

# Repair of a Fractured Femur and Fractured Femoral Neck Using the ASIF\* Technique: A Case Report

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## *History*

On August 26, 1968, a one and one-half-year-old, 65 pound (30 kg), male German Shepherd was referred to the Stange Memorial Clinic with a history of being struck by an auto one day prior. The referring veterinarian had examined the patient and found that a femoral fracture was present.

## *Clinical Course*

On initial examination the patient's mucous membranes and rectal temperature were normal. The fracture site was localized in the proximal one-third of the left femur.

The left femur was radiographed (anterior-posterior) with the aid of sodium thiamylal\* (Fig. 1). The radiograph revealed a spiral fracture of the proximal one-third of the left femur and a fracture of the left femoral neck.

Surgical corrections of the fractures were accomplished on August 27, 1968. The use of a compression plate and cancellous bone screws\*\* was chosen over other forms of internal fixation because the fracture was of the spiral type.

\* Surital® Parke-Davis and Company, Detroit, Michigan.

\*\* ASIF, Sural Inc., 1500 Spring Garden Street, Philadelphia, Pa.

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Following the administration of the surgical anesthetic (Methoxyflurane\*\*), the patient was prepared for aseptic surgery. The surgical procedure began with an incision six centimeters in length extending over the greater trochanter of the left femur (dorsal approach to the coxo-femoral joint). After the subcutaneous tissues were separated, the superficial, middle and deep gluteal muscles were transected one centimeter from their insertions on the greater trochanter. An incision was then made into the joint capsule and the frac-

ture site could be viewed for proper reduction. Following alignment of the femoral head with the femoral neck, a hole (4.5 mm. in diameter) was drilled from the greater trochanter into the femoral head. The hole was then threaded with a bone tap (4.5 mm. in diameter) and a cancellous bone screw (4.5 mm. in diameter X 36 mm. in length) was inserted into the pre-threaded hole. The screw was then tightened, and the two fragments were placed under compression (Fig. 2).

\*\* Metofane® Pitman-Moore, Midland, Michigan.



Figure 1. Anterior posterior radiograph of the left femur and acetabulum taken prior to surgery. Note the spiral fracture in the proximal one-third of the femur accompanied by a fracture of the femoral neck.

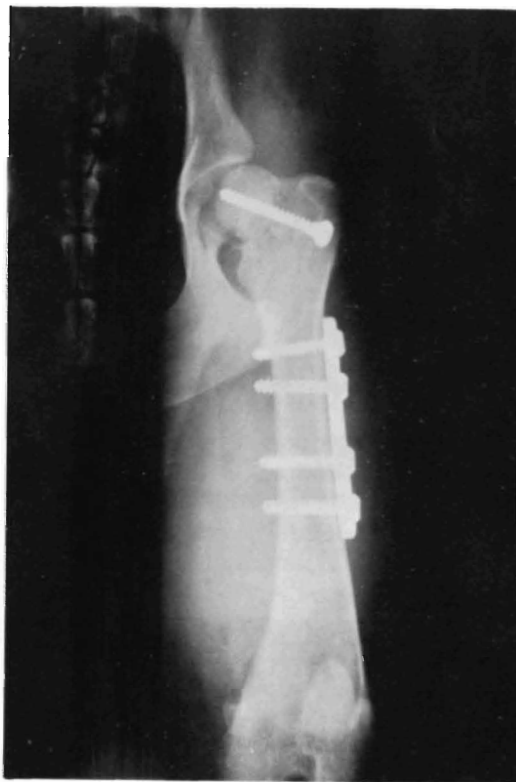


Figure 2. Anterior posterior radiograph of the left femur and acetabulum taken one hour following surgery. Note the placement of the cancellous bone screw in the femoral neck and the location of the compression plate on the lateral side of the femur.

The joint capsule and gluteal muscles were then closed in the routine manner. The skin incision was then lengthened distally for 10 centimeters on the lateral aspect of the femur. The fascia lata was incised along the cranial border of the biceps femoris muscle followed by blunt separation of the vastus lateralis muscle and biceps femoris muscle. The spiral fracture of the proximal femur was then observed.

The proximal and distal fragments were aligned and a compression plate (71 mm. in length) was placed over the fracture on the lateral aspect of the femur. The holes for the two proximal screws were drilled, tapped and the screws put into place (4.5 mm. in diameter X 30 mm. in length). The compression device was then attached to the most distal hole of the plate and anchored to the femur via a bone screw. The fracture was then compressed by tightening the compression device. After compression the remaining hole was drilled, tapped and a screw placed. The compression device was then removed from the most distal hole in the compression plate and the last screw was put into place.

The fascia lata and biceps femoris were closed followed by a subcutaneous and skin closure. Post-surgically an anterior-posterior radiograph was taken to evaluate the alignment of both fracture sites (Fig. 2).

The patient was kept in confinement for a period of six weeks following surgery. External immobilization was not used during this period. After the confinement period limited exercise was given and the patient responded by using the affected limb normally.

A follow-up radiograph (anterior-posterior) was taken on April 10, 1969 (Fig. 3). The patient at this time appeared to have made a complete recovery.

### Summary

A one and one-half-year-old, male German Shepherd was examined, radiographed and found to have a spiral fracture of the proximal one-third of the left femur and a fracture of the left femoral neck. Surgical repair was accomplished by the use of ASIF compression plate and cancellous bone screws. Final radiographic examination seven months post-surgically revealed excellent bone union. Clinical recovery was uneventful and complete.



Figure 3. Anterior posterior radiograph of the left femur and acetabulum taken seven months post-surgically. The femoral neck and femoral shaft have healed with very little periosteal reaction.