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What are the results of minimally invasive plate osteosynthesis for femoral and tibial comminuted fracture?

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Aim: Comminuted fractures happen frequently due to traumas and accidents. Recently fixation without opening the fracture site known as Minimally Invasive Plate Osteosynthesis (MIPO) has become prevalent. Due to lacking accurate and evidence-based outcomes on comminute fractures, we performed this study to assess the results and complications of this way of treatment for tibial and femoral comminuted fractures.

Methods: In this cross-sectional study, 60 patients were treated with MIPO. 11 patients were excluded due to lack of adequate follow-ups. Data analyzed include union time, infection in the fractured site, hip and knee range of motion and any malunion or deformities like limb length discrepancy collected after the surgery from every patient in every session.

Results: 32 and 17 femoral tibial fractures were evaluated respectively. In 48 patients, union was fully completed. Mean union time was 18.57 ± 2.42 weeks. Femur fractures healed faster than tibia (17.76 ± 2.36 and 19 ± 2.37 weeks, respectively). None of our patients suffered from infections or fistula. The range of motion in hip and knee remained intact in all of our patients. Malunion happened in 3 patients, 10-degree internal rotation in 1 patient and 1 centimeter limb shortening in 2 patients.

Conclusion: According to the result of this study, it can be drawn that MIPO is a simple and effective method of fixation for comminuted fractures of long bones. It has a high rate of union with minimal complications. Infection is rare, and malunion or any deformity is incredibly infrequent. MIPO appears to be a promising and safe treatment alternative for comminuted fractures.

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MIPPO using minia-PFPA may be preferable to PFNA in treating unstable pertro-chanteric fractures

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Background: Controversy still existing about the relative merits of the fixation device for the challenging unstable pertrochanteric fractures, its suitability for the eastern patient groups. The aim of the present study was to compare the outcomes of MIPPO using a newly designed proximal femoral plate- anatomical, (Minia-PFPA) and proximal femoral nail anti-rotation (PFNA) in the treatment of these fractures.

Methods: We prospectively randomized 50 patients with unstable pertrochanteric fractures in a surgeon-allocated study to either technique. Each group included 25 patients. All the operative, post-operative and follow up variables were evaluated. Finally, functional evaluation as per the Harris Hip Score and economic assessment were done.

Results: No significant difference was found regarding blood loss, operative time, hospital stay, time to wt-bearing, time to bone union, return to pre-injury level of activity, implant failure, or deep infection. The PFNA group should difficulty in reduction of some cases, higher deterioration of the immediate post-operative alignment, and reoperation rate. It may not suit patients with small neck-shaft angles. The MIPPO group should less cost, higher Harris hip score and better achievement of structural competence especially with comminuted fractures and can be easily administrated by junior surgeons.

Conclusions: The preoperative planning is the cornerstone to determine the patient, fracture and surgeon factors that give priority for a certain implant. MIPPO offered less-cost and may be preferred in patients with reduced neck-shaft angle, lateral wall break and comminuted fractures extending to the greater trochanter, where structural competence could not be offered by nailing, and with less experienced surgeons.

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