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Femoral Shaft Fractures in a Regional Setting – A study of Pattern, Treatment and Outcome.

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ABSTRACT

Fractures of the femoral shaft are recognised as a disabling injury. There are few reports on this injury from our environment. The aim of the study is to describe the pattern of injuries in our environment and assess the treatment given.

A five year retrospective study of all adults treated for femoral shaft fractures between January 1, 1991 to December 31, 1995 (5 years) treated at National Orthopaedic Hospital, Enugu, Nigeria, was carried out.

There were 58 patients with 70 fractures, 6(8.57%) open and 64(91.43%) close. The age range was 18-70 years with a mean of 29.75±12.16. The average length of hospital stay was 25.30 days. Road traffic accident constituted the highest causative factor with 48(82.76%) patients. 15(25.86%) had associated injuries while 9(15.52%) had complications of the injury on admission. Most patients 64(91.43%) underwent surgery while 6(8.57%) were managed conservatively. 28(47.27%) had post-treatment complications.

The authors are of the opinion that preventive measures targetted at the youths will reduce the number of trauma cases while the choice of method for internal fixation should be left to individual surgeon's discretion

KEYWORDS: Femoral Shaft fractures; Pattern; Treatment; Outcome.

INTRODUCTION

Koostra¹ defined femoral shaft to be that part of femur that consists of compact bone. Following his definition, one can clearly state that proximal boundary of the femoral shaft is the distal edge of the lesser trochanter and the distal boundary is a line parallel to the joint space of the knee at a distance equal to the width between the condyles. This line approximate the proximal edge of the supra patella pouch². Fractures of the femur however are recognised as a disabling injury. The femur is an integral part of the lower extremity and its design gives it the inherent property to bear the weight of the body and serve as a means of locomotion. Very few reports³⁻⁵ have emanated from our environment on this disabling injury. There is no doubt that we need to know more about these injuries in order to ensure adaptability

to our peculiar environment. The aim of the study therefore is to describe the pattern of this injury in our environment, assess the treatment given and its outcome and to compare specifically the widely used method of internal fixation (K-Nail insertion and AO plates) and make recommendations.

PATIENTS AND METHODS

All case notes of adult patients treated for femoral shaft injuries between January 1, 1991 to December 31, 1995 at National Orthopaedic Hospital, Enugu, which is a regional centre, were analysed retrospectively. All case notes with incomplete or doubtful records were excluded from the study.

RESULTS

General Data: There were 58 patients with 70 fractures, 6(8.57%) open and 63(91.43%) close. Forty(68.96%) males were involved while females were 18(31.035) with a male to female ratio of 2:1. The age range was 18-70 years with a mean age of 29.75±12.16 years. Twenty four(41.33%) fractures were on the right while 22(37.93%) were on the left. Twelve (20.70%) patients had bilateral fracture. The average length of hospital stay was 25.30days with a range of range 1-390 days.

Distribution of Age: Analysis of the age distribution showed the following 18-27(18), 38-47(12), 48-57(7), 58-67(3), 68-72(2).

Cause of injury: Analysis of cause of injury was as follows: road traffic accident 48(82.76%), falls (both from height and level grounds) 6(10.34%), gunshot injuries 3(5.17%), while 1(1.72%) patient sustained his injury from assault.

Associated injuries on admission: 15(25.86%) patients had associated injuries on admission with the distribution as shown in table I

Complication of injury on admission: 9(15.52%) patients had fracture complications. The distribution were as in table II.

Treatment Given: Sixty four(91.43%) patients had open reduction and internal fixation while 6(8.57%) patients were managed conservatively (see table III).

Post Treatment Complications: Twenty eight(48.27%) patients had one form of

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complication or another (see table IV).

Table I: Associated Injuries on Admission N=15(25.86%)

Injuries	No.	Percentage
Head injury	6	10.34
Humeral fractures	2	3.44
Radial fractures	2	3.44
Mandible fractures	1	1.72
Traumatic quadriplegia	1	1.72
Facial Injury	1	1.72
Multiple lacerations	1	1.72
Femoral neck fracture (ipsilateral)	1	1.72
Total	15	25.86

Table II: Complications of Injury on Admission N=9(15.52%)

Complication	No.	Percentage
Non Union	6	10.34
Hypovolaemic shock	1	1.72
Malunion	1	1.72
Infections	1	1.72
Total	9	15.52

Table III: Treatment Given N=70

Type	No	Percentage
Open reduction & plating	33	47.17
Open reduction and K-Nails	31	44.26
Skin/skeletal traction	6	8.57
Total	70	100

No. of conservative management = 6(8.57%)
 No. of operative treatment = 64(91.43%)

Table IV: Post Treatment Complication N=28(48.27%)

Complication	No	Percentage
Chronic osteomyelitis	6	10.34
Knee Joint complications (stiffness, ankylosis, infection, osteoarthritis)	5	8.62
Malunion (with significant limb length discrepancy)	4	6.90
Delayed union	4	6.90
Wound sepsis	3	5.17
Non union	2	3.45
Implant failure	2	3.45
Telescoping of fragments	1	1.72
Hip joint deformity	1	1.72
Total	28	48.27

DISCUSSION

Femoral shaft fracture is a disabling injury. Trauma has been reported to be the commonest cause of femoral shaft fracture by many authors^{3,6,7}. Trauma in our series also constituted the commonest cause with road traffic accident as the highest causative factor. This is also in accordance with our previous report⁵. The situation can be ameliorated if attention is focused on preventive methods like educating the public on hazards of dangerous driving and other ways of preventing road traffic accidents. We had more males than females confirming that men are more exposed to trauma. It is pertinent to point out that the youths were mostly affected due to their high risk behaviour and they should be the target for

public enlightenment.

Twenty two point eighty six percent of our patients had associated injuries on admission calling for a proper assessment of patients. Head injuries constituted most of the cases. We believe that Orthopaedic Surgeons should be knowledgeable in treatment of head injuries as trauma breaks more bone than it ruptures abdominal organs.

We had a case of ipsilateral femoral neck fracture. One must therefore stick to the principles of X-raying a joint below and a joint above fracture sites to avoid missed diagnosis, as these injuries are best treated early to avoid avascular necrosis.

Only 15.52% of our patients had complications of injury on admission. This is a far cry from our previous study⁵ where most of our patients had complications as a result of delay in seeking treatment while languishing at the traditional bone setters' home. Could it be that the message is beginning to sink? This calls for further evaluation of this attitudinal change.

Our analysis showed that 91.43% of our patients had operative treatment and the choice of fixation was between K-Nail and plates. There was no difference between the methods of fixation with regards to length of hospital stay, rate of union, complications and outcome. Both methods of fixation were widely applied by us and each case was treated on its merit. We are aware of the reports on closed intramedullary nailing of femoral fractures^{2,7} but until we are fully equipped for such procedures, open method of insertion remains the treatment of choice.

There were complications of treatment in 48.27% of our patients. Chronic osteomyelitis accounted for 10.34%. Some factors contributed to this. Firstly, the open fractures cases (8.57%). Secondly, the cases with comminution where open reduction and internal fixation were attempted. We believe that every surgeon should choose his case carefully and let not the desire to mobilize fast be the only criteria for selection. There is no doubt that degree of comminution affects outcome. Extensive dissection and stripping of soft tissue from bones should be avoided. One definitely should not sacrifice circulation in the name of achieving perfect reduction. Infact, the more perfect the reduction, the more devitalisation has taken place. Knee joint complications were equally high in our series. This calls for review of our attitude towards joint rehabilitation when fractures are being treated. Other complications are correctable errors which could be rectified if one exercises caution on choice of treatment for each individual fracture.

CONCLUSION

The pattern and treatment of femoral fracture have been examined in our environment. Since most of our cases are trauma oriented, preventive measures could ameliorate this situation especially if the youths are targeted. Most of our patients had operative treatment and did well. We believe that diminished length of stay and return to work can be achieved by early operation if patients are carefully selected.

Choice of internal fixation should be left to the decision of the surgeon as no two fracture are the same and moreover the two available methods (K-Nail and plating) produced the same results.

Conservative management still has a role to play, especially in children, badly comminuted fractures, open fractures and where facilities are not available. Post treatment complications can be avoided if attention is paid to details.

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Necropsy

The Association of Resident Doctors, OAUTHC, had announced the demise of its former Seal Secretary, Dr. E.A. Assam who was a Senior Registrar in the Department of Oral and Maxillofacial Surgery OAUTHC, Ile-Ife. He was buried in his home town in Cameroon in May 2000.