

Semi-Extended Tibial Nailing Through the Suprapatellar Portal: Incidence of Intraarticular Placement and Difficulties With Extraction. A Cause of Concern?

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Purpose: Although the tibial nail entry point is well defined by Tornetta et al (2001), our unit has noted difficulty in removing nails sited via the suprapatellar portal, frequently necessitating arthrotomy. The presented study aims to define the achieved entry point using the suprapatellar portal and highlight any difficulty where the nail required extraction.

Methods: Patients presenting with tibial fractures managed via suprapatellar nailing were included. Exclusions included patients younger than age 18 years and patients in whom an alternate approach was used. AP and lateral radiographs were reviewed by two assessors to establish the entry point as per the radiologic methods described by Tornetta et al. Clinical outcomes including union and postoperative complications were collated from the patient notes.

Results: Across a 4-year period including 200 tibial nailing procedures, 99 patients (mean age: 48 years [range: 17–97 years], male: 69) were included. In the coronal plane, the mean entry point was 1.6 ± 4.3 mm medial to the midline ($51.1\% \pm 5.4\%$ of the width of the plateau working from lateral to medial). The entry point was medial to the midline in 68 patients (mean: 1.6 ± 4.3 mm) and lateral to the midline in 31 patients (mean: 3.7 ± 2 mm).

In the sagittal plane, the entry point was on average 6.6 ± 2.9 mm from the radiologic articular margin. The nail path breached the articular surface in 42 patients (mean: 1.8 ± 1.4 mm intra-articular). In total, 13 complications were observed, the most common of which were fracture-related infections (4) and nonunions (3). Metalwork removal was required in seven patients. Of the 42 intra-articular nails, four required extractions, of which three necessitated a formal arthrotomy. Moreover, on evaluating the remaining 38 and assessing the removal trajectory, most would similarly require an arthrotomy.

Conclusion: Suprapatellar nailing was associated with a medial entry point and frequent breach of the articular surface (42%). Where nail removal was required, an arthrotomy was necessary in 75% of patients in whom the articular surface was breached. Surgeons should be aware of this, and, prior to the index procedure, patients should be forewarned about the need of arthrotomy.