

Research Article

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Treatment of Intertrochanteric Hip Fractures in Elderly High Risk Patients with External Fixation

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Abstract

In 6 elderly patients intertrochanteric fractures were treated, using FERN external fixation system. All fractures healed within 4 months. Three patients had a superficial pin tract infection and one deep infection. Shortening of 1cm or more was seen in 2 patients. Varus angulation of 5° or more was seen in 2 patients but this seems to be well tolerated by the elderly. External fixation represents an excellent alternative for the surgical treatment of high-risk, elderly patients.

Introduction

Intertrochanteric fractures are very common among elderly patients. These fractures are cause of significant morbidity and mortality in conservatively treated patients. Because of that the treatment of choice is surgery. The most commonly used surgical method is internal fixation which is associated with intraoperative blood loss and prolonged anesthesia. The elderly patients are high risk patients for surgery and conservative treatment is a bad alternative as it is associated with a high mortality rate. The aim of this retrospective study was to evaluate the results of the external fixation for the treatment of intertrochanteric hip fractures in a group of high surgical risk elderly patients.

Patients and Methods.

Table 1: American Society of Anesthesiologists (ASA) Physical Status Classification System.

Category	Health Status
ASA I	Normal healthy patient
ASA II	Patients with mild systemic disease
ASA III	Patients with severe systemic disease
ASA IV	Patients with severe systemic disease that is a constant threat to life
ASA V	Moribund patients who are not expected to survive without the operation
ASA VI	A declared brain-dead patient whose organs are being removed for donor purposes

Between 2012 and 2015, 6 elderly high-risk patients classified according to the American Society of Anesthesiologists (ASA) scale (Table 1) sustaining intertrochanteric fractures were treated using the FERN external fixation frame [1]. The fractures were classified according to the modified Evans classification [2] (3 of the fractures were unstable and 5 were stable). Four of these 6 patients were ASA grade III, and 2 were grade IV.

Operative technique

The operations were performed under local anaesthesia with sedation in 2 patients, in rest of the patients short spinal or epidural anaesthesia was used. After placing the patient on the fracture table a closed reduction of the fracture was performed under image intensification. Fracture was fixed with two 5 mm

diameter and 20-25 cm long thread pin with sharp tip passed from lateral aspect greater trochanter along the neck engaging the subchondral bone of head. Two or three more thread pins were passed in the proximal femur. All the pins were connected with an external rod (Figure 1). Stability of fracture fixation was checked under image intensifier using varus- valgus stress. The patients were given prophylactic antibiotics, low-molecular heparin, and analgesics. The patients were made to sit up immediately postoperatively and limited non-weight bearing ambulation for up to 6 weeks after which gradual increase from toe-touch to full weight bearing was instituted. Patient's family was also educated for the physiotherapy (hip, knee and chest) and pin tract care. External fixator was removed without

anaesthesia in outpatient clinic after radiological evidence of fracture union.



Figure 1A: Pre operative radiograph.

B: Immediate post-operative x-ray.

C: Clinical photograph of the same patient with the fixator in situ three weeks after operation.

Results

No patient needed blood transfusion intra operatively or post operatively. The average follow up was 5.2 months ranging from 3 months to 18 months. The average operative time was 38 ± 2 minutes. The average duration of hospitalization was 5 days (range: 3 to 8). All fractures have radiological union at 4 months (Figure 2). One patient had died 9 months post-operatively due to causes unrelated to external fixator application. Pin tract infection was the most common complication, 3 patients were affected by superficial pin tract infection which resolved with cleaning and dressing with chlorhexidine, without administration of antibiotics. Shortening of 1cm or more was seen in 2 patients. Varus angulation of 5° or more was seen in 2 patients (Figure 3).



Figure 2: Result after removing of the fixator, 14 weeks after operation with healed fracture and preserved cervicodiaphyseal angle (130°).



Figure 3: Varus angulation of 5° or more.

Discussion

Hip fracture is a leading cause of death and disability among the elderly [3]. Delay in operation is associated with an

increased risk of morbidity and mortality [4]. The mortality rate associated with these fractures is 10-30% in first year after trauma [5]. An increased mortality rate after fracture of the hip is associated among other factors with advanced age, untreated or poorly controlled systemic disease, and control of medical co morbidities [6]. Although internal fixation is the gold standard for fixation of these fractures, it may not always be possible to undertake this procedure elderly high risk patients. In such circumstances, external fixation is a good alternative for fracture stabilization allowing for a quick, cheap and effective stabilization that can be undertaken even under local anesthesia [7].

External fixation was introduced for the management of trochanteric fractures at about the same time as the first sliding internal fixation devices [8,9] but its use has decreased considerably in recent years. Studies comparing external fixation to sliding hip screws have reported superior outcomes in favor of external fixation [10-12]. Complications related to external fixator include pin tract infection which can easily be controlled with meticulous local care. In our study superficial pin tract infection was the most common complication (3 patients) which resolved with cleaning and dressing with chlorhexidine, without administration of antibiotics. Varus angulation of 5° or more was seen in 2 patients. Collapse of the fracture into varus is commonly found in in grossly unstable fractures but this seems to be well tolerated by the elderly, possibly because of their low demands in activities of daily living or due to associated co-morbidities restricting excessive ambulation [13].

Conclusion

External fixation provided an excellent alternative for the treatment in elderly high risk patients with intertrochanteric hip fractures for open surgery which offers a low-risk operation with minimal blood loss, fast mobilization, few postoperative complications, and reduced cost because of the short hospitalization.

Statement of Informed Consent

All study participants provided informed written consent prior to study enrollment.

Statement of Human Rights

All procedures followed were in accordance with the Helsinki Declaration of 1975, as revised in 2008. Informed consent was obtained from all patients for being included in the study.

References

1. Fernandez Caycho José (1992) Fijación externa tubular. Acta Traumatológica Militar 1(1): 9-10.
2. Evans EM (1949) The treatment of trochanteric fractures of the femur. J Bone Joint Surg Br 31B(2): 190-203.
3. Christodoulou NA, Sdrenias CV (2000) External fixation of select intertrochanteric fractures with single hip screw. Clin Orthop Relat Res 381: 204-211.

4. Bottle A, Aylin P (2006) Mortality associated with delay in operation after hip fracture: observational study. *BMJ* 332(7547): 947-951.
5. Cummings SR, Nevitt MC (1989) A hypothesis: the cause of hip fractures. *J Gerontol* 44(4): M107-111.
6. Koval KJ, Aharonoff GB, Rokito AS, Lyon T, Zuckerman JD (1996) Patients with Femoral Neck and Intertrochanteric Fractures. *Clin Orthop Relat Res* 330: 166-172.
7. Rashid S, Dar G, Kangoo KA, Halwai MA (2008) External fixation in the management of intertrochanteric fractures in elderly high risk patients. *IJO* 8: 2.
8. Scott IH (1957) Treatment of intertrochanteric fractures by skeletal pinning and external fixation. *Clin Orthop* 10: 326-334.
9. Pugh WL (1955) A self-adjusting nail-plate for fractures about the hip joint. *J Bone Joint Surg Am* 37A(5): 1085-1093.
10. Moroni A, Faldini C, Pegreff F, Hoang-Kim A, Vannini F, et al. (2005) Dynamic hip screw compared with external fixation for treatment of osteoporotic pertrochanteric fractures. A prospective, randomized study. *J Bone Joint Surg Am* 87(4): 753-759.
11. Karn NK, Singh GK, Kumar P, Shrestha B, Singh MP, et al. (2006) Comparison between external fixation and sliding hip screw in the management of trochanteric fracture of the femur in Nepal. *J Bone Joint Surg Br* 88(10): 1347-1350.
12. Vossinakis IC, Badras LS (2002) The external fixator compared with the sliding hip screw for pertrochanteric fractures of the femur. *J Bone Joint Surg Br* 84: 23-29.
13. Kamble KT, Murthy BS, Pal V, Ráo KS (1996) External fixation in unstable intertrochanteric fractures of the femur. *Injury* 27: 139-142.

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