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### **Comparative Analysis of Knee Pain in Transpatellar and Medial Parapatellar Tendon Approaches for Tibial Interlocking Nailing - Nepal**

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**Purpose:** The tibia is the most commonly fractured long bone and most likely bone to sustain an open fracture. Intramedullary interlocking nailing is the gold standard and most established treatment for tibial shaft fracture. Transpatellar tendon or medial parapatellar tendon approaches are commonly used where anterior knee pain, although multifactorial, is the peculiar complication associated with nail entry portal. We studied to determine the overall incidence as well as any significance difference (if any) in the anterior knee pain between these 2 approaches provided other factors remained same.

**Methods:** Adults  $\geq 16$  years with traumatic, closed, Gustilo grade I extra-articular tibial shaft fractures (42A, 2B and 2C) were included. After clinicoradiological evaluation, they were randomized into transpatellar ( $n = 20$ ) and medial parapatellar tendon approach ( $n = 20$ ) for intramedullary nailing. Similar prophylactic antibiotics and same physiotherapy regime was prescribed for all patients. Pre- and perioperative parameters were recorded and they were followed at 2, 6, 12, 24, and 52 weeks for clinicoradiological assessment of union and functional outcome assessment.

**Results:** The age distribution ( $P = 0.25$ ), gender distribution ( $P = 0.41$ ), mode of injury ( $P = 0.75$ ), fracture type ( $P = 0.45$ ), level of fracture ( $P = 0.73$ ), and associated fibula fracture ( $P = 0.99$ ) were not significantly different between the groups showing no selection bias. Mean age (years) and mean hospital stay (days) were  $39.20 \pm 17.59$  and  $4.60 \pm 2.16$ , respectively, for transpatellar group and  $32.0 \pm 14.5$  and  $4.45 \pm 1.98$  for parapatellar group, respectively, with corresponding  $P$  values 0.17 and 0.99, respectively. Duration of surgery (min), blood loss (mL), and tourniquet time (min) were  $83.5 \pm 10.89$ ,  $100.0 \pm 17.17$ , and  $56.67 \pm 11.55$ , respectively, in transpatellar approach while they were  $88.50 \pm 13.49$ ,  $101.50 \pm 20.59$ , and  $65.0 \pm 5.77$  for parapatellar approach, respectively, with corresponding  $P$  values as 0.23, 0.93, and 0.26, respectively. The Lysholm knee score, knee range of motion (degrees), knee pain (VAS [visual analog scale] score) at final follow-up were  $73.0 \pm 2.33$ ,  $116.5 \pm 4.7$ , and  $1.85 \pm 0.67$ , respectively, in transpatellar approach while they were  $73.50 \pm 2.73$ ,  $117.0 \pm 4.89$ , and  $1.60 \pm 0.60$  for parapatellar approach, respectively, with corresponding  $P$  values as 0.70, 0.80, and 0.29, respectively. The overall incidence of anterior knee pain in our study was 63% (65% in transpatellar approach and 60% in medial parapatellar approach). The fracture level, associated fibula fracture and tourniquet use were not significantly associated with anterior knee pain (VAS score) at any follow-up irrespective of the approach used.

**Conclusion:** We found no significant difference in anterior knee pain for transpatellar tendon approach and medial parapatellar tendon approach for nail entry during intramedullary interlocking nailing of tibial shaft fracture at 1-year follow-up.