Case Report

Stress Fracture of The Lamina: A Diagnosis of Suspicion

Jorge Lopez-Subias*, Jorge Gil-Albarova, Marina Lillo-Adan, Victoria-Eugenia Gómez Palicio

1Jorge Lopez Subias, Tel: +34 976765605; e-mail: jjsubias@gmail.com
2Jorge Gil-Albarova, Tel:+34 976765605; e-mail: jgilalba@unizar.es
3Marina Lillo-Adan, Tel:+34 976765605; e-mail: millooadan@gmail.com
4Victoria-Eugenia Gomez Palacio, Tel:+34 976765605; e-mail: vegomez@salud.aragon.es

*Address for Correspondence: Jorge Lopez Subias, Tel: +34 976765605; E-mail: jjsubias@gmail.com

Submitted: 25 April 2017; Approved: 28 August 2017; Published: 29 August 2017


Copyright: © 2017 Lopez-Subias J, et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.
INTRODUCTION

Low back pain in adolescents is a growing public health problem, and their presence increases the risk of back pain in the future. Some studies have shown that low back pain can lead to disability and limit daily activities for between 13% and 38% of adolescents [1, 2].

The differential diagnosis of low back pain in this population is broad, and etiologic factors are most often associated with musculoskeletal overuse or trauma [3].

However, some cases are caused by bony defects in the vertebral arch, which can appear in several locations. We may find clefts in the pars-interarticularis (spondylolysis), which affect around 40% of the pediatric patients, with low back pain persisting for longer than 2 weeks [4]. These are sometimes in the pedicle (pediculolysis) [5] and on rare occasions, in the lamina (laminolysis) [6].

The Retroishmic cleft in the spine lamina is rarely detected. This term was introduced by Broacher [7]. Who was the first to describe its radiographic appearance. For years, it was considered as a congenital deformity. However, Wick et al [8].

Proposed the term laminolysis to describe the Retroishmic cleft by analogy to the nomenclature of the applied stress fractures of the pars interarticularis (spondylolysis) and the pedicle (pediculolysis) being the first to suggest that laminolysis was a nonunion after a stress fracture."

Although laminolysis is very rare, we should consider this diagnostic suspicion in adolescent patients with low back pain. Finally, the correct diagnosis will be confirmed by means of image studies, such as plain radiography in oblique views, computed tomography or MRI (Magnetic Resonance Imaging).

CASE REPORT

A 14 years old girl, without previous disease, reported severe low pain for five months. She practiced gymnastics four days per week. She denied any history of acute trauma.

Physical examination showed notable tenderness at L5 spinous process. The pain was exacerbated by lumbar hyperextension during back somersault. Lumbar flexion was moderately restricted. She had no associated limb par aesthesia or numbness. No neurological abnormality of tone, sensation, reflexes or power was identified.

Plain radiographs were performed in anteroposterior, lateral and oblique views. The oblique view showed a possible cleft image in the L5 left lamina (Figure 1). The computed tomography study revealed a complete cleft of the L5 left lamina in the coronal orientation, which suggests a stress fracture of the L5 lamina (laminolysis) (Figure 2-3).

Moreover, MRI study showed inflammatory changes in the soft tissues, with edema in the par spinal musculature (Figure 4).

We proposed a conservative treatment with analgesia, avoiding sports practice, a rehabilitation program focused on core stabilization, and strengthening and flexibility exercises. At the three month follow up, the low back pain had disappeared and she was allowed to resume all her activities progressively, avoiding repetitive hyperextension exercises of the lumbar spine. After one year, the patient is asymptomatic and has returned to her usual sporting activities.

ABSTRACT

Lumbar laminolysis, a stress fracture of the lamina, is one of the causes of chronic low back pain in adolescents. Its prevalence is very low, and it is described as an incidental finding in most cases. The authors report the case of a 14-year-old girl with a symptomatic stress fracture of the left lamina of the fifth lumbar vertebra. Recent advances in diagnostic tools and techniques enable early diagnosis. Multimodal radiological examinations of the whole lumbar spine are recommended in cases of symptomatic patients with low back pain who do not respond to initial treatment with basic physiotherapy or analgesic medical treatment. Knowledge of laminolysis in adolescent patients with low back pain is necessary to prevent it from being overlooked or late diagnosis. In almost all cases, conservative treatment may be sufficient to achieve bone healing.

Keywords: Retroishmic cleft; Laminolysis; Stress fracture.
MRI shows signal changes on the defect in the L5 left lamina, this case report, the suspicion of laminolysis in plain radiographs, in clarify fracture morphology and follow-up bone healing [20, 21]. In the fi rst diagnostic tool and combined with computed tomography to injuries. However, recent studies have suggested that MRI should be healing stage of the fracture, diff erentiating between acute and chronic for the diagnosis, monitoring and fracture healing.

Oblique view, computed tomography has been the reference standard lesions, and radiography is capable of showing complete fractures in scintigraphy is very sensitive for detecting early stress reaction have been used in diff  erent combinations for diagnosis. Although these injuries occur in adolescents [9, 10] with a male predominance, of trauma, should suggest the suspicion of these injuries. Usually allowed once the patient is pain free, is normal on examination, and has undergone rehabilitation.

In conclusion, laminolysis is not known as a common cause of low back pain. It is hardly ever seen in routine daily practice and therefore, it is important to emphasize its inclusion in the differential diagnosis of lower back pain, to help avoid misdiagnosis. Correct diagnosis is based on plain radiographs including oblique views, computed tomography and MRI. Conservative treatment is indicated in almost all cases.

REFERENCES