KEY PROCEDURES

INTRAMEDULLARY NAILING OF LOWER-EXTREMITY PERIARTICULAR FRACTURES

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Published outcomes of this procedure can be found at: *Injury*. 2015;46(6):1097-101, *Bone Joint J*. 2016 Jun;98-B(6):846-50, and *J Orthop Trauma*. 2017 Apr;31(4):215-219.

Investigation performed at Indiana University Health Methodist Hospital, Indianapolis, Indiana

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Abstract

Intramedullary nailing is used to stabilize distal femoral, proximal tibial, and distal tibial periarticular fractures with short proximal or distal segments, as well as some intra-articular fractures in which a stable articular block can be created. Intramedullary nailing may be beneficial in complex fracture patterns with diaphyseal extension, segmental injuries, or patients who might benefit from a decreased incision burden. Step 1: Preoperative planning. Review imaging and make sure there is a nail with adequate interlocks. Consider the use of adjunctive techniques to obtain and maintain alignment, and how intra-articular fracture lines will be stabilized. Step 2: Position and prepare the patient. Step 3: Exposure for nailing via suprapatellar, infrapatellar, or knee arthrotomy approaches. Limited exposure of fracture planes may also be necessary for adjunctive techniques. Step 4: Convert an OTA/AO C-type fracture to an A-type fracture if needed. Step 5: Obtain appropriate starting point and trajectory with the nail starting wire and use the opening reamer. Step 6: Obtain reduction, if not yet done, and pass the ball-tipped reaming wire across the fracture. Step 7: Ream while holding reduction. Step 8: Pass nail. Step 9: Verify reduction is maintained and correct if needed. Step 10: Place interlocks, preferably multiplanar, in the short segment. Create a fixed angle construct if desired and convert adjunctive techniques/provisional fixation to definitive fixation as needed. Step 11: Perform final checks. Step 12: Closure. Step 13: Postoperative plan. For extra-articular fractures, one may expect healing with maintained alignment from what was present at the case end intraoperatively in the vast majority of cases. For intra-articular fractures, development of posttraumatic arthritis is an additional concern.

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