

## The Impact Traditional Bone Setters Place on Operative Management of Femoral Fractures in JOS North Central Nigeria

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### **Abstract:**

**Background:** Fracture of the femur occurs most times second only to tibio-fibula fracture. The patronage of traditional bone setters for the treatment of these fractures is still very high in our environment with an attendant unacceptable high complication rate.

The aim of the study is to access critically the burden traditional bone setter management has on the outcome of operative treatment of femoral fractures

**Patients and Methods:** The study was a four year retrospective review of patients who sustained closed isolated fracture managed operatively. Data were obtained using a profoma and analyzed using epi info.

**Results:** A total of 99 patients were managed operatively for femoral fractures, with 55 males and 44 females having a male female ratio of 1.25:1. 43 of the patients were never managed by traditional bone setters (TBS) while the remaining patients were initially managed by TBS. The patients' ages ranged from 15years to 80years, with a mean of  $45.78 \pm 19.25$ . The mechanisms of injuries were: road traffic accidents 65.7%, fall from heights 17.2%, assaults, gunshot injuries 11.1%, fall from heights 2%. The fractures were anatomically located in the neck of femur 5.2%, shaft of femur 60.9%, trochanteric region 17.5%, subtrochanteric 4.1% and femoral condyles 12.4%. The following procedures were carried out hemi-arthroplasties 6.2%, plate and screw 67.0%, interlocking nail fixation 13.4%, dynamic condylar screw 3.0% dynamic hip screw fixation 12.4%. Estimated blood loss was 150mls-800mls for those that presented fresh and 100mls -2000mls for those that initially presented to tradition bone setters. The mean operative time in those that presented fresh was 55.40mins while for those that were initially managed by traditional bone setters was 108.46minutes. No fresh case had a significant residual limb length discrepancy post-surgery while 27.3% of those that presented to traditional bone setter had a post-operative limb length discrepancy.

**Conclusion:** Patronage of traditional bone setters is still very high in this environment, and is associated an unnecessary high complication rate among the patients. These translate to increased post-operative morbidity and as such are an important preoperative consideration.

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### I. Introduction

Trauma can be described as a neglected epidemic with soft tissue injuries and fractures being the most often sustained injuries<sup>(1-5)</sup>. Limb injuries occur quite often with an increasing rate in the last decade which has been attributed to the increased rate of violence in the society modernization and industrialization<sup>(5)</sup>. Fracture of the femur occurs most times second only to tibio-fibula fracture<sup>(6)</sup>. The most common age group affected is the 15-45 years age group. This is a double tragedy to the patients and family because of the cost of treatment and the man hours lost. Hence, all efforts should be made to treat the patients as fast as possible. In our environment, care of fractures by traditional bone setters (TBS) is still a popular practice. Most forms of femoral fractures especially in adults are 'fractures of necessity' which means they require operative fracture management for good and satisfactory outcome. Traditional bone setters aim to achieve fracture union by massaging, splinting, scarification, application of local concoction which most time results in more harm. The complications arising from the practice of traditional bone settings contribute significant challenge to orthodox orthopedic practice<sup>(7)</sup>. Katchy A.U et al at Enugu found an unacceptable high complication rate in traditional management of femoral fractures<sup>[8]</sup>. However, TBS still achieve a high level of patronage because it is thought that they are cheaper, they are closer to the populace, good communication skills and pressure from family and friends<sup>(9)</sup>.

**Fig 1A: Method of Treatment by Traditional Bone Setters**



**Fig 1B**



**Fig 1b**

The aim of the study was to objectively determine the impact TBS was having on our operative management of femoral fractures.

## **II. Materials And Methods**

This was a four year (2007-2010) retrospective study carried out at the Jos University Teaching Hospital and Daisy Land Orthopedic Hospital located in Jos, Plateau State in North Central Nigeria. Records of all patients who sustained closed femoral fractures and were treated operatively were recruited into the study. Patients who were treated non-operatively, patients who defaulted from follow up and in cases where records were not complete were all excluded from the study. Patient's demographics, indication for surgery, location of fractures, estimated blood loss which was estimated by weighing the gauze and the amount in the suction drainage bottle was taken pre operatively. Data was collected using a proforma and analysis was done using Epi-info 3.8.1. The results were presented as means with standard deviation to nearest decimal points, tables and Frequency.

### III. Results

Ninety- nine patients met the inclusion criteria for the study 44 (44.4%) were female and 55 males (55.6%). Forty three (43.4%) of these patients presented fresh soon after the injury while the remaining 56 (56.6%) were managed initially by traditional bone setters. The patient’s age ranged between 15 to 80 years, mean was 45.78 ±19.25. Road traffic accident was the aetiology in 65 (65.7%) patients, fall from heights in 17 (17.2%) patients; others are as shown in table 1. The following comorbid states were noted; 15 (15.3%) patients were hypertensive while diabetes mellitus and HIV infection was present in 2 (2.0%) patients. The following limb lengths discrepancy was noted before surgery; 2 (2%) patients had a discrepancy greater than 4cm, 7(7.1%) patients 3cm, 15 (15.2%) patients 2cm, 4 (4.0%) 1cm and all occurred in patients initially managed by TBS and while no limb length discrepancy was found in the fresh fractures. The fractures were located in the shaft in 60(60.9%), per trochanteric region 17 (17.5%), condylar 12(12.4%) neck of femur 5 (5.2%) and 4 (4.1%) were sub trochanteric fractures (table2). The following procedures were done for the patients, hemiarthroplasty 6 patients (6.2%), dynamic condylar and dynamic compression screw fixation 12patients (12.4%), interlocking nail fixation 13patients (13.4%) and 66 of the patients (67.0%) had plate and screw fixation (table 3).Estimated blood loss for patients that presented fresh ranged between 150mls -800mls with a mean of 300mls and those that presented to traditional bone setters 100ml -1500mls mean of 800ml (P>0.05). The blood requirement for fresh fractures was 0-2pints of blood with a mean of 1 pint and for those that presented to traditional bone setters ranged between 0-4 units with a mean of mean of 2 units (p>0.05). The duration of surgery for fresh fractures was 83minutes ±22minutes and for those that presented to traditional bone setters 122minutes ±37minutes though p<0.05 which was significant

**Table 1: Etiology of Fractures**

Etiology	Frequency	Percentage
Road traffic accident	65	65.7%
Gunshot injuries	11	11.1%
Fall from heights	17	17.2%
Assault	2	2.0%
Sports	2	2.0%
Pathologic fractures	2	2.0%

**Table 2: Site of fractures**

Location of the fractures	Frequency	Percentage
Femoral neck	6	6.1%
Femoral trochanters	17	17,2%
Femoral shaft	60	60.7%
Subtrocahter	4	4.0%
Femoral condyle	12	12.1%

**Table 3: Procedures done**

Procedures	Frequency	Percentage
Hemiarthroplasty	6	6.1%
Dynamic hip screw	3	3.0%
Locked interlocking nail	13	13.2%
Plate and screw	66	66.7%

#### **IV. Discussion**

Majority of fractures in this study occur in the young age group, of which males predominant and is comparable with other studies<sup>(9)</sup>. Road traffic accidents were responsible for the greatest percentage (65.7%) and this has often being referred to as the neglected epidemic of the modern age<sup>(1,5,9)</sup>. Presentation to traditional bones setters did not vary significantly with age group, sex, educational qualification. However, it was slightly higher with the less educated group though not statistically significant. The highly educated though still presented to TBS but they had the tendency to seek treatment faster because they wanted to report back to work faster. The patronage of traditional bone setter was very high with an unacceptable high complication rate which is in keeping with other studies within Nigeria and beyond (22.9-57%).<sup>(7,8)</sup>

This further increased the burden on the society due to lost man hours and cost of having to manage these patients. Fractures site had to be opened in the patients who presented to TBS preventing minimal invasive procedures as against the fresh fractures where such procedures were applied such as closed nailing. This results in longer operation time with resultant increase in the risk of infection and other complication such as non-union. Blood loss was increased significantly in the 2 groups of patient though patients that presented to traditional bone setters had a significantly higher initial packed cell volume which can be explained by the fact that such patients had already recovered from the initial trauma. This not only exposed the patient to all the possible complications of blood transfusion but places and increase burden on the blood transfusion service<sup>(10,11)</sup>. There was an increased rate of infection seen in this study in patients who had presented initially to the TBS, this could be attributed to the scarifications marks the TBS utilizes as a treatment modality to treat the fractures, this practice could however convert a closed fractures to an open fracture. Application of local herbal medications whose composition are not known but are mostly organic based and probably contaminated. This also necessitates a need to perform open and complex procedures that may result in an increased risk of infections.

Limb length discrepancy was significantly more in the patients treated by TBS and it is because the bone edges had to be freshened to healthy bone end in other to achieve satisfactory reduction and healing. Also gross overlap in malunited fractures required the bone ends to be shorted shortened to achieve reduction of the fracture.

#### **V. Conclusion**

Traditional bone setters increase the burden on operative fracture management. It increases the morbidity and limit the ability to use or support minimally interventional surgery. As such all efforts should be made to regulate the practice of traditional bone setter establishment of a sound referral system and also increase and improve the availability of orthopedic services.

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