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Limbus vertebra – vertebral body apophysis fragment ablation

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The authors present a rare case of vertebral anomaly resulting from a defect in the endplate of the vertebral body – Limbus vertebra (slipped vertebral apophysis). The diagnosis is established in an adolescent with complaints of lumbal pains with a fracture and inflammatory diseases of the skeletal system, involving the spinal column, on the basis of a differential diagnosis. Magnetic resonance imaging served for ultimate identification of this pathology.
Keywords: *Limbus vertebra, spinal column, radiography, magnetic resonance imaging.*

CASE STUDY

Patient N., 16 years of age, consulted an orthopedist on the premises of backaches. Denies having had an injury at medical history taking and deems that lumbal pains appeared after he had to carry a heavy backpack for a long distance when he had been at a summer camp.
In order to reveal the cause of the pain syndrome the patient was prescribed X-ray and magnetic resonance imaging (MRI) of lumbar spine (pic. 1).
A skew anterior upper edge of L4 vertebral body and slipped triangular bone fragment are visualized in a lateral X-ray image. The fragment's edge roughly corresponds to the size of the adjacent vertebral defect.
MRI of lumbar spine was conducted using MR tomograph Signa HDx 1.5T with the following pulse sequences: T1-, T2- and STIR (short T1 inversion recovery) – in three projections: sagittal, coronary and axial (pic. 2).
Defect of the anterior upper edge of L4 vertebral body, a small apophysary fragment in front of it and subchondral degenerative alterations of L4 vertebra are visualized in T1-IR (pic. 2a).
Hypointensive signal from nucleus pulposus of intervertebral disc L3-L4 penetrating the space under the edge defect of L4 vertebral body apophysis is visualized in T2-IR (pic. 2b).

DIAGNOSIS AND DISCUSSION

Thus, the patient's complaints and a distinctive MR pattern (bone fragment near the anterior upper edge of a vertebral body, disc prolapse between the fragment and the vertebral body and no signs of bone marrow edema) allowed setting diagnosis "*Limbus vertebra*" (slipped vertebral apophysis).
Limbus vertebra – a defect in the endplate of the vertebral body – was first described in 1927 by C.G. Schmorl. This anomaly usually affects lumbar spine, although it may appear in cervical spine either.
Limbus vertebra is caused by penetration of nucleus pulposus of an intervertebral disc into the damaged endplate and results in triangular bone fragment ablation off the apophysary edge (pic. 3). This defect is usually observed in the anterior upper edge of a vertebral body, although it may be revealed in the lower or posterior edge.
This case is interesting due to the fact that *Limbus vertebra* usually features no clinical manifestations, although the patients may sometimes experience pains. Pain syndrome and the

revealed bone fragment results in the need of differential diagnosis of the fracture. It ought to be noted that the lack of abnormal signals from bone marrow in MR images, particularly, increase in the signal intensity in the STIR projection and reduction in the T1-IR projection, rule out the possibility of an acute fracture.
Treatment of *Limbus vertebra* is not required if no clinical symptoms are present; the diagnosis is favorable in such cases.

RECOMMENDED REFERENCES

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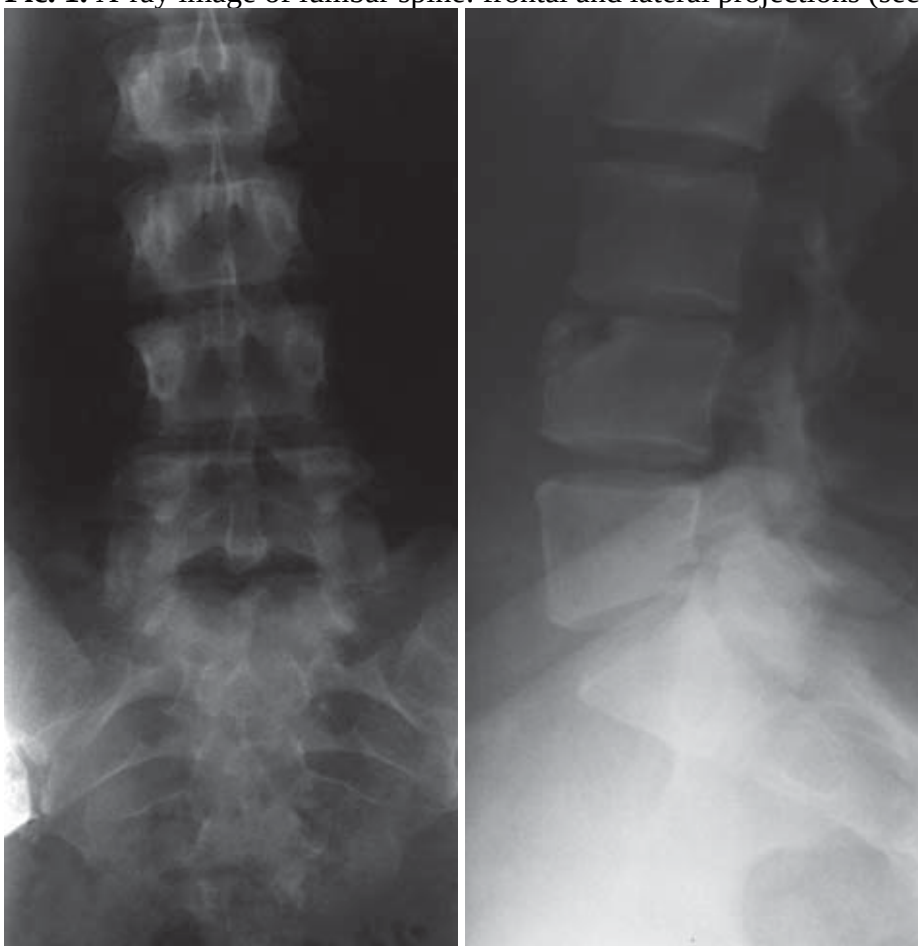
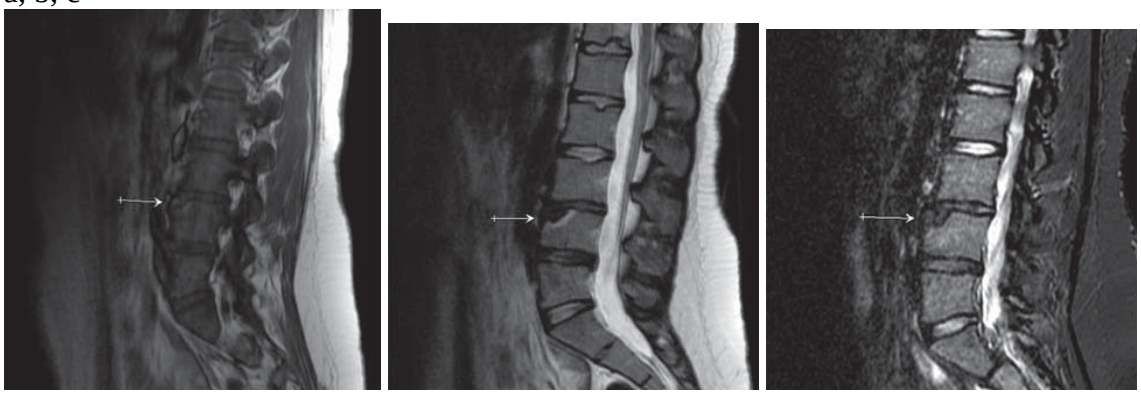
Pic. 1. X-ray image of lumbar spine: frontal and lateral projections (see text).



Pic. 2. Magnetic resonance imaging of lumbar spine (see text).
a, b, c



Note. a – Sag T1-IR, b – Sag T2-IR, c – Sag; pulse sequence “inversion-recovery” (STIR).

Pic. 3. *Limbus vertebra* formation diagram.