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Ipsilateral femoral neck and shaft fractures: An analysis of two treatment methods

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Abstract

Background: Ipsilateral femoral neck and shaft fractures are extraordinary wounds that present a surgical challenge. It happens in roughly 6% to 9% of all femoral shaft fractures. In spite of this moderately basic introduction, decision-making frequently is troublesome. The principle target of this article is to think about treatment techniques in ipsilateral femoral neck and shaft fractures.

Materials and Methods: A sum of 24 patients with ipsilateral femoral neck and shaft decision-making fractures were treated with PFNA-long or different plate mixes. We isolated patients into two gatherings. Gathering I included 13 patients who experienced surgery with cancellous lag screws or dynamic hip screws (DHS) joined with compression plate fixation. Gathering II included 11 patients who experienced surgery with reconstruction-type intramedullary nailing.

Result: The mean age was 31 and 34 years in Group I and Group II, respectively. The normal follow-up periods were 19.9 and 20.2 months for bunches I and II, separately. Normal union time for femoral neck crack in Group I and Group II were 13.7 and 15.1 weeks, individually, and for shaft breaks, these time were 19 and 21 weeks, separately. There were 8 (61%) great, 4 (30%) reasonable practical outcomes in Group I. There were 8 (72%) great, 2 (19%) reasonable, and 1 (10%) poor practical outcomes in Group II. One instance of embed disappointment and nonunion of the femoral shaft fracture happened in group I.

Conclusion: Both treatment strategies accomplished acceptable useful results in patients with ipsilateral basicervical femoral neck and shaft fractures.

Keywords: Reconstruction nailing, Plating, Lag screw, Dynamic hip screw (DHS), ipsilateral femoral neck and shaft fracture.

1. Introduction

Ipsilateral femoral neck and shaft fractures normally happen because of high-vitality injury in a youthful patient ^[1]. The injury mechanism is usually a pivotally directed drive against the distal femur with the hip and knee flexed, for example, an engine vehicle mishap in which the knee strikes the dashboard ^[2]. The femoral shaft fracture is habitually comminuted because of the high-vitality nature of this damage. The femoral neck crack/fracture is usually basilar in area, vertical in introduction, and insignificantly dislodged or non displaced. It has been proposed that the femoral shaft retains the majority of damage vitality, as demonstrated by the pole comminution, diminishing the measure of compel transmitted over the femoral neck, as showed by the successive absence of femoral neck uprooting. In light of the system of damage, associated knee wounds are commonly seen, including patellar breaks, injuries, and lacerations ^[3].

A comminuted mid shaft femoral fracture auxiliary to pivotal stacking should alarm the treating doctor to the likelihood of a related femoral neck fracture. This is imperative in light of the recurrence of unrecognized ipsilateral femoral neck fractures. A few treatment alternatives are depicted in the writing, yet no reasonable accord exists with respect to the ideal treatment of these perplexing fractures ^[4]. The conceivably pulverizing intricacies of the femoral neck crack in youthful patients (e.g., avascular putrefaction, nonunion, and malunion), the neck fracture ought to be dealt with first and the pole crack second.

The finding of the neck fracture is troublesome and in the vicinity of 19% and half are missed ^[5]. When they are found it might be questionable whether they were available before operation or happened amid the technique.

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Inability to take suitable radiographs, outside pivot of the shaft of the femur and the nearness of a subclinical mysterious fracture may represent preoperative misdiagnosis [6, 7]. Fractures amid nailing might be expected to the entering gadget amid arrangement of the section point parallel addition of the femoral nail in a littlpatient, a neck-shaft point of more than 135°, the average prong of the inclusion jig, or front area of the passage gap [8].

Albeit joined ipsilateral femoral neck and shaft cracks are an uncommon damage design, it is basic to perceive the nearness of a related ipsilateral femoral neck fracture happening in conjunction with the more evident femoral shaft fracture. Associated ipsilateral femoral neck fractures have been accounted for to happen in 1% to 9% of femoral shaft fractures [9]. These are testing wounds to oversee and regularly require alteration of the standard shaft crack treatment approach. Inability to perceive a related ipsilateral femoral neck fracture may bring about break displacement, deferred treatment, and a poorer result.

Although various alternatives exist for the consequent management of a femoral neck nonunion, the inconveniences of osteonecrosis of the femoral head and nonunion of the femoral neck are more hard to oversee. Contention exists about whether this joined damage design is best treated with a solitary embed or with independent inserts. Low-level confirmation from case arrangement suggests that different femoral neck and shaft inserts may bring about less reoperations [10].

Treatment choices for ipsilateral femoral neck and shaft fractures include: Reconstruction nail, Antegrade nail and separate screws neighboring the nail, Femoral neck screws and retrograde femoral nail, Sliding hip screw with or without extra derotation screw and retrograde femoral nail, Femoral neck screws and plate fixation of the shaft and Sliding hip screw with or without extra derotation screw and plate obsession of the shaft.

The reason for this article is to audit current diagnosis and treatment methodologies to help streamline the administration of patients with such wounds.

Materials and Methods:

24 patients with ipsilateral femoral neck and shaft fractures were decided for the examination who were conceded in common hospital in North India from January 2012 to December 2014. All patients were harmed after high energy injury in road mischances. Six patients had wounds different parts of the body, for example, belly, chest, head, and other appendage. None of the patients had neurotic or open fracture. We isolated patients into two groups: Group I included 13 patients who experienced surgery with cancellous slack screws or dynamic hip screws (DHS) joined with pressure plate fixation. Group II included 11 patients who experienced surgery with reconstruction-type intramedullary nailing. Mean age was 31 and 34 years in Group I and Group II, individually.

All patients were at first overseen in emergency accident division. Fundamental signs were balanced out. Temporary skeletal traction through Steinmann stick was utilized as a part of patients who couldn't be worked immediately. We balanced out femoral neck crack first in patients treated with double implants. A temporary adjustment with guide wires was done in patients with dislodged neck fractures to avert assist dislodging, and this was trailed by adjustment of shaft and complete fixation of the neck fracture. In cephalomedullary nailing, we incidentally balanced out the

neck fracture with two guide wires; this was trailed by inclusion of nail, proximal locking, and distal locking.

All patients got preoperative antibiotic prophylaxis as inj. Cefoperazone + Sulbactam 1 gm

from 1 h before surgery until the seventh postoperative day. On the second postoperative day, scope of development practices were begun. Touch-toe weight bearing was permitted utilizing a frame or crutches after stitch expulsion. The follow up study included both clinical and radiological assessments.

Result

The mean age was 31 and 34 years in Group I and Group II, respectively. The normal follow-up periods were 19.9 and 20.2 months for bunches I and II, separately. Normal union time for femoral neck crack in Group I and Group II were 13.7 and 15.1 weeks, individually, and for shaft breaks, these time were 19 and 21 weeks, separately. There were 8 (61%) great, 4 (30%) reasonable and 1 poor, practical outcomes in Group I. There were 8 (72%) great, 2 (19%) reasonable, and 1 (10%) poor practical outcomes in Group II. One instance of embed disappointment and nonunion of the femoral shaft fracture happened in gather I. Factors contributing to nonunion of the femoral shaft were the presence of an open fracture, use of an unreamed, small diameter intramedullary nail, and prolonged delay to weigh tbearing. There were no noteworthy contrasts in the practical results or real intricacies between the two gatherings.

Characteristics	Group I (n=13)	Group II (n=11)
Age (years)	31	34
Gender		
Male	7	8
Female	6	3
Average operation time (mins)	75	96
Classification of fractures		
Femoral neck:		
Garden II	10	7
Graden III	3	4
Femoral shaft:		
Type I	3	2
Type II	6	5
Type III	1	3
Type IV	3	-
Segmental	-	1
Femoral neck fracture		
Union		
Non union		
Average union time (weeks)	13.7	15.1
Femoral shaft fracture		
Union	12	11
Non union	1	-
Average union time (weeks)	19	21
Practical outcome		
Great	8	8
Reasonable	4	2
Poor	1	1
Follow up period (months)	19.9	20.2

Operations were performed with in a mean of 5.9 days (2– 11 days) following injury on a conventional operation table under picture intensifier control. All patients were operated utilizing a closed technique for fracture of neck and shaft. Normal operation time was 75 min in group I and 96 min in

group II. Neither osteonecrosis of femoral head nor proximal fracture nonunion was watched. Two patients had delayed union of femoral shaft fractures.

Discussion

Delaney and Street⁶ first portrayed the mix of ipsilateral fractures of the neck and shaft of the femur^[11]. Plainly the neck crack is frequently missed at the underlying appraisal, with from 20% to half of related neck fractures analyzed after obsession of the broke shaft; the utilization of sclose intramedullary nailing confounds this circumstance^[12]. A neck fracture might be analyzed promptly in the wake of nailing or a few days after the fact, when assembly starts, and a few cases have been accounted for as iatrogenic fractures^[13]. The defective presentation of a femoral nail may cause an iatrogenic fracture of the femoral neck, yet many so portrayed are most likely because of unsettling influence of an undisplaced break amid nailing^[14, 15].

In spite of the fact that the huge majority of ipsilateral femoral neck fractures are because of the damage, the underlying nonappearance of radiographic discoveries has driven some to conjecture that they may occasionally be iatrogenically prompted^[16]. On the off chance that an antegrade nailing beginning site is set too anteriorly, an anxiety riser can happen, prompting an iatrogenic basicervical femoral neck fracture. Drifting hip damage and ipsilateral femoral neck and shaft fractures are uncommon and result from high-vitality injury, particularly numerous injury. For femoral twofold fractures, Oh *et al.* detailed the utilization of a retrograde nail for the femoral shaft and screws for the femoral neck^[19]. Jain *et al.* what's more, Watson and Moed utilized a solitary antegrade remaking nail for shaft and neck fractures^[17]. Hung *et al.* announced the utilization of plate obsession for shaft fractures and screw obsession for neck fractures^[16]. Duygulu *et al.* revealed a case like the present case. In their patient, the femoral neck and shaft were settled utilizing an antegrade remaking nail, and afterward the hip bone socket was settled utilizing plate and screws^[18].

In a meta-analysis of the reports distributed in writing, the bolted intramedullary nails or recreation nails yielded comes about that were better than twofold implants^[20]. However, the distinction between the two strategies concerning union, intricacies, and useful result was not critical in the present arrangement. The normal time for femoral neck and shaft union in the present arrangement was steady with that detailed in different arrangement. Cephalomedullary nailing is in fact all the more requesting. In our examination, we found that it is in fact more challenging to do cephalomedullary nail in totally uprooted neck and garden Type 3 cases. Be that as it may, in the majority of the cases, neck fracture is insignificantly dislodged and where it is simpler to do and we are getting same outcomes.

The objective of any treatment design ought to be anatomic decrease of neck fracture and stable obsession of the two fractures, so the patient can be prepared early. Both of the treatment strategies utilized as a part of the present investigation accomplished agreeable utilitarian result in these mind bogging fractures. A reconstruction nail is favorable as far as conceivable closed antegrade nailing with negligible cut, and decreased blood misfortune and natural fixation of the two fractures with a solitary embed^[21]. Fixation with plates for the pole and screws or DHS for the hip is simple from a specialized point of view.

The constraints of the present investigation incorporate the modest number of patients in each gathering and the potential

for client inclination, in light of the fact that the specialist couldn't be blinded as for the strategy utilized.

These impediments regardless, this review think about demonstrated that both treatment strategies are dependable alternatives in the administration of ipsilateral femoral neck and shaft fractures. As we would see it, the decision of the treatment technique ought to be directed principally by the kind of femoral neck fracture and the specialist's commonality with the treatment strategy picked. Reconstruction nailing ought not be favored in dislodged femoral neck fractures, due to troubles in lessening the crack and its support amid nail inclusion.

Conclusion

Despite the fact that in the present examination, a great result was seen in utilizing both the techniques, its hard to make a positive inference as the no of cases are relatively little. An investigation comprising of all the more no of cases can give a clear conclusion. Although combined ipsilateral femoral neck and shaft fractures are remarkable, it is fundamental to painstakingly assess the femoral neck in all patients supporting high-vitality femoral shaft fractures. Early acknowledgment of a related ipsilateral femoral neck fracture may allow enhanced results, staying away from intraoperative or postoperative discovery. Various distinctive embed alternatives are accessible for administration of this challenging damage. Most creators prescribe that need be given to anatomic decrease and ideal adjustment of the femoral neck fracture because nonunion, malunion, or avascular necrosis of this damage is more hard to successfully treat.

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