Proximal Femoral Fracture and Great Clinical Result Despite a Non-Ideal Post-Operative X-Ray

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Abstract:

Background and Objective: **Proximal femoral fractures are a very common issue to orthopedic surgeons and reflect a very hot place in every orthopedic debate. They are operated by open or closed approach and both methods have pros and cons. In this article we will discuss a case with a miraculous result for closed PFN.**

Case Report: **In this essay we report a 59 year old male with suboptimal postoperative reduction radiographically which ends in a very good clinical result.**

Discussion: **Closed reduction and Internal Fixation surgery in proximal femoral fractures have a very good result because of the fracture site hematoma which is retained.**

Conclusion: **CRIF surgery is better than ORIF in proximal femoral fractures even if the reduction is suboptimal.**

Keywords: ***Proximal Femoral Fracture, Trauma, Hip Surgery, Cephalomedullary Nail***

Background and Objective

Intertrochanteric fractures are among the most prevalent osteoporotic fractures, affecting approximately 172 individuals per 100,000 according to recent studies. Timely fixation of these fractures, in conjunction with the careful selection of an appropriate stabilization device, is essential for facilitating rapid patient mobilization.[1-3]

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These injuries primarily occur in elderly individuals, many of whom possess underlying conditions that predispose them to osteoporosis. The occurrence of such fractures following low-energy trauma serves as a definitive indicator of significant osteoporosis, thereby necessitating the initiation of adjunctive treatments such as calcium and vitamin D supplementation. In light of these factors, the timing of surgical intervention and the minimization of anesthesia duration are paramount considerations for the medical team. The effective selection of fixation devices, alongside optimizing the patient's condition prior to anesthesia, is critical to avoid the necessity for revision surgeries while minimizing operative time and blood loss.[2,4-7] Orthopedic surgeons frequently grapple with the decision of whether to perform open surgery to address hematomas at the fracture site or to manage the fracture without direct exposure, opting instead for closed stabilization.[5-7] The nature of the fracture, as well as the challenges associated with achieving adequate reduction during closed surgery, may necessitate invasive interventions for precise alignment. Extensive literature exists both supporting and opposing the approach of opening the fracture site. This study aims to remind our colleagues of the advantages associated with adopting a conservative approach that avoids open reduction. Our forthcoming research will underscore the superiority of Closed Reduction and Internal Fixation (CRIF) while elucidating the benefits of not exposing the fracture site through the presentation of a specific case involving an intertrochanteric fracture. During the treatment of this case, an early post-operative X-ray raised concerns regarding the necessity of revision surgery; however, thorough follow-up evaluations revealed satisfactory outcomes, thus affirming our decision to pursue a conservative course of action. We hope this case serves as a valuable resource for our colleagues, assisting them in making informed decisions in analogous clinical scenarios.

Case Report

The patient is a 59-year-old male who sustained a ground-level fall and subsequently presented to the emergency department of our medical center with complaints of pain, restricted movement, and external rotation of the left lower limb. His medical history includes a diagnosis of type 2 diabetes and hypertension, for which he was receiving treatment with metformin, losartan, and glimepiride. Initial examinations upon admission indicated normochromic normocytic anemia. Radiological evaluations conducted in the emergency department confirmed the presence of a fracture at the base of the left femoral neck. Given the patient's clinical status and the absence of fracture displacement, a decision was made to stabilize the fracture utilizing a gamma nail through closed reduction techniques (Figure 1).

Figure 1- X-ray of the left femoral neck base fracture at the initial presentation.

In the early post-operative X-ray, significant efforts at closed reduction revealed a gap of at least 10 millimeters at the fracture site (Figure 2). Nevertheless, due to the closed nature of the surgical procedure and the retention of the hematoma at the site of the fracture, the patient was mobilized using a toe-touch

weight-bearing approach. Serial X-rays taken over the subsequent months demonstrated complete radiological union of the fracture following a span of just five months. By this time, the patient was able to ambulate independently without the use of crutches and exhibited no signs of a limp (Figures 3-5).

Figure 2- X-ray of the patient immediately after surgery.

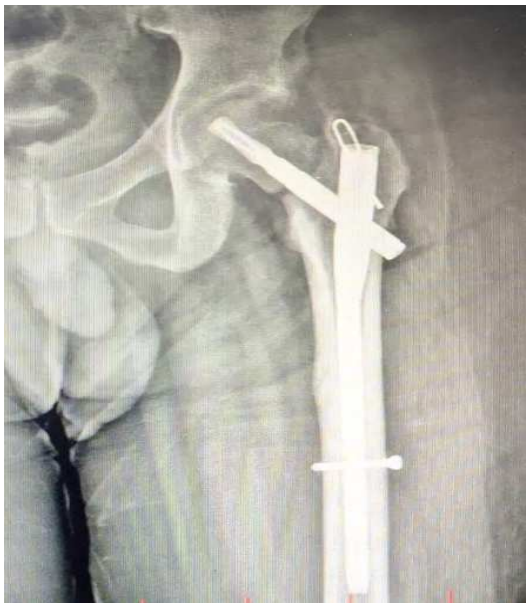

Figure 3- X-ray one month after surgery

Figure 4 - Photo three months after surgery

Figure 5- X-ray 5 months after surgery

Discussion

Proximal femur fractures represent a common presentation in orthopedic emergency departments and can result from either high-energy or low-energy trauma, particularly in elderly patients with a history of osteoporosis. Treatment modalities for proximal femur fractures vary based on the

specific fracture type and the overall health status of the patient.[3-5,7,12] A significant challenge faced by orthopedic surgeons lies in achieving closed reduction for these fractures, as this method minimizes hematoma formation, reduces the risk of infection, and enhances the likelihood of successful union. While closed fixation techniques may not be universally applicable, many practitioners contend that even suboptimal reductions achieved via closed methods ultimately confer greater benefits to patients compared to open techniques.[1-8,13] Recently, there has been a trend favoring open reduction and wire cerclage for subtrochanteric fractures. Among proximal femur injuries, fractures of the femoral neck present additional challenges due to their tenuous blood supply.[8-12,14] Nevertheless, closed fixation remains the preferred approach for intracapsular fractures to facilitate healing.[10-11,15] In this study, we present a case of a patient whose femoral neck fracture was stabilized using a cephalomedullary nail through closed reduction techniques. The early post-operative X-ray demonstrated an unacceptable gap at the fracture site, which prompted consideration of revision surgery. However, after a thorough consultation with the patient and a comprehensive explanation of the situation, we opted to proceed with weight-bearing and monitor the patient's progress. Subsequent serial X-rays indicated complete union was achieved within six months post-injury, and the patient reported complete resolution of pain, allowing for unhindered ambulation without a limp. This outcome reinforces the advantages of closed surgical approaches in contrast to open techniques, particularly in the context of femoral neck fractures.

Conclusion

In this study, we have presented a challenging yet insightful experience to illustrate that even when a less-than-optimal reduction is achieved through closed surgery, closed fixation remains the superior choice relative to open surgical interventions.

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