Case 2211

Posterior limbus vertebra: another cause of low back pain
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Section: Musculoskeletal system
Imaging Technique: CT
Case Type: Clinical Cases
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Patient: 18 years, male

Clinical History:

Young male athlete presenting with low back pain.

Imaging Findings:

The patient presenting with low back pain of 7 months' duration. He reported athletic activities during the previous 6 years.

Plain radiographs of the spine were obtained in two projections, and a small triangular osseous particle was noted on the posterior-inferior edge of the L5 vertebra. A subsequent CT scan revealed a slight posterior displacement of the apophyseal ring of the affected vertebra.

Discussion:

The term 'limbus' denotes a small, unusual 'fracture' located on the inferior-posterior corner of a vertebral body (inferior vertebral endplate), usually in the lower lumbar spine. According to Schmorl and Kohler's study, lumbar vertebral ring apophyses, located at the margin of the superior and inferior vertebral endplates, first appear as a cartilaginous rim in childhood and tend to ossify completely with the vertebral body by the age of 18-25 years. Whether this separated triangular bone fragment is a true fracture of the posterior ring apophysis or a separation of the posterior vertebral rim, a number of different names describe this entity as a posterior marginal node, posterior bony avulsion, apophyseal ring fracture or epiphyseal dislocation.

Posterior vertebral rim fractures usually present with symptoms of low back pain and/or radiculopathy, most often in male adolescents (ratio 2:1) or young adults but they can also be incidentally found. Plain radiographs, especially lateral projections, can demonstrate this abnormality in 40% of cases. However, CT gives a more complete picture of the morphological changes of the displaced bone fragment, and shows any associated disc herniation and spinal canal compromise. Extruded, degenerated disc material between the fragment and the inferior corner of the vertebra can only be verified by discography, an invasive diagnostic method. An extradural defect at the site of a limbus vertebra can also be demonstrated by myelography, where encroachment on the spinal canal may vary from mild to complete blockage. A fracture of the posterior cortex of the vertebral body has to be excluded in considering a diagnosis of posterior limbus vertebra.

Differential Diagnosis List: Posterior limbus L5 vertebra
**Final Diagnosis:** Posterior limbus L5 vertebra

**References:**

Beggs I, Addison J.

Posterior vertebral rim fractures.


Dietemann J, Runge M, Badoz A, Dosch J, Beaujeux R, Bonneville J, Wackenheim A.

Radiology of posterior lumbar apophyseal ring fracrures:report of 13 cases.

*Neuroradiology* 1988;30:337-44. (PMID: 3173675)

Goldman A, Ghelman B, Doherty J.

Posterior limbus vertebrae:a cause of radiating back pain in adolescents and young adults.


Dake M, Jacobs R, Margolin F.

Computed Tomography of posterior lumbar apophyseal ring fractures.

Description: A small defect is seen posteriorly to the inferior endplate of the L5 vertebra and an adjacent triangular bone fragment is noted. Origin:
**Description:** Axial CT scan image demonstrates avulsed and slightly posteriorly displaced vertebral apophyseal ring of the L5 vertebra. **Origin:**
Description: Sagittal reformatted CT image confirms the posterior dislocation of the posterior-inferior apophyseal ring of the L5 vertebra. Origin: