



## Evaluate the Post-Operative Complication in Treatment of Fracture of the Neck Femur in Young Adult

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### Abstract

**Objective:** *In this study our main aim to evaluate the post-operative complication in treatment of fracture of the neck Femur in young adult.*

**Methodology:** *This cross-sectional study was conducted at National institute of traumatology and orthopaedic rehabilitation (NITOR), Dhaka from January 2017 to December 2018. During the study, recent neck femur fracture 12 cases, in between age 20-55 years irrespective of gender were taken as a sample.*

**Results:** *In the experiment, the mean age of the total study population was 38 years. Most of the study subjects are due to motor vehicle accident (75 percent), and (25 percent) affected by domestic fall. Also, after follow up outcome regarding common complication like infection, non-union, painful limping, cortical screw cutout (used for fixing Muscle Pedicle Bone Graft) the overall result after treatment.*

**Conclusion:** *From our result, we can conclude that the long-term follow up and evolution of the viability of this procedure minimize the postoperative complication of the patients. Further study is needed for additional useful result.*

**Keywords:** *Post-operative complication, Displaced fracture, Non-union.*

### Introduction

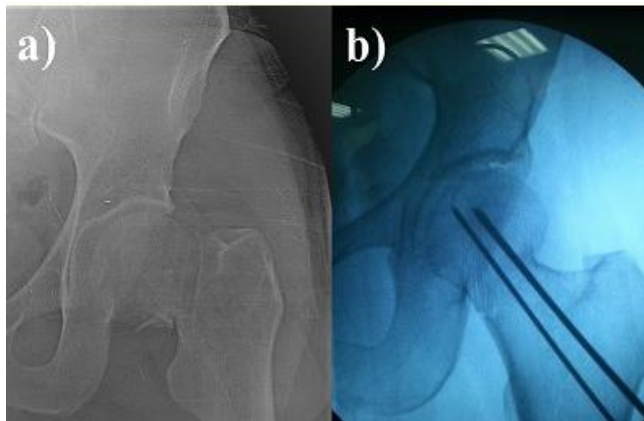
Fractures of neck of the femur are one of the commonest fractures in orthopedic practice. It occurs predominantly in elderly women following a trivial trauma but it may occur at any age of either sex.

A number of author indicated that about 85% of displaced femoral neck fracture, there is total or subtotal ischaemia produced due to interruption of vascularity at the antero superior portion of the

femoral head that lead to late segmental collapse. [1][2]

Followed by different metallic fixation device of varying design and different structural strength were described for better fixation. But with the use of these different devices there was no significant difference of union occurred in 60-80 percent of cases and late segmental collapse developed in approximately 20-30 percent of the patients in whom union has occurred [2][3]

One article reported 58 patients with non-united intracapsular fracture of the femoral neck were treated by internal fixation and muscle pedicle bone grafting. All had same degree of absorption of the femoral neck and many had avascular necrosis of the femoral head. At operation sclerosed pad was excised and femoral head was decompressed and muscle pedicle bone graft was applied. Satisfactory union occurred in 42 patients and delayed union occurs in seven cases, non-union occurs in five patients and technical failure in two. [4]



**Figure-1:** Radiographs of a woman with a left femoral neck fractures (Garden III fracture): Preoperative (a), intraoperative (b) radiographs. [5]

In this study our main objective is to evaluation of post operative complication in treatment of fracture of the neck in young adult.

**Objective**

**General Objective**

- To assess of post-operative complication in treatment of fracture of the neck in young adult.

**Specific Objective**

- To identify Sociodemographic characteristics of the patients
- To detect mechanism of injury.

**Methodology**

Type of study	prospective observational study was
Place of study	National institute of traumatology and orthopaedic rehabilitation (NITOR), Dhaka
Study period	January 2017 to December 2018
Study population	12 Recent neck femur fracture cases, in between age 20-55 years irrespective of gender.
Sampling technique	

**Inclusion Criteria**

- ☐ Young and adult having 20-55 years age group
- ☐ Both Sex.
- ☐ Irrespective of occupation and Socio economic status
- ☐ Displaced unilateral intracapsular fracture neck of the Femur garden type III and IV as diagnosed radiologically
- ☐ Age of the fracture is up to one month of accident

**Exclusion Criteria**

- ☐ Old fracture.
- ☐ Pathological fracture.
- ☐ Combined cervical fracture and trochanteric fracture.
- ☐ Fracture with polytrauma.
- ☐ Open fracture
- ☐ Fracture with major systemic diseases
- ☐ Non cooperative and psychologically unstable patient.

**Method**

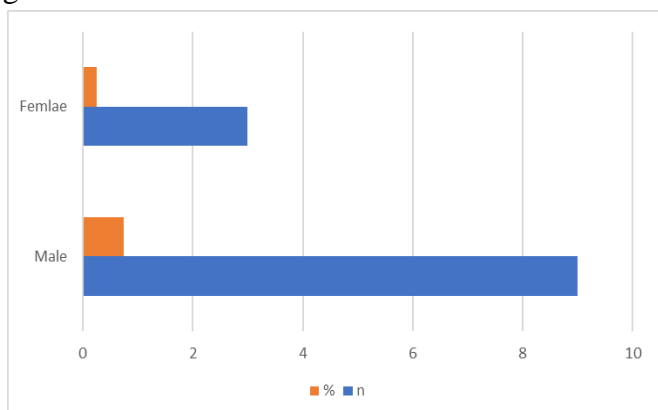
Management of fracture neck of the femur is an unsolved problem. Incidence of non-union and avascular necrosis is much higher in neck of the femur fracture in young adult. Therefore, earlier treatment is the aim of management. Out of twelve patients of this series six through emergency dept. and remaining six patients throughout patient dept. After admission patients were put on the surface traction with 2.5 to 3 kg weights to overcome muscle spasm, to relief pain, and to rest the limb in best functional position according to the methods described by one report. [2]

**Statistical Analysis**

First data were edited to the validity and consistency of the data. After proper verification data were coded and entered into computer by using SPSS software programs. Descriptive analysis was done by percentage, mean and standard deviation. Association was observed by appropriate statistical test at 95% confidence interval eg. odds ratio, Chi-square, t-test.

**Results**

In figure -2 shows gender distribution of the patients where 75% were male patient and 25% were female patients. The following figure is given below in detail:



**Figure-2:** Gender distribution of the patients.

In table-1 shows age distribution of the patients where which is ranges from 22-55 years yrs. most of the patients belongs to age group 31-50 (66.66%). The mean age of the total study population was 38 years (n=12). The following table is given below in detail:

**Table: 1** Distribution of the patients by their age groups

Age group	Number of patients	Percentage
20-30	3	25%
31-40	4	33.33%
41-50	4	33.33%
51-60	1	8.33%

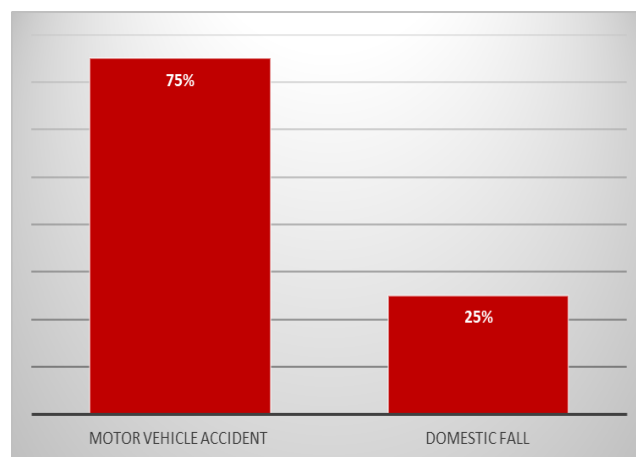
In table-2 shows sociodemographic characteristics of the patients where most of the patents belongs to urban area. Th following table is given below in detail:

**Table-2:** Sociodemographic characteristics of the patients

Variable	%
Resident area	
Urban	60%
rural	40%
Educational status:	
Illiterate	9.72%
Primary level	27.63%
Secondary level	18.69%
Higher secondary	12.88%
Undergraduate and masters level	31.08%
Occupational status:	
House wife	25%
Garments worker	22%
Service holder	10%
Day laborer	3%
Student	15%
Businessman	25%

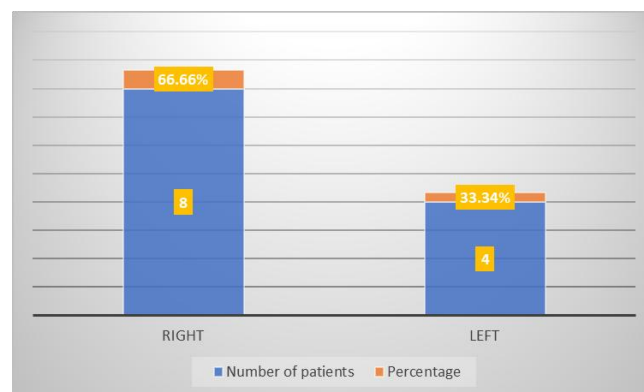
Type of Fracture	Percentage
III	66.67%
IV	33.33%

Figure-3 shows distribution of the patient according to mechanism of injury. Most of the study subjects are due to motor vehicle accident (75 percent), and (25 percent) affected by domestic fall. The following figure is given below in detail:



**Figure-3:** Distribution of the patient according to mechanism of injury.

In figure-4 shows distribution of the patients according to side involvement where maximum numbers of the patients sustained injuries on their right side (66.67 percent) and left side involvement was only in (33.33 percent) cases. The following figure is given below in detail:



**Figure-4:** Distribution of the patients according to side involvement.

In table-3 shows the distribution of postoperative hospital stay of patients after operation, in days. Maximum hospital stay was 24 days and minimum 9 days. Average hospital stay was 13.5 days. The following table is given below in detail:

**Table- 3:** Postoperative hospitals stay in days.

Post-operative hospital stay	Total No of Days
Maximum	24
Minimum	9
Average (Mean)	13.5

In table-4 shows follow up outcome regarding common complication like infection, non-union, painful limping, cortical screw cutout (used for fixing MPBG) the overall result after treatment. The following table is given below in detail:

**Table-4:** Follow up outcome regarding common complication

Post-operative complication	%
<b>Pain:</b>	
No pain	25%
Moderate pain	66%
Fair pain while prolonged standing and weight bearing	8.33%
Fair Pain while walking and weight staring	.67%
Lipping	66.67%
ROM	33.33%

Post operative complication	%	n
<b>Pain:</b>		
No pain		
Moderate pain		
Fair pain while prolonged standing and weight bearing		
Fair Pain while walking and weight staring	66%	8
Liping	66.67%	8
ROM	33.33%	4

Multiple response were noted.

**Discussion**

There are some structural peculiarities which affects healing in delayed and displaced variety of fracture neck femur. For these peculiarities it is a great problem to obtain an immediate excellent result. The peculiarities are the arrangement of vascular supply of the femoral head which varies in different age group,<sup>[6]</sup> in the neck there is absent or very thin periosteum. So, there is no/minimum callus formation.<sup>[7]</sup> So, osteosynthesis is the only mean to achieve healing in this region due to change of neck shaft angle, there is an excessive shearing force at the fracture site, which lead to delay in bone healing.<sup>[8]</sup>

The present series included twelve cases of displaced intracapsular neck femur fracture in young active age group people (22-50 yrs.) treated

by open reduction and internal fixation by cannulated nip screws with gluteus medius muscle pedicle bone graft. These patients are evaluated with a follow up period ranging from 8 to 13 months.

In the present series, as in all other series a difference is found in sex incidence that is eight cases (66.66%) were male and four cases (33.33%) were female. That may be due to fact that male of active age group are mostly affected by motor vehicle accident than that of female.

In this series out of twelve patients eight (66,66%) patients are the victim of motor vehicle accident and remaining four (33.33%) are the victim of fall from a height. Active age group people are prone to such type of injuries. The incidence of motor vehicle accident is more among male, probably due to our social set up. I.e., male are busy outside the home and females are housewives remain at home.

In this series three patients (25%) had no subjective complaints of pain. In eight cases in (66%) there in mild pain during staring, prolonged standing and weight bearing. One patient had moderate pain during walking and weight bearing this pain might be due to shortened lever arm and mild coxa vara deformity, thereby increasing the resultant pressure force on the femoral head. Radiology evidence showed cut out of screw that removed surgically and patient were advised to walk with walking aids.

In this study "good group" had occasional pain and in "fair group" (8.33%) had tolerable pain during walking. Except one all patients were improved with physical exercise and with non-weight bearing and analgesic. In this group radiological evidence of union progressing at the fracture site. In few cases (2-3) there were with good clinical condition. They could walk, without walking aids. They only had experience of mild pain and limping during strenuous exercise and weight bearing.

Minimum time for radiological union that found in this study was twenty-eight weeks and maximum was forty weeks. In some cases the

radiological union was delayed but functional outcome was good.

Superficial infection occurred in one case (8.33%), which was treated by regular dressing and parenteral antibiotics according to culture sensitivity report. Staph. Aureus was isolated which was sensitive to Cefuroxim Antibiotic continued till the wound healed (3 wks.).

To salvage the femoral head different author used different type of bone graft previously. In 1958 one study used allogenic bone grafting by phemister technique.<sup>[9]</sup>

Another study used fibular bone grafting to salvage femoral head in type III and IV old transcervical fracture neck of the femur.<sup>[10]</sup>

### Conclusion

From our result, we can conclude that the long-term follow up and evolution of the viability of this procedure minimize the postoperative complication of the patients. Further study is needed for additional useful result.

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