Chapter 39
Subtrochanteric Femur Fractures (Proximal 5 cm of Femoral Shaft)

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Keywords Subtrochanteric femur fracture

Overview

Complete evaluation of subtrochanteric femur fractures (Fig. 39.1) includes neurovascular compromise, open versus closed, degree of shortening, associated injuries, displaced/non-displaced, results of CT of femoral neck, and existing hardware.

What to Ask

1. Are there any open wounds? These injuries are often high-energy trauma.
2. Are there any associated injuries?
3. Is there a current concern for compartment syndrome?

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J.D. Hodax et al. (eds.), *The Orthopedic Consult Survival Guide*, DOI 10.1007/978-3-319-52347-7_39,

Figure 39.1 Radiographic image of subtrochanteric femur fracture

What to Request

1. Ensure leg is stabilized and iced immediately.
2. X-rays of the knee, femur, and hip to evaluate femur.
3. Trauma series (X-ray chest and pelvis) appropriate if high energy.
4. CT hip (see Imaging, below).
5. Be prepared for conscious sedation if traction needed (see Reduction).

When to Escalate

1. Open fractures: should be irrigated and stabilized in ED and receive antibiotics (will require formal irrigation and debridement in OR).
2. Pain out of proportion/paresthesia: compartment syndrome requires emergent fasciotomy in OR.
3. Vascular compromise: altered pulse exam or ABI<0.8 (or 0.2 less than contralateral) is suggestive of vascular injury.
4. Prior to placing skeletal traction (depending on institutional policy).

Imaging

1. AP and lateral of the femur, knee, and hip are necessary for evaluation.
2. CT imaging of the femoral neck is appropriate to rule out an occult fracture (may vary depending on institutional policies).
3. Advanced imaging (CT) is appropriate if highly comminuted or concern for intra-articular extension.
4. Postreduction X-rays of the fracture and pin if skeletal traction required.

Effective Communication

1. Open versus closed
2. Neurovascular compromise
3. Degree of shortening
4. Associated injuries
5. Displaced/non-displaced
6. Results of CT of femoral neck
7. Associated hardware (knee or hip replacement, plate/nail in femur)

What to Bring

1. Traction supplies if closed and shortened or if not able to urgently take to OR

Key Exam Pearls

1. As with shaft fractures, radiographic evaluation of the femoral neck for fracture is essential.
2. Sensation (saphenous/sural/deep and superficial peroneal/tibial n.).
3. Motor (extensor hallucis longus/flexor halluces longus/gastrocnemius/tibialis anterior).
4. Vascular exam (perform ABIs if concerned for vascular injury).
5. Evaluate all wounds: dermal violation raises suspicion for open fracture.

Reduction

Subtroch femur fractures (fractures within 5 cm of the lesser trochanter) are often high-energy injuries and associated with multisystem trauma. Open fractures and concern for compartment syndrome are indications for emergent operative care in the hemodynamically stable patient. Multisystem injuries should be discussed and the patient treated in conjunction with trauma surgery services.

For patients who are not emergently going to undergo operative fixation, proximal tibial skeletal traction is often placed in the emergency department (see Chapter 10 for details).

Adequate Reduction Parameters

1. Skeletal traction is often required for temporary reduction if urgent operative intervention is not available.

Follow-Up

1. These fractures are appropriate for admission and operative treatment.