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**Magnetic Resonance Imaging of
the...**

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**Magnetic Resonance Imaging of the Knee After
Ipsilateral Femur Fracture.**

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2002.

*Dickson, Kyle F. *; Galland, Mark W. *; Barrack, Robert L. *;
Neitzschman, Harold R. *; Harris, Mitchel B. +; Myers, Leann
; Vrahas, Mark S. +

Abstract:

Objective: The purpose of this study is to identify and
characterize the nature of internal knee derangement
associated with ipsilateral femur fractures.

Design: A prospective consecutive investigation with the
musculoskeletal radiologist being blinded to the clinical
examination.

Setting: A certified Level I trauma center.

Patients: All adult (skeletally mature) patients with femur
fractures resulting from blunt traumatic injury were included.
Patients with penetrating, periprosthetic, pathologic, or
previous femur fractures were excluded. In addition, all
patients with previous knee injuries or previous knee surgery

were excluded. Of the fifty-one patients with diaphyseal femur fractures originally enrolled in this investigation, fifteen were excluded by protocol and eleven were unable to obtain timely MRI studies.

Interventions: All patients were evaluated initially according to Advanced Trauma Life Support protocol. When appropriate, skeletal traction was used as provisional fracture stabilization. In most cases, however, operative fixation was performed immediately. In one case open reduction internal fixation was performed. In the remainder, fracture fixation with an anterograde (n = nineteen) or retrograde (n = seven) intramedullary nail was used.

Outcome Measure: After surgical fixation, twenty-five patients with twenty-seven knees were examined clinically and with an MRI.

Results: Five anterior cruciate ligament and two posterior cruciate ligament injuries were discovered (19 percent and 7 percent, respectively). Four complete (Grade 3) medial meniscus tears (15 percent) and seven complete lateral meniscus tears (26 percent) were identified by postoperative MRI studies. The medial collateral ligament was injured in eleven knees (41 percent), with five (19 percent) identified as complete (Grade 3) injuries. The lateral collateral ligament was also injured in eight knees (30 percent); in half (15 percent) the injury was complete. Bone contusions (periarticular infractions of cortical and medullary trabecular bone) were noted in eight (30 percent) tibia (equally divided between medial and lateral compartments) and in 17 (63 percent) femurs (also equally divided between medial and lateral condyles).

Conclusion: Given the large number of soft tissue injuries about the knee, it would be prudent to emphasize the importance of a thorough intraoperative examination once the femur fracture has been stabilized. Additionally, there should

be a low threshold to obtain an MRI if the postoperative clinical examination suggests an associated knee injury. Bone bruises, which can only be identified by MRI studies, are increasingly being acknowledged as a source of persistent symptoms.

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