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Original Research Paper

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PROXIMAL FEMORAL NAILING IN PERITROCHANTERIC FRACTURES WITHOUT USING FIXED TRACTION

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ABSTRACT Unstable trochanteric fractures have been increasing in incidence due to the longer life span and low bone density in elderly resulting in these common fractures. Proximal femoral nailing in these fractures has produced good results. The use of fracture table has resulted in complications in the post operative period. We have compared 20 patients who had undergone fixation either with fracture table or without fracture table. Our results, shows similar findings in fracture reduction and clinical outcome in both groups but there was statistically significant reduction in operation time, blood loss and post operative complications in these patients treated without a fracture table. This study gives us a safe and reliable technique for fixation of unstable trochanteric fractures

KEYWORDS : Proximal femoral nail · Intertrochanteric femur fractures – postoperative complications

Introduction

The incidence of fractures in the trochanteric area has risen with the increasing number of elderly persons with osteoporosis. There are two main types of implants available for the treatment of these fractures, namely extramedullary and intramedullary implants. The most widely used extramedullary implant is the dynamic hip screw, which consists of a sliding neck screw connected to a plate in the lateral femoral cortex [1, 2]. Intramedullary devices such as the gamma nail and the proximal femoral nail provide a biomechanical advantage due to their shorter lever arm and the diminished deforming forces across the implant with minimizing soft tissue dissection [11]. Apart from the nail design, surgical technique is also important for the success of the treatment. In this study, we will try to present the results of proximal femoral nailing surgery performed in the supine position and manual traction on a radiolucent table without the fracture table fixed traction apparatus

In this study we plan to evaluate the quality of the reduction, operative time, blood loss, complications and functional status of the patient.

Objective

To evaluate the 1) functional outcome and 2) blood loss, operation time and complications of surgical technique of proximal femoral nailing in peritrochanteric fractures without using fixed traction compared to fixed continuous traction

Materials and methods

The Yogeshwar PFN is a cannulated straight tube, with the proximal part of the nail is 16 mm in diameter and has two oblique lag screws with diameters of 8.5 mm and 6.5 mm. The type I Proximal femoral Nail is a cannulated straight tube made of stainless steel with a proximal curvature of 6° and a distal slotted design. The neck shaft angle of the nail is 135°; it has two distal holes provide dynamic or static fixation. All the operations was performed within 10 days of the injury, and closed reduction was attempted. We classify the reduction as excellent (<5° of varus, valgus, anteversion or retroversion), acceptable (5–10°) or poor (>10°) [3]. The fracture was stated as healed when the fracture site was filled with callus on radiology and clinically the patient did not feel pain at the fracture site. Postoperatively, the patients were allowed to bear weight as they could tolerate. During a mean period of 2 months (range 1-4 months), the results of fixation and the intraoperative and postoperative complications was noted.

Surgical technique

Patients was put in a supine position on a radiolucent table with normal limb in lithotomy position, to allow visualization of the entire affected limb with an image intensifier was brought in from the opposite side. Lateral visualization of the femoral neck was achieved by rotating the c-arm. A lateral longitudinal incision of 4–5 cm was made above the greater trochanter, after the tip of the greater trochanter was felt and viewed with image intensifier. The entry hole was made with an awl under fluoroscopic monitoring. If reduction of the fracture was not obtained then open reduction was performed. Moderate traction by an assistant was applied. Then the two proximal guide wires were inserted. The proximal screws were fixed after drilling over the guide wires. The distal part of the nail was fixed with a 4.5 locking bolt.

All patients were followed up and evaluated by regular physical and radiographic examinations. Clinical and functional outcomes were assessed according to the Harris hip score and Barthel activity score, respectively. The mean age of our patients was 75.5 years (range 61–93) and 8 were women. Of the 20 intertrochanteric femur fractures, 10 were 31-A1, 8 were 31-A2 and 2 were 31-A3.

Results

There were acceptable reduction in four patients, and excellent reduction in the rest of the patients. The mean duration of surgery was 33 min in patients with mean traction and 50 minutes in patients with fixed traction. The blood loss was 80ml in manual traction and 200 ml in fixed traction. The fixed traction group had postoperative scrotal pain, oedema of the limb, transient neuropraxia. The fractures healed in allpatients; the average consolidation time was 15 weeks (range 10–20). One patient with 31-A3 fracture needed an open reduction. No patient had screw cut-outs, either nonunion or malunion. The mean Harris hip score was 87, and the mean Barthel activity score was 17.95 (range 13–20). 16 patients had excellent to good results, 3 patients had fair results and 1 patient had poor results according to the Harris hip score. Eighteen patients had a high range of mobility according to the Barthel activity score.. We used systematic randomisation of the patients. The SPSS software was used to assess the significance of the difference in operation time, bleeding, Post operative rehabilitation and the incidence of complications. The results showed statistically significant difference in operation time, bleeding and complications between two groups. No significant statistical difference in rehabilitation between the two groups.

Discussion

At present, the PFN was considered to be a good minimally invasive implant for treating proximal femoral fractures. Intramedullary fixation possesses a better biomechanical stability, and it also allows minimum soft tissue dissection. The proximal femoral nailing was usually performed on a fracture table under traction which was

associated with complications like pudendal nerve neuropraxia, erectile dysfunction and perineal sloughing due to continuous traction and pressure necrosis from the traction post [7–9].

The major advantage of using a radiolucent table is exerting intermittent manual traction, thus preventing problems associated with continuous traction. The radiolucent table also reduces the patient preparation time, therefore the surgical time, compared to the fracture table.

We preferred the supine position which enables the easy entry of the C- arm and visualization of the entry point which was opened with the aid of an awl and followed by the insertion of the nail. Although restoring length in strong muscular patients seems to be difficult, indeed no strong manual traction was necessary for reduction of intertrochanteric fractures.

The radiolucent table is also useful tool for the intramedullary nailing operations in amputees in whom the fracture table attachments are practically useless. Bearing in mind that there is significant amount of time spent positioning a patient on a fracture table, and the risk of complications such as pudendal nerve palsy, transient impotence and compartment syndrome of the opposite leg related to continuous traction, this is the third study to assess the usefulness of treating the patient's with intertrochanteric fractures with PFN using a radiolucent table and intraoperative manual traction [10,11]. Although we have limited experience in treating A3 fractures without a fracture table, proximal femoral nailing in a supine position without a fracture table can be applied to treat all intertrochanteric fractures; but more vigorous manual traction is needed in treating subtrochanteric fractures. Our sample size was small and eventhough we had randomised the patients a larger sample size would give stonger evidence

Conclusion

Proximal Femoral Nailing is a good instrument for the treatment of unstable trochanteric fractures and doing the procedure without fracture table reduces the operative time, bleeding and postoperative complications without compromising the results of the surgical procedure.

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