

RETROGRADE INTRAMEDULLARY INTERLOCKING NAILING: A PROSPECTIVE STUDY IN SUPRACONDYLAR FRACTURE OF FEMUR

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ABSTRACT

Introduction: In addition, a retrograde intramedullary supracondylar nail has got distinct advantages of preservation of fracture hematoma, decreased blood loss, minimal soft tissue dissection, less operative time, and reduced rate of infection. The purpose of this study is to evaluate the results of supracondylar and intercondylar fracture of the femur, treated by close or open reduction and internal fixation using a retrograde intramedullary supracondylar nail.

Methods: A total number of 32 patients were enrolled in this study who presented with supracondylar femur fracture and had undergone a closed reduction and internal fixation by Retrograde Femoral nail. Neer's and Sander's evaluation scoring system was used for evaluation.

Results: Neer's rating was used to assess the result, according to which there were good to excellent results in 74.20% of cases.

Conclusion: Supracondylar femur nail is an optimum tool for many supracondylar fractures of the femur, but it needs attention to technique to prevent the difficulty.

KEYWORDS : Retrograde intramedullary nail, Distal femoral nail, SCFN,

INTRODUCTION:

The conventional management of displaced supracondylar fracture of the Femur was along with the principle of John Charnley and Watson Jones and, which includes skeletal traction, manipulation of fracture, and external immobilization with casts and cast bracings (Supracondylar femur fractures show a bimodal age distribution, occurring more commonly in young and old population groups). These methods had difficulties like shortening, knee stiffness, angulation, joint incongruity, malunion, quadriceps wasting, knee instability, and prolonged bed rest. In addition, supracondylar fractures tend to collapse into varus. When applying AO blade plate or dynamic condylar screw, the shaft of the Femur is often pulled laterally, displacing the line of weight-bearing lateral to the anatomic axis of the condyle. The existence of osteoporotic bone leads to fixation failures with screws and plates cutting off the soft bone. The motive of this study is to analyse the outcome of supracondylar and intercondylar fracture of the femur, treated by close or open reduction and internal fixation using the retrograde intramedullary supracondylar nail.

METHODS:

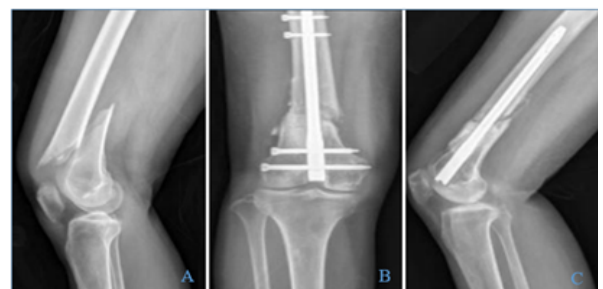
A total number of 32 patients were enrolled in this study with supracondylar fracture of the Femur without intercondylar extension were studied. All the cases were treated in the Department of orthopedics, IGIMS Patna-14 Bihar, from Jan 2019 to December 2020. All the fractures in the sequence were post-traumatic, and no pathological fractures were included. After the patient's admission, the fracture was stabilized with the use of a well-padded Thomas splint. Once patients were stable, with no medical contraindication for surgery, they were operated on under spinal anaesthesia. The implant used was Supracondylar Femur Nail system with instrumentation set m. Fractures were categorized with the help of radiographs with respect to the AO-ASIF classification. The pre-operative evaluation was done on radiographs to ascertain the length of the supracondylar nail, maximum possible diameter, and the

lengths of interlocking bolts. The nail's entry point is in the medullary canal's axis and within the intercondylar notch, just antero-lateral aspect of the femoral attachment of the posterior cruciate ligament, determined on the image intensifier. All the nails were locked on both ends by bolts.

RESULTS AND DISCUSSION:

In this study, 32 patients were included. Out of the 32 patients, most of the patients were male. The ages ranged from 20 to 50 years, with a mean age of 34 years. Most sustained fractures are awaited to high-velocity vehicular accidents, followed by falls from height. Type A1 constituted patients, Type A2 presentation constituted the majority and type A3 were relatively rare. Most of all, patients had undergone internal fixation within five days after the injury. The average operative time was 1 hour, with the highest time taken by type A3. Attained Full weight-bearing was on an average in 11 weeks. The average flexion achieved post-operatively was 105°. There was an extensor lag of an average of 5.68°. Distal femur fracture stabilization using retrograde supracondylar femur nail. (Figure-1)

Fig-1



(A) Pre-operative radiographs in AP and lateral views, (B,C): immediate post-operative radiographs

Road accidents accounted for the majority of young people and male patients. The second most usual mode in our series was fall from height. This series varied from the outcome seen

in a study conducted by Elsoe et al., which had a 61% incidence due to trivial trauma, attributed to growing Road accidents in a year¹. The apparent profits of nailing are that it aligns the femoral shaft with condyles lessening the propensity of varus movement at the fracture site. Stabilization of distal femur fractures along periarticular locking plates can cause periosteal callus inconsistent and asymmetric formation². Remarkably less periosteal callus formed in fractures stabilized with locking plates than with IM nails³. The clinical outcome largely depends on surgical technique rather than on the choice of the implant⁴. At the same time to bony union, nailing is preferable to plating in terms of less blood loss and shorter operating time⁵. Neer's rating system was used to evaluate the outcome, which allots points for pain, function, working ability, joints movement, gross and radiological appearance. (Table-1)

| Rating | Number of cases | Percentage |
|----------------------|-----------------|------------|
| Excellent >85 points | 17 | 53.12% |
| Good 70-85 points | 5 | 15.62% |
| Fair 50-69 points | 8 | 25% |
| Poor | 2 | 6.25% |

Thus, our conclusion is similar to that of Handolin et al., i.e., a distal femoral nail is a good alternative in distal femoral fracture treatment with a low complication rate⁶.

CONCLUSION:

Retrograde intramedullary supracondylar nail is the best fixation system for the distal third femoral fractures, particularly the extra-articular type. The operative time is lessened with a decrease in blood loss. Distal screw-linked local symptoms are a common problem and are linked to the implant & technique. Early surgery, closed reduction, at least two nail in each fragment, and early post-operative knee mobilization are essential for good knee range of motion. Thus, it provides rigid fixation in the femur region, where a widening canal, thin cortices, and frequently bad bone graft make the fixation difficult.

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