CE

2.0
ANCC CONTACT HOURS

Caring for a patient with a hip fract

According to the CDC, more than 95% of hip fractures occur in adults age 65 and older, and they can cause severe health problems and lead to reduced quality of life and premature death. Find out what you can do to help care for a patient with a hip fracture—and how you can help patients prevent them, too.

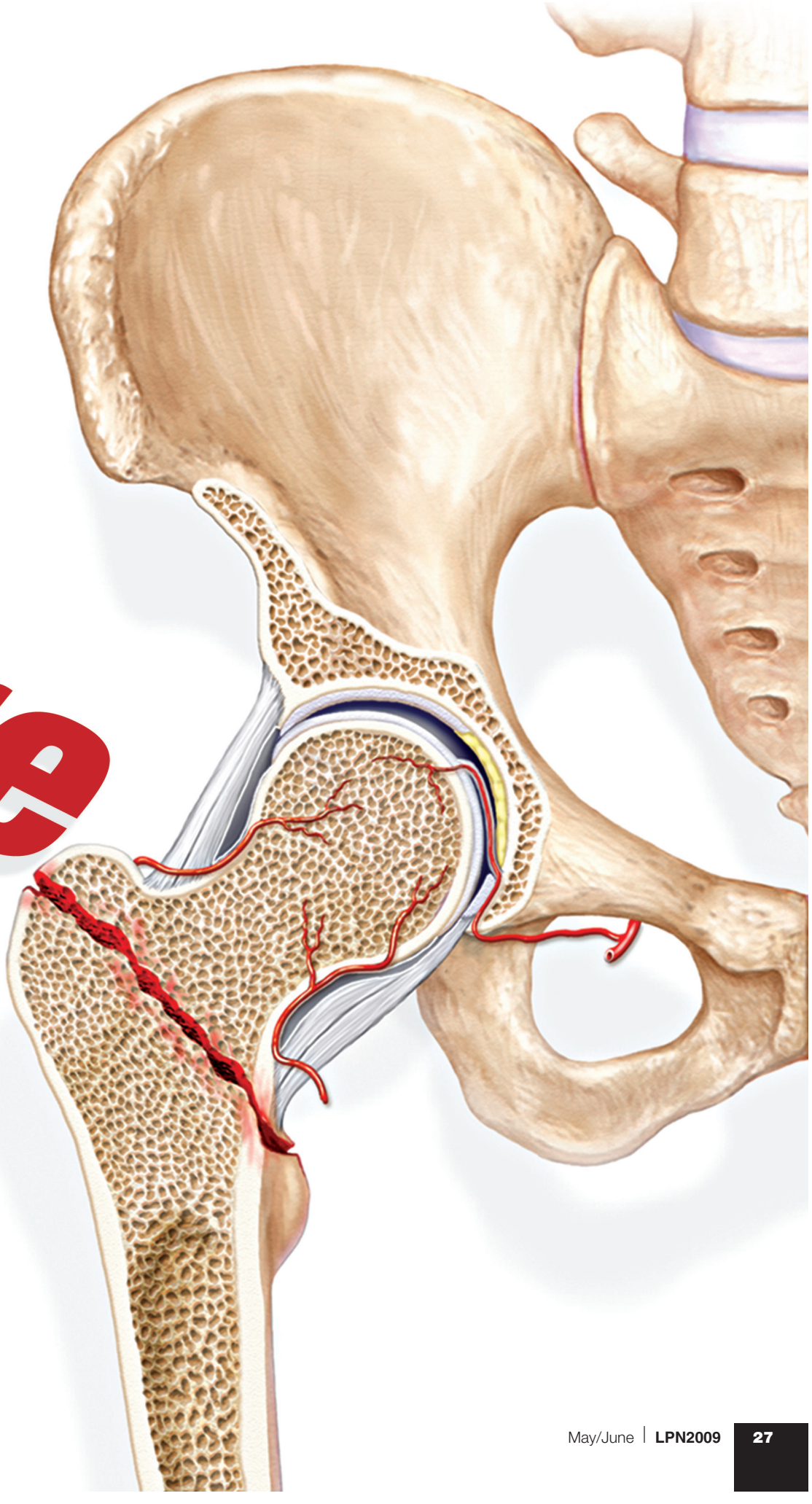
By Anne Eby, RN, BSN, ONC
Staff Nurse • Orthopedics and Neurology • Benefis Health System• Great Falls, Mont.

The author has disclosed that she has no significant relationship with or financial interest in any commercial companies that pertain to this educational activity.

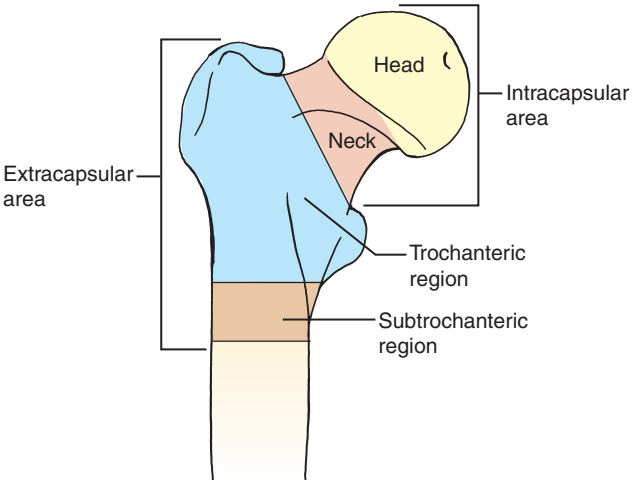
ELLEN SMITH, 89, is coming to your unit from the ED with a stable hip fracture resulting from a fall in her room at the skilled nursing facility. The ED nurse reports that Ms. Smith has some mild dementia, as well as a history of a previous myocardial infarction. The nurse tells you that Ms. Smith was in significant pain, but it appears to be well managed with I.V. morphine. She's admitted to your unit for preoperative evaluation and care.

What would you do to help Ms. Smith? In this article, I'll discuss the nursing care of a patient with a hip fracture, and give you tips on how to help her achieve a pain-free, complication-free, and mobile recovery. But first, let's take a quick look at the anatomy of the hip joint.

ure



Regions of the proximal femur



Get hip to the hip

The hip is a synovial joint that consists of two main parts: the ball, or femoral head, and the acetabulum (the cup-shaped socket of the joint). The femoral head can be further divided into the intracapsular area, composed of the femoral head and neck, and the extracapsular area, composed of the trochanteric and subtrochanteric regions (see *Regions of the proximal femur*). Ligaments connect the ball to the socket and maintain joint stability.

A hip fracture is defined as either intracapsular or extracapsular. An ***intracapsular*** fracture involves the femoral neck and accounts for about 45% of hip fractures in older patients. An ***extracapsular*** fracture involves the intertrochanteric (occurring between the greater and lesser trochanter) or subtrochanteric (from the region between the lesser trochanter to approximately 5 cm distal) regions. Intertrochanteric fractures account for another 45% of hip fractures in older adults, while subtrochanteric fractures account for about 10%.

Hip fractures can be further classified as stable or unstable. A ***stable*** fracture is nondisplaced and nondeformed; it may be undetectable on X-ray and require magnetic resonance imaging to identify. An ***unstable*** fracture is one in which the femoral neck is displaced; it's detectable on X-ray.

Who's at risk?

While there are many possible causes of hip fracture, the most common cause in older adults is a fall, often from standing height. A small percentage of patients may have fractures with no identifiable cause or injury. Hazards such as loose rugs or cluttered floors contribute significantly to falls in older adults.

Age is the primary risk factor for hip fracture; the risk doubles with each decade after age 50. Nine out of 10 patients with a hip fracture are over age 65, and as the baby boomer generation ages and our geriatric population increases, it's likely that we'll see an increase in the incidence of hip fractures. Additional risk factors include ethnicity (the incidence is two to three times higher in whites than in nonwhites, largely due to osteoporosis) and gender (the incidence is two to three times higher in women than in men). Other risk factors include previous hip, wrist, or vertebral fracture (these may indicate osteopenia or osteoporosis), tobacco or alcohol use, nutritional deficiencies, low body weight, and prolonged use of certain medications, such as corticosteroids or proton-pump inhibitors, which may affect bone mass (see *Risk factors for hip fracture*).

Hip fractures can have devastating outcomes in older adults: Only 50% to 65% regain their previous ambulatory status, almost 20% are unable to ambulate after hip fracture, and another 20% are unable to ambulate outside their homes. The overall mortality for hip fracture is 15% to 20%, but in older patients this may be up to 36% in the first year following hip fracture, with the highest mortality in the first few months following the injury.

Signs of a hip fracture include pain in the affected hip or complaints of pain in the buttocks, thighs, knees, back, and groin. The patient may have impaired mobility without noting a sudden onset. Other clues include shortening or external rotation of the leg or swelling or bruising of the hip.

Treating hip fractures

Treatment of a hip fracture depends on the patient's general health, her expected quality of life after surgery, and the stability of the fracture. Common treatment options include ***open reduction and internal fixation*** (see *Internal fixation for hip fractures*), ***hemiarthroplasty*** (where a femoral head implant is secured with bone cement or by bony ingrowth into the prosthesis), or ***total hip replacement*** (where the acetabulum is resurfaced and fitted with a metal cup attached with a polyethylene liner; articulation takes place between the metal cup and the head of the femoral implant). In

patients who are medically stable, evidence supports immediate surgical intervention (clinical trials propose within the first 24 to 48 hours). Older patients, however, are more likely to present with multiple comorbidities such as angina. For patients who aren't stable, a delay in surgical repair is reasonable to stabilize the patient, but a recent study suggests that delays beyond 48 hours can lead to increased mortality.

Preoperative care

If your patient is scheduled for surgery to repair her hip fracture, your focus will be on pain management in preparation for surgery. You'll typically give her an I.V. analgesic such as morphine. If she is able to participate, she may use patient-controlled analgesia (PCA).

The healthcare provider will order lab tests, such as a complete blood cell count, blood and urine samples, coagulation studies, prothrombin time/international normalized ratio (PT/INR), and a chemistry panel, as well as an ECG and chest X-ray.

You'll need to pay close attention to the patient's neurovascular status, particularly in the affected leg. Hip fractures have the potential to drastically impair circulation to the affected extremity, with possibly devastating consequences.

Now, let's return to our patient, Ms. Smith, and see how she's doing.

Ready for surgery

Because of Ms. Smith's cardiac history, the surgeon requests medical clearance from the on-call hospitalist. While you wait for him to arrive, you start administering morphine via PCA pump, according to orders. Ms. Smith is mildly confused but appears able to comply with instructions for the PCA. You also provide her and her daughter with information about the type of procedure she's having and what she can expect pre- and postoperatively. You also insert an indwelling urinary catheter.

Postoperative care

Key factors during the immediate postoperative period are patient comfort, hemodynamic stability, and electrolyte and fluid status. The patient should begin rehabilitation on the first day after surgery. In the following days, your focus will be on managing pain, preventing complications, and encouraging ambulation and physical therapy. Studies have shown that patients with a longer duration of immobility after hip fracture have poorer function at 2 months postoperatively and a worse 6-month survival than do those with earlier mobilization.

Delirium sometimes increases immediately after surgery, so a patient with a history of dementia may require closer monitoring and maybe even a "sitter," such as a staff or family member, to keep her safe.

You'll also want to begin discharge planning—your unit case manager will be invaluable in this process. Ms. Smith may have to be transferred to a rehabilitation setting temporarily.

After surgery until your patient's discharge, you'll need to:

- Monitor her vital signs.
- Monitor her level of sedation and anesthesia. If she had spinal anesthesia, closely monitor the return of sensation to her lower extremities.
- If she has a surgical drain, expect 200 to 500 mL of drainage output in the first 24 hours. Within 48 hours after surgery, drainage should decrease to 30 mL per 8-hour shift. Notify the healthcare provider if drainage exceeds this amount.
- Check her incision, looking for drainage or signs of blood loss. Change the dressing daily using a dry, sterile dressing with triple antibiotic ointment or povidone-iodine as ordered.
- Encourage the patient to deep breathe and cough to prevent lung congestion.
- Assist her to stand and ambulate as soon as she's able.

Risk factors for hip fracture

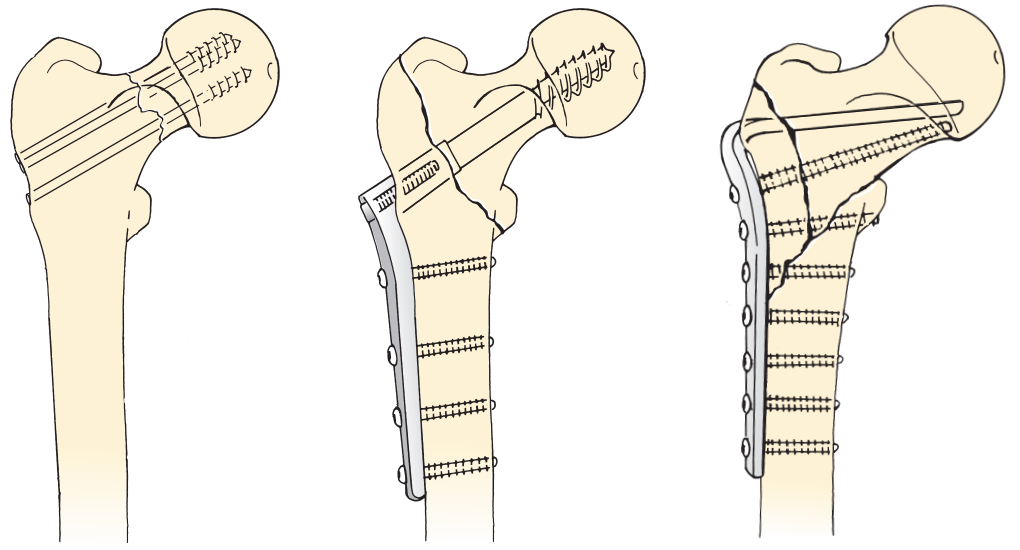
- Increasing age
- Chronic medical conditions
- Female gender
- Small, slim build
- Decreased bone mass density
- Family history of osteoporosis
- Asian or white ethnicity
- Nutritional deficiencies
- Tobacco or alcohol use
- Certain medications
- Environmental hazards

Manage the pain

Postoperatively, manage the patient's pain with oral analgesics. Common medications include oxycodone/acetaminophen (Percocet) and hydrocodone/acetaminophen (Vicodin). If Ms. Smith has significant pain that's not being managed with oral pain medication, or if nausea and vomiting prevent the use of oral pain medication, she may use PCA for the first 24 hours after surgery. Make sure she understands how it works. Have her rate her pain on a 0-to-10 scale (with 0 being no pain and 10 being the worst pain imaginable) to determine the effectiveness of the prescribed pain management. If your patient has severe dementia or is otherwise unable to rate her pain, you may use a checklist of verbal pain indicators.

Don't forget nonpharmacologic pain management methods, such as repositioning, heat, or cold, which may be useful adjuncts to pain medications. Pain management is

Internal fixation for hip fractures



Cannulated screw fixation

Compression hip screw and side plate

Blade plate fixation

important in patients with a hip fracture because it allows for early mobilization, which is one of the most important parts of postoperative care.

So how did our patient, Ms. Smith, come through her surgery? Let's see.

Ms. Smith, postoperatively

Ms. Smith returns from surgery, still somewhat confused but in no apparent pain. She received a spinal anesthetic as well as some I.V. pain medication in the recovery room. She has an indwelling urinary catheter in place and doesn't have any drains in her incision. You begin her on clear liquids, assess her pain, and medicate her with oral Vicodin. You closely monitor her vital signs, oxygen saturation, incision, neurovascular status, and level of anesthesia.

Prevent complications

Complications associated with hip fractures and surgical repair include infection, deep vein thrombosis (DVT), pneumonia, and possible depression. To prevent ***infection***, the patient will receive broad-spectrum antibiotics for the first 24 hours after surgery. To prevent ***DVT***, thromboprophylaxis with anticoagulants such as warfarin (Coumadin), low-molecular-weight heparin (LMWH), or fondaparinux (Arixtra) typically begins preoperatively and extends up to 6 weeks after surgery or when the patient is sufficiently ambulatory.

The postoperative lab values you'll monitor will depend on the medication used. For warfarin monitor her PT/INR values, typically keeping the INR between 2 and 3. For LMWH, you'll watch the patient's platelet count and notify the healthcare provider if they drop below normal or decrease significantly from the patient's baseline. Knee- or thigh-high compression stockings and a sequential compression device are also used to prevent DVT.

To prevent ***pneumonia***, have the patient cough, deep breathe, or use an incentive spirometer. Early ambulation is the best method to prevent postoperative atelectasis.

Additionally, you'll want to watch your patient for signs of ***depression***. A hip fracture can result in a real or perceived threat to the patient's lifestyle, which may lead to depression. Screening tools are widely available to assess for depression in both cognitively intact and cognitively impaired adults.

You'll also want to consider ways to help the patient prevent future hip fractures. In collaboration with physical and occupational therapy, you can help her learn how to ambulate safely and navigate potential household hazards. If the patient has osteoporosis, she may be a candidate for medication that helps inhibit bone resorption, such as a bisphosphonate.

Keep moving

The physical therapist will work with the patient on the day of her surgery or, at the very latest, 1 day after surgery. Physical therapy consists of gait training and

weight-bearing instruction. The physical or occupational therapist will teach the patient how to follow hip precautions, as well as activities she'll need to perform at home or the facility where she lives. To ensure that your patient is able to participate in her therapy, make sure her pain and nausea are well managed.

Getting better

Ms. Smith has both compression stockings and sequential compression devices in place to help prevent DVT. Her surgeon has also prescribed LMWH. Because of her dementia, she has difficulty using the incentive spirometer, so you encourage her to cough and deep breathe several times. The surgeon has ordered full weight bearing as tolerated, and physical therapy begins working with her the day after her surgery. Because her pain is well managed, she's able to participate in physical and occupational therapy.

Discharge planning

Depending on the patient's previous living arrangements, postoperative health status, and family/social support, she may be able to return to her previous home, or she may need rehabilitation or long-term care placement. Make sure a case manager is involved from the very beginning to make the transition as smooth as possible.

If the patient is to return home, encourage the patient and her family to make sure that any environmental hazards (such as loose rugs, loose steps, or poor lighting) have been fixed, that the patient has a way to reach help if she needs it, and that she's able to perform her activities of daily living (this may include giving herself injections if she's sent home on LMWH or fondaparinux). She'll be given a prescription for pain medication, often the same medication she received in the hospital. Make sure she knows not to drive or drink alcohol while taking narcotic pain medications. Rehabilitation may be appropriate for a patient who's able to participate in several hours of physical and occupational therapy daily.

Going home

On the fourth day after her surgery, Ms. Smith is ready to transfer back to the skilled nursing facility. She'll continue to use compression stockings and has been prescribed Vicodin and acetaminophen as needed for pain. Because of the care you provided, Ms. Smith is doing well and may be able to return to her previous level of activity. **LPN**

Selected references

Kamholz B, Unutzer J. Depression after hip fracture. *J Am Geriat Soc*. 2007; 55(1):126-127.

Smeltzer SC, Bare BG, Hinkle JL, Cheever KH. *Brunner & Suddarth's Textbook of Medical-Surgical Nursing*. 11th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2007.

Watters CL, Moran WP. Hip fractures: a joint effort. *Orthopaed Nurs*. 2006;25(3):157-165.