Isolated rupture of the lateral collateral ligament during yoga practice: a case report

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ABSTRACT
We report a case of isolated rupture of the lateral collateral ligament (LCL) of the knee while attempting to place the left foot behind the head during yoga practice. The 34-year-old man had discomfort of the lateral aspect of the knee particularly with varus strain. A magnetic resonance image revealed rupture of the LCL at the insertion onto the fibula. The patient had grade-II laxity of the LCL and was treated non-operatively. At the 12-month follow-up, grade-I laxity of the LCL remained clinically evident, but function was not impaired.

Key words: collateral ligaments; knee; rupture

INTRODUCTION
Isolated injury to the lateral collateral ligament (LCL) of the knee is usually part of a more extensive injury involving the posterolateral structures,\(^1\)\(^-\)\(^3\) and is uncommon.\(^4\)\(^,\)\(^5\) The usual injury mechanisms involve an impact producing hyperextension combined with a varus movement,\(^6\) or an anterior blow or valgus impact on the flexed knee.\(^2\) We report a case of isolated avulsion of the LCL caused by a low-energy, non-contact varus strain on the flexed knee during yoga practice.

CASE REPORT
In October 2006, a 34-year-old man presented with acute left knee pain after yoga practice. The yoga pose required flexion and varus movement of the left knee while putting the left foot over and behind the head. He felt discomfort and minor swelling around the lateral aspect of his knee after hearing a ‘pop’ during the manoeuvre. He was able to bear weight comfortably and to continue regular daily activities without difficulty; however, any varus strain on the knee produced localised lateral knee discomfort.

Physical examination revealed normal alignment and gait with no effusion in the knee. There was mild focal tenderness over the fibular collateral...
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The patient chose non-operative treatment and declined a physiotherapist-supervised rehabilitation programme. Eight weeks later, he achieved a very good functional result and was able to return to yoga practice, including poses producing varus strain. At the 6-month follow-up, he had persistent grade-I laxity of the LCL and hyperextension of the knee of 15°, with no posterolateral laxity. An MRI revealed the healed LCL with scar remodelling and with some degree of laxity of the mid-fibres (Fig. b). At the 12-month follow-up, the grade-I laxity of the LCL remained clinically evident, but function was not impaired.

DISCUSSION

Repetitive strain on the LCL from extreme postures may have predisposed our patient to this injury. Continuous practice may result in a degree of chronic ligamentous attrition. Functionally, the LCL is taut in full extension and becomes lax after flexion beyond 30°. The LCL functions as the primary static restraint to varus forces on the knee, particularly in the initial 0° to 30° arc of knee flexion. It also functions to resist external rotation with the knee near extension, whereas the popliteus complex and popliteofibular ligament have more important roles in resisting external rotation with increasing knee flexion.

In a cadaver study, isolated sectioning of the LCL caused only a small increase in laxity from 1° to 4° in varus rotation at all angles of knee flexion, despite evidence of complete disruption on MRI. This is because the remaining intact posterolateral structures afford some stability against varus forces.

Injury to the LCL usually occurs as a soft-tissue avulsion off the proximal attachment on the femur or as a bone avulsion associated with an arcuate fracture of the fibular head. In our case, it was at the ligament insertion onto the fibular head, which was atypical.

It is recommended that grades-I and -II injuries to the posterolateral structures of the knee be treated non-operatively and grade-III injuries be repaired or reconstructed, when more than one structure is involved. Optimal management of an isolated LCL injury is unknown because it is an infrequent presentation. Our patient opted for non-operative treatment to avoid the potential risks and prolonged rehabilitation associated with surgery, and to return to yoga practice as soon as possible.
REFERENCES