

CASE REPORT

## ISOLATED POSTERIOR CRUCIATE LIGAMENT TEAR: A RARE SPORTS RELATED INJURY

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*Isolated injury of the posterior cruciate ligament (PCL) of knees is an extremely uncommon occurrence. Majority of such injuries follow motor vehicle collision and sports associated accidents. Magnetic resonance imaging (MRI) is the most reliable and highly sensitive cross sectional imaging modality to confirm the diagnosis. The case under review emphasises the use of MRI in knee injuries involving ligaments and menisci.*

### CASE REPORT

A 19 years old male hockey player collided with another player during a national contest and sustained injury to his left knee. He could not continue to participate in the event. The knee was extremely painful. On physical examination it was slightly swollen and tender but ligamentous stability of the knee could not be determined. Plain radiographs and CT scans were normal. Persistence of pain prompted MR imaging 2 weeks later which confirmed the PCL tear.

MR imaging of the right knee showed disruption of normal low intensity signal indicating PCL tear Figure A&B. The anterior cruciate ligament (ACL), menisci and collateral ligaments were normal.

Figures A and B show the MR of this 10 years old male hockey player who sustained injury to left knee in a national contest.



**Figure A.** Proton density weighted (TR2000 TE30) sagittal image displaying normal posterior cruciate ligament.



**Figure B.** Proton density weighted (TR2420 TE30) sagittal slice depicts the midligament tear clearly.

### DISCUSSION

Posterior cruciate ligament tear occurs much less frequently than ACL tears and is usually associated with tears of either ACL, the meniscus or collateral ligament. Non operative treatment is frequently recommended.<sup>1</sup>

The most common mechanism for isolated PCL tear is posteriorly directed force on the proximal tibia; other mechanisms include hyperextension and medial rotation of the flexed knee. Sports related injuries and road traffic accidents with dashboard injuries account for majority of isolated posterior cruciate ligament injuries.<sup>2</sup>

Main diagnostic modalities used in PCL injury include arthroscopy and MR imaging. Plain radiographs, arthrography and CT do not have much to offer. MR imaging is sensitive, reliable and best for evaluation of PCL.<sup>3</sup> A good technique requires both sagittal and coronal continuous pictures with 3- 5 mm slices using 1.5 tesla magnet. Respective sensitivity, specificity and accuracy of MR imaging for PCL tears are 100%, 84%, 84%<sup>4</sup>.

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A PCL injury may be classified as:

- a. Avulsion at the femoral origin (30-40%)
- b. Avulsion at the tibial insertion (40-55%)
- c. Midligament tear (15-25%)

Present case comes under category 'C' and is rarest of the PCL injuries. Bony avulsion injuries are surgically reinserted and fixed with good results in 90% of patients. Commonly midligament tears of PCL are treated either conservatively when isolated or by reconstruction when associated with multidirectional instability. In such cases good results are expected in 40-60% cases<sup>5</sup>

If PCL injuries are not diagnosed and treated in time post traumatic osteoarthritis is sure to follow from resulting instability; medial femorotibial and patellofemoral compartments are principally involved.

A study focusing on potential cost saving of prearthroscopic knee MR imaging examination concludes that MR imaging examination obtained before arthroscopy of the knee can produce, saving of \$680 per MR imaging examination performed on the knee.<sup>4</sup>

Thus MR imaging of knee for ligaments and meniscal injuries is not only highly accurate and sensitive but also cost effective.

## REFERENCES

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