

## Treatment of Non-Union Distal Femoral Fractures -A Case Study

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### Abstract

### Case Report

Distal femoral fractures are a type of fracture that occurs in the lower part of the femur, near the knee joint. These fractures are relatively rare, comprising only 0.4% of all fractures and 4-6% of femoral fractures. Distal femur fractures can be a serious injury that can lead to long-term complications, including non-union. Non-union is a condition in which a bone fails to heal after a fracture, leading to persistent pain, limited mobility, and other complications. Non-union of the distal femur can be particularly challenging to treat and may require a comprehensive approach that involves surgical intervention, rehabilitation, and close monitoring. A 56 years-old male patient presented with a broken plate of the distal femur in the right foot and was enrolled in the study. At the time of admission, the blood pressure and pulse of the patients were 110/70 mmHg and 80 bpm respectively. The patient was instructed to follow preoperative protocol before the surgery, which included nothing from the mouth (NPO) from midnight until the completion of the surgery. In this case study, open reduction and internal fixation (ORIF) surgery was performed to fix the fractures of the distal femur. After a successful surgery, patients are often prescribed different types of medications to manage pain, prevent infection, and promote healing. The patient was encouraged to follow the dietary recommendations as closely as possible. Physical therapy is often an important component of postoperative care and can help patients recover from surgery more quickly and effectively. The patient's outcome was excellent, with fewer complications. The patient with distal femur fractures resulted in a tremendous outcome after successfully operating with minimal complications, as reported in this current case study.

**Keywords:** Treatment, Non-Union Distal, Femoral Fractures.

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## INTRODUCTION

Distal femoral fractures are a type of fracture that occurs in the lower part of the femur, near the knee joint [1]. These fractures are relatively rare, comprising only 0.4% of all fractures and 4-6% of femoral fractures [2]. Distal femur fractures can be a serious injury that can lead to long-term complications, including non-union [3]. Non-union is a condition in which a bone fails to heal after a fracture, leading to persistent pain, limited mobility, and other complications [4]. Non-union of the distal femur can be particularly challenging to treat and may require a comprehensive approach that involves surgical intervention, rehabilitation, and close monitoring [5]. Non-union in distal femoral fractures is a relatively rare but potentially debilitating complication. According to a study, the incidence of non-union in distal femoral fractures ranges from 1% to 10%, depending on the severity and location of the fracture. The risk of non-union is higher in older adults, those with underlying medical conditions, and those with more severe injuries

[6]. The treatment of non-union in distal femoral fractures is complex and requires careful assessment and planning [7]. Several factors must be considered, including the patient's age, overall health, and the location and severity of the fracture. Treatment may involve surgical intervention, including bone grafting, internal fixation with plates and screws, or external fixation. The choice of treatment depends on various factors, such as the degree of bone loss, the degree of deformity, and the presence of any infection [8]. Rehabilitation and physical therapy are also critical components of the treatment plan for non-union in distal femoral fractures. These interventions help to improve mobility, strength, and range of motion in the affected leg, which can be impaired by the fracture and any surgical procedures performed [9]. Rehabilitation may include exercises, stretching, and manual therapy, as well as the use of assistive devices such as crutches or a walker [10]. A case study provides insight into the successful treatment of a patient with non-union in a

distal femoral fracture. In this case, a 34-year-old male presented with a non-union of a distal femoral fracture that had occurred three years prior. The patient had undergone multiple surgeries and treatments but had not experienced any improvement in symptoms. The case study describes the use of a combination of surgical techniques, including autologous bone grafting and locking plate fixation, to promote bone healing and stabilization. The patient also underwent a comprehensive rehabilitation program to improve mobility and strength in the affected leg. The authors note that the successful outcome, in this case, highlights the importance of a multidisciplinary approach to the treatment of non-union in distal femoral fractures. They also emphasize the need for careful assessment and individualized treatment plans based on the patient's age, overall health, and other factors [11]. Non-union in distal femoral fractures can be a challenging complication to treat, requiring a comprehensive approach that involves careful assessment, surgical intervention, and postoperative rehabilitation [12]. The successful treatment of non-union in distal femoral fractures often depends on a multidisciplinary approach that considers the patient's individual needs and circumstances. This current case highlights the surgical outcome of non-union in fractures of the distal femur.

## CASE REPORT

A 56 years-old male patient presented with a broken plate of the distal femur in the right foot and was enrolled in the study. At the time of admission, the blood pressure and pulse of the patients were 110/70 mmHg and 80 bpm respectively. The patient's temperature was normal. The patient was advised to test complete blood count (CBC), erythrocyte sedimentation rate (ESR), random blood sugar (RBS), routine urine analysis (Urine R/E) & urine microscopic examination (Urine M/E), and serum creatinine. Patients also were prescribed to do an electrocardiogram (ECG). The patient was instructed to follow preoperative protocol before the surgery, which included nothing from the mouth (NPO) from midnight until the completion of the surgery, written consent from one of the family members, and cleaning and shaving the operative area. Patients need to be on time before their scheduled surgery. Timely arrival allows for proper preparation, including any necessary medical evaluations, completing paperwork, and preparing the patient for the procedure. In this case study, open reduction and internal fixation (ORIF) surgery was performed to fix the fractures of the distal femur. After a successful surgery, patients are often prescribed different types of medications to manage pain, prevent infection, and promote healing. Pain medications, such as Rolac was prescribed to manage postoperative pain. Antibiotics were prescribed to prevent infection at the surgical site. In addition, the patient was also advised to take medications to prevent blood clots or to promote healing, such as anticoagulants or nutritional supplements (Vitamin-D supplements, Calcium supplements). Following the specific diet chart given by the healthcare

provider is an important aspect of postoperative care. Strictly adhering to dietary guidelines can help promote healing, reduce the risk of complications, and support the body's recovery process. The patient was encouraged to follow the dietary recommendations as closely as possible. Physical therapy is often an important component of postoperative care and can help patients recover from surgery more quickly and effectively. The patient's outcome was excellent, with fewer complications.

## DISCUSSION

There have been several studies conducted on the treatment of non-union distal femoral fractures. In this case study, a male patient was enrolled who was 56 years old. A case report found a 54-year-old female patient who underwent surgery to repair distal femoral fractures. [13]. Another study suggested that the mean age of patients was 66.5 years and among them, 76 % of patients were females [14].

In this case report, open reduction and inter-fixation surgery was performed to fix the fractures of the distal femur. Another related study found that patients in the open reduction and pin fixation group had a greater range of motion and strength than the closed reduction and pin fixation group [15]. A similar case report suggested that patients initially presented to a local hospital and underwent open reduction and internal fixation of the femoral fractures using a plate and screw [14]. From the contradictory study, the author described that close treatment was preferred over open reduction internal fixation [16].

The patient was advised to diagnose complete blood count (CBC), erythrocyte sedimentation rate (ESR), random blood sugar (RBS), routine urine analysis (Urine R/E) & urine microscopic examination (Urine M/E), and serum creatinine found in this case study. A similar study found that the patient was advised to test the white blood cell (WBC) count, neutrophile granulocyte (NEUT) count, complete blood count (CBC), haemoglobin level, and serum total protein level [17]. A prospective trial showed that 65-year-old patient was advised to test complete blood count (CBC), haemoglobin level, serum total protein level, c-reactive protein level, erythrocyte sedimentation rate (ESR), random blood sugar (RBS) [18].

After a successful surgery, patients are often prescribed different types of medications (Napa, Rolac) and nutritional supplements to manage pain, prevent infection, and promote healing. A related article found an opioid medication was needed soon after surgery [19].

In this current case report, the patient's outcome was excellent, with fewer complications.

## CONCLUSION

The successful treatment of distal femoral non-unions can be attained through deformity correction, stable internal fixation with a fixed-angle device, placement of lag screws, and the use of additional bone grafting. The patient with distal femur fractures underwent open reduction and internal fixation (ORIF) surgery, which resulted in a tremendous outcome with minimal complications, as reported in this current case study.

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