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Dynamic Hip Screw Technique in the Management of Trochanteric Fracture

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Abstract

Background: To study was conducted to find the results of dynamic hip screw in the management of trochanteric fracture

Methods: 50 Individuals >18 years, both genders who were diagnosed having a trochanteric type I and II Boyd and Griffin Stable fractures were included in the study.

Results: As per the Kyle's criteria, 40.00% showed excellent response, followed by good by 48.00% members, fair by 8.00% members. Poor results were shown by 4.00% members.

Conclusions: Dynamic hip screw is the operative treatment of choice for stable trochanteric fractures. However, studies on large sample for long time are recommended.

Keywords: Femur, Fracture, Operative

Introduction

Trochanteric fractures (TFs) of femur are common in old age group, but it is not uncommon in younger age. These fractures unite readily with conservative line of treatment. Unlike fractures of neck of femur, there is no fear of complication like, avascular necrosis of head and its sequalae of osteoarthritis. Though TF unite without surgical intervention, malunion with coxa vara deformity resulting in shortening of limb and limp are commonly seen. [1] Until operative treatment involving the use of various implants were introduced in 1950s, hip fractures were managed using conservative methods such as traction and bed rest. [2]

The primary goal of treatment has to be early mobilization to avoid secondary complications which can be achieved by dynamic hip screw which is operative treatment of choice for TFs as it allows early weight bearing and lower complication than other implants. With these, a study was conducted to find the results of dynamic hip screw in the management of trochanteric fracture by analyzing the factors which influence postoperative mobility

Material and Methods

This was a case control study,

Individuals >18 years, both genders who were diagnosed having a trochanteric type I and II Boyd and Griffin Stable fractures were included in the study.

Patients > 18 years, sub trochanteric and reverse oblique trochanteric types III and IV Boyd and Griffin unstable fractures, patients with old un-united TF, who were not fit for surgery, compound fractures, polytrauma, pathological fractures and patients with uncontrolled diabetes mellitus and chronic renal failure were not considered in the study.

Results

Table 1: General characteristics

Mean age		61.02±6.05 Yrs
Female : Male		30: 20
Right side : Left side		25: 25
Fracture (Type 1:2)		29 : 21
Outcome	Excellent	20
	Good	24
	Fair	4
	Poor	2

In this study, 50 patients with TF were included; data were analyzed. The average age was of the participants was 61.02±6.05 Yrs, ranged between 41 to 80 years; 30 case were female participants and 20 case were male patients. In the study, 25 patients had right side fracture and left sided affection of TF to the remaining 50%. Most of the patients (58.00%) in this study were classified as type II Boyd and Griffin criteria, and 42.00% were type I.

As per the Kyle's criteria, 40.00% showed excellent response, followed by good by 48.00% members, fair by 8.00% members. Poor results were shown by 4.00% members.

Discussion

At present it is generally believed that, all TF should be internally fixed to reduce the morbidity and mortality by early ambulation, but differences still exist regarding the type of implant to be used, hence in this study results after treatment with DHS were analyzed.

In this study, 50 patients with TF were included; data were analyzed. The average age was of the participants was 61.02±6.05 Yrs, ranged between 41 to 80 years; 30 case were female participants and 20 case were male patients. In the study, 25 patients had right side fracture and left sided affection of TF to the remaining 50%. Most of the patients (58.00%) in this study were classified as type II Boyd and Griffin criteria, and 42.00% were type I. This was comparable to those of other Indian authors, and most of the western authors.[4]

We had female preponderance, unlike male preponderance in most of Indian authors, as in most western authors. In this report patients had type II fractures; this was comparable to Boyd et al. [5] But, these findings were in contrast with Pathak et al report. [6] The pathological fractures were reported to be 20 to 25% by Waddell et al but these were not included in this study.[7]

If the fracture is severely comminuted, anatomical reduction even by open reduction may be difficult. If adjusting the rotation does not close posteromedial defect and the lesser trochanter remains significantly displaced, anatomic reduction is difficult. In such circumstances non-anatomic but stable reduction obtained by elective medial displacement of the femoral shaft has been used by Dimon Hugston to achieve stability followed by internal rotation. [8]

Sarmiento and Williams have advocated an osteotomy to position the head and neck fragment in more valgus thus securing better medial stability than can be achieved by simple medial displacement. [9]

Most of the currently available internal fixation devices for treatment of TF can be exceeded to yield satisfactory results. Regardless of the device selected, fracture reduction and stability are most important factors. The depth of insertion

of the lag screw into the head is critical for maximum purchase on the proximal fragment. Most agree that it should be inserted within 1cm of the subchondral bone. This principle has been followed in this study.

Kuffer et al studied the influence on type of implant and the geometry of reduction and they concluded that geometry of reduction has no effect on fixation. [10] They think that most of the load is borne by the implant rather than the bone and that the strength of the dynamic hip screw appliance exceeds the normal load and results in few incidence of failure compared to other implants.

Esser et al found no difference between dynamic hip screw and Jewett Nail plate regards to length of hospital stay, mortality and morbidity, but at the end of six months more patients treated with dynamic hip screw were mobile with significant radiological evidence of better compression without loss of fixation. [11]

Conclusion

Trochanteric fractures are essentially the fractures of elderly, with osteoporotic bones. Dynamic hip screw is the operative treatment of choice for stable TF. However, studies on large sample for long time are recommended.

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