a bicycle. 2 months later because of intense and permanent vertebral lumbar and radicular L2 and L3 pain (Visual Analog Scale of Pain 7-8/10) the patient came to the hospital. He was diagnosed with pincer vertebral L4 fracture (A2.3-AO classification) and L2-L3 right ruptured lumbar disc hernia in lateral recess. The patient was operated (L2-L3 right fenestration, and resection of lumbar disc hernia, bilateral stabilisation, L3-L4-L5 with titan screws and postero-lateral bone graft L4 bilateral harvested from iliac crest).

Keywords: Lumbar vertebral trauma, pincer fracture

Introduction

After Krbek [1] a typical feature pincer fracture is a comminuted zone of the median portion of the vertebral body, dislocation of the anterior fragment of the vertebral body in a forward direction and filling of the gap which thus arises with material from the torn intervertebral disc [1]. "Pincer" fractures tend to develop into pseudoarthroses [1]. Posterior vertebral body is always intact [1,2,3]. Associated lesions between posttraumatic L4 pincer vertebral fracture (A2.3-AO classification) [4], posttraumatic L2-L3 lumbar disc hernia (LDH) and L5 vertebral wedge fracture are very rare lesions. We present a patient who suffered a lumbar vertebral trauma by falling down from bicycle. The patient accused moderate and intermittent vertebral lumbar and L2 and L3 right radicular pain (Visual Analog Scale VAS 5/10). 2 months later the patient accused progressive increase of the pain (VAS 7-8/10), and the pain became permanent. The patient was admitted to our department, investigated by lumbar magnetic resonance imaging (MRI) and operated (fenestration L2-L3, resection of ruptured right L2-L3 LDH, bilateral stabilisation L3-L4-L5 with titan

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screws and postero-lateral bone graft L4 bilateral harvested from iliac crest.)

Case report

We present a 55 years old male who suffered a lumbar vertebral trauma by falling down from bicycle. The patient accused moderate and intermittent vertebral lumbar pain and right L2 and L3 radicular pain (VAS5/10). 2 months later the patient accused the progressive increase of the pain (VAS7-8/10), and the pain became permanent and resistant to the conservative treatment (nonsteroid antiinflammatory drugs, pain killer and bed rest). MRI of the lumbar spine revealed a ruptured L2-L3 LDH, piercing posterior longitudinal ligament(PLL) and compressing right lateral reces L2-L3, L5 vertebral wedge fracture(A1-Ao classification) and a L4 pincer vertebral fracture (A2.3-AO classification)[4].

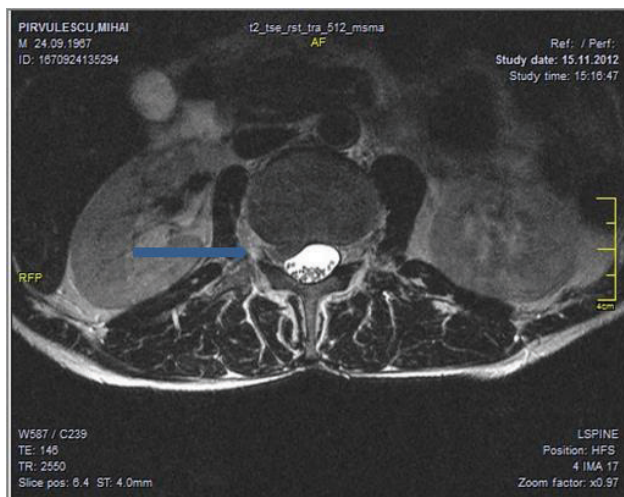


Figure 1 MRIT2, sagittal view: ruptured L2-L3 LDH, piercing PLL and compressing right lateral reces L2-L3 (blue arrow), L4 pincer vertebral fracture (black arrow), L5 vertebral wedge fracture (orange arrow)

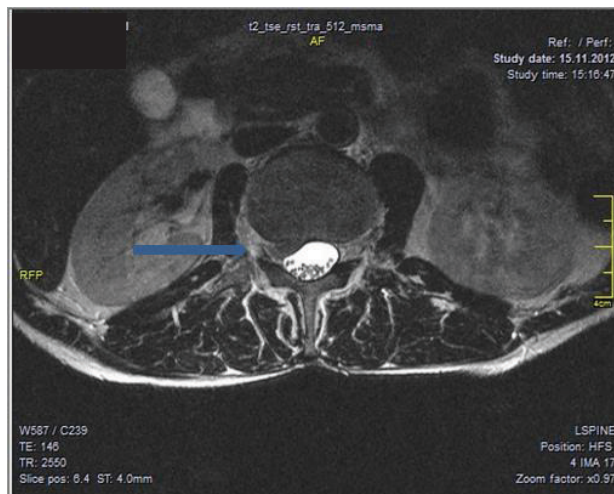


Figure 2. MRI Axial T2: Right lateral reces ruptured L2-L3 LDH, piercing PLL (blue arrow). The patient was operated (fenestration L2-L3, resection of ruptured right L2-LDH, bilateral stabilisation L3-L4-L5 with titan screws and postero-lateral bone graft L4 harvested from iliac crest.).

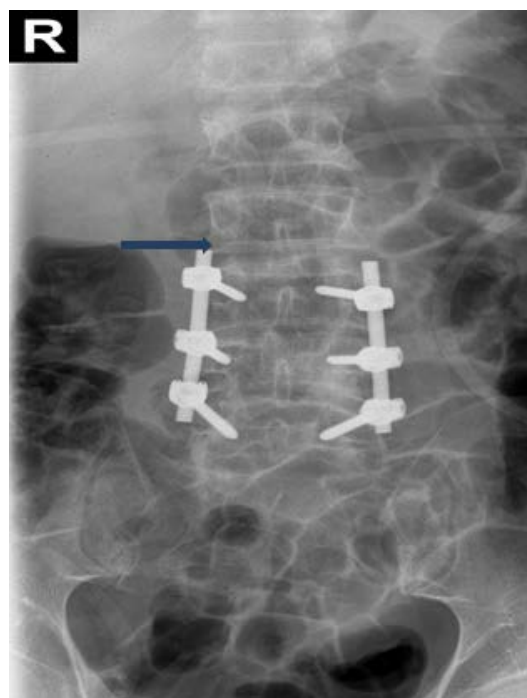
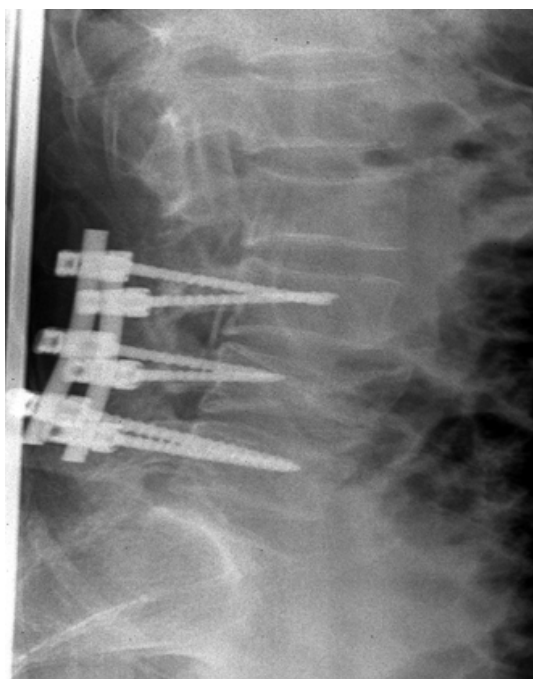


Figure 3 Postoperative Xray control . AP view: Bilateral transpedicular stabilisation by titan screws and postero-lateral bone graft L4 bilateral, complete right L3 and inferior L2 laminectomy (blue arrow) for L2-L3 discectomy



*Figure 4 Postoperative Xray control. lateral view:
Bilateral transpedicular stabilisation by titan screws and
postero-lateral bone graft L4 bilateral*

For the next 6 weeks the patient used an additional external lumbar vertebral immobilisation system, a lumbar cast. Postoperative evolution was favourable. The patient's L2 and L3 pain disappeared and the lumbar pain became of small intensity, intermittent (VAS 2/10). This pain was completely controlled by analgesics Paracetamol 1- 2 tablets daily. The patient was controlled for 2 years clinical and radiological.

Discussion

After Krbek [1] posttraumatic "pincer" fractures represent around 14% from all thoracolumbar fractures. In my statistic of 100 patients operated with different type of thoracolumbar and lumbar fractures is the only case of this type.

The golden standard treatment for this patient

is surgical option for 2 reasons:

- Resection of lumbar disc hernia to decompress the root and the teal sac
- Stabilization of the pincer fracture -treat vertebral micro and macroinstability and to prevent vertebral pseudarthrosis

The patient was operated (fenestration L2-L3, resection of ruptured right L2-L3 LDH, bilateral stabilisation L3-L4-L5 with titan screws and postero-lateral bone graft L4 bilateral harvested from iliac crest). The operation was justified by clinical criteria (increasing of pain intensity who became intense (VAS 5/10 to 7-8 /10) and resistant at conservative treatment and radiological criteria (Ruptured L2-L3 LDH, compressive in lateral recess L2-L3, Pincer fracture L4 with total collapse of the middle of the vertebral body of L4 with a very high risk of pseudoarthrosis at that level).

The particular aspects of this case were:

- The diversity of lumbar spine lesions produces by falling from bicycle (ruptured L2-L3 LDH, compressive in right lateral recess L2-L3, L5 vertebral wedge fracture and a L4 pincer vertebral fracture)
- The diagnosis was realised after 2 months from the vertebral trauma moment. The patient presented at hospital because the lumbar vertebral and radicular L2 and L3 pain became intense and resistant to conservative treatment
- The surgical solution was vertebral decompression (by resection of ruptured right L2-L3 lumbar disc hernia) and vertebral stabilisation (bilateral titan pedicular screws L3-L4-L5 and posterolateral bone graft harvested from iliac crest)
- To complete the treatment, we recommend to supplement for 6 weeks an additional external lumbar vertebral immobilisation system, a lumbar cast and balneo physiotherapeutic procedures for increasing the strengths of paravertebral lumbar muscles by 2 hospitalisations/year of 10 days each.

We followed the patient for the following 2 years. He maintained a very good neurologic condition (intermittent, rare pain (VAS 1-2/10) at 7-8 days completely controlled by paracetamol), and unchanged radiologically. After 3 months postoperative he began his work, but it was necessary

to change his previous job and fund another job who allowed him to avoid intense effort.

Conclusion

We present a patient with posttraumatic L4 pincer vertebral fracture (A2.3-AO classification), a L5 wedge fracture (A1-AO classification) and right L2-L3 LDH in lateral recess. The treatment performed consisted of fenestration L2-L3, resection of ruptured right L2-L3 LDH, bilateral stabilisation L3-L4-L5 with titan screws and postero-lateral bone graft L4 bilateral harvested from iliac crest.

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