

ORIGINAL ARTICLE

# Coronal patellar osteotomy of the external facet combined with the release of the lateral retinaculum improves the clinical outcomes of isolated lateral release in lateral knee compartment syndrome<sup>☆</sup>



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## KEYWORDS

Anterior knee pain;  
Patellofemoral pain;  
Osteotomy;  
Intraosseous pressure

## Abstract

**Objective:** To describe a novel coronal osteotomy of the external facet of the patella, and to evaluate if the outcomes of the treatment of lateral knee compartment syndrome (LKCS) with this osteotomy, combined with the release of the external lateral retinaculum, are better than the isolated lateral retinacular release.

**Material and methods:** A prospective study with a 2 year follow up that included 70 patients diagnosed with LKCS, distributed into 2 groups. The first group included 50 patients on whom the lateral retinacular release combined with osteotomy was performed, and a second group on whom an isolated retinacular release was performed. Measurements were made using the Werner functional scale before the surgery and at 3, 12, and 24 months follow-up.

**Results:** There were significant differences in the overall functional state between the two groups after the surgery (better in the osteotomy group at all the intervals,  $P < .05$ ). The improvement, which was progressive up to 12 months, was slightly less at 24 months, although the values were still better than the pre-surgical ones in both groups. Pain was the variable that showed most improvement. The patients with LKCS with degenerative signs showed a benefit in all cases.

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**PALABRAS CLAVE**

Dolor anterior de rodilla;  
Dolor patelofemoral;  
Osteotomía;  
Presión intraósea

**Conclusion:** The results demonstrate that the described patellar osteotomy technique, combined with lateral retinacular release, significantly improves the pain and the functional scale score of patients with LKCS after 2 years of follow-up, to a greater extent than isolated lateral retinacular release, including those in which there was evidence of degenerative signs.  
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### La osteotomía patelar coronal de la faceta externa asociada a liberación del retináculo lateral mejora los resultados clínicos de la liberación lateral aislada en el síndrome de compresión lateral de rótula

**Resumen**

**Objetivo:** Descripción de una nueva osteotomía coronal de la faceta externa de la rótula y valorar si los resultados del tratamiento del síndrome de compresión lateral de la rótula (SCLR) con nuestra osteotomía junto a la liberación del retináculo lateral externo son mejores que la liberación aislada del retináculo lateral.

**Material y métodos:** Estudio prospectivo con 2 años de seguimiento, donde tratamos 70 pacientes diagnosticados de SCLR y distribuidos en 2 grupos: un primer grupo de 50 pacientes en los que se realizó la liberación del retináculo lateral asociada a osteotomía, y un segundo grupo de 20 pacientes en los que se realizó una liberación aislada del retináculo lateral. Se midió la escala funcional de Werner de forma preoperatoria y a los 3, 12 y 24 meses.

**Resultados:** Existen diferencias significativas en el estado funcional global postoperatorio entre grupos (mejor el grupo de osteotomía en todos los intervalos,  $p < 0.05$ ). La mejoría, que es progresiva hasta los 12 meses, experimenta un ligero retroceso a los 24, aunque los valores siguen siendo mejores que los preoperatorios en ambos grupos. Todas las variables muestran valores mejores en el grupo de la osteotomía. La variable con mayor mejoría es aparición del dolor. Los pacientes con SCLR con signos degenerativos presentaron un beneficio en todos los casos.

**Conclusión:** Los resultados muestran que la técnica de osteotomía rotuliana descrita asociado a la liberación del retináculo lateral mejora de forma significativa el dolor y la escala funcional de pacientes con SCLR a los 2 años de seguimiento, en mayor grado que lo hace la liberación aislada del retináculo lateral, incluso en aquellos en los que existe evidencia de signos degenerativos.  
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**Introduction**

Merchant's<sup>1</sup> classical classification of femoral and knee alterations includes lateral patella compression syndrome (LPCS). This is characterised clinically by pain in the anterior facet of the knee without episodes of true instability. Radiologically it is characterised by patella inclination, this being centred in the groove. Chronic alteration of the pressure in the medial facet and overload in the lateral facet give rise to arthrosic degeneration which when associated with lateral tension of the retinaculum may lead to a persistently painful retinaculum before signs of cartilage degeneration are noticed.

In LPCS the lateral retinaculum is too tense, giving rise to imbalance and patella inclination.<sup>2</sup> Since Merchant and Mercer<sup>3</sup> published the surgical technique they termed "lateral release of the patella" in 1974, this technique has become widespread, and its over-use has sometimes led to complication and poor results.<sup>4</sup> Satisfactory results are reported in from 14% to 100%<sup>5-8</sup> of cases. Nevertheless, it is hard to evaluate the results of releasing the lateral

retinaculum and to compare the published results of this, due to the different evaluation systems used and patient selection, as many studies do not differentiate between those who mainly presented pain or instability.

This study presents a new surgical procedure which has the aim of improving the results obtained with release of the lateral retinaculum in patients with LPCS.

Although there is no certainty as to whether patella pain is directly caused by excessive pressure or if it is a part of a set of pathological phenomena which lead to degeneration of the subchondral bone, some authors have proposed the use of perforations of the bone to resolve excessive patella pressure, with different results: Almeida et al.,<sup>9</sup> Schneider et al.<sup>10</sup> or Miltner et al.<sup>11</sup>.

In patella osteotomies and regardless of the plane in which we perform them, we know that they will give rise to a reduction in intrabone pressures, and that this may be the main cause of the clinical improvement obtained in patients.

The aim of this study is to present the results of coronal osteotomy of the external facet of the patella in patients who suffer anterior knee pain due to LPCS after a follow-up

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