

Chapter 13. Iliac Crest Harvest

- **Indications:** The iliac crest provides adequate bone in patients who require a bone graft. The iliac crest is a bone donor site that can be used as an alternative to the cranium or the rib. It too has an inner cancellous marrow bounded on either side by cortical bone. Either the outer or inner tables of cortex can be harvested for grafting.
- **Neuroanatomy:** Care must be taken to avoid the lateral femoral cutaneous nerve, which innervates the skin of the lateral thigh. It exits the abdomen medial to the anterior superior iliac spine, deep to the inguinal ligament and in a groove between the sartorius and iliacus muscles. Injury to the nerve, called “Bernhardt syndrome,” should be avoided at the time of iliac crest harvest. The ilioinguinal nerve runs between the external abdominal oblique and the internal abdominal oblique muscles at the level of the pelvic brim. It provides sensation to the root of the penis, scrotum, and anteromedial aspect of the thigh. It can be injured during harvest of the inner cortex of the iliac crest. Injury to the superior cluneal nerves has been reported at the time of posterior iliac crest bone harvest. The cutaneous superior cluneal nerves cross beneath the inguinal ligament in the lateral portion of the groin closer to the anterior superior iliac spine. As such, the incision is planned just lateral to the spine.
- **Approach:** The incision is marked 1 cm posterior from the anterior superior iliac spine to preserve the muscle attachments and minimize discomfort associated with their dissection (Figure 13-1). The incision is also 1 cm lateral to the iliac crest so that the final closure does not lie directly over this ridge of bone. The incision is made through the skin and carried down through the subcutaneous tissues. The periosteum over the iliac crest is reflected off the bone with an attempt made to keep it intact for later closure over the bone. The superior border of the crest may be preserved to minimize postoperative contour irregularity. A horizontal osteotomy is made ½ cm to 1 cm below the superior border

and two parallel osteotomies are made extending below this (Figure 13-2). The margins of the graft are completed with a lower horizontal osteotomy. The outer table of the iliac wing is then removed for graft material (Figure 13-3). Similarly, the inner table may also be used. If the inner table is chosen, care must be taken not to injure the pelvic structures, which lie medial to it. A Taylor retractor is useful at protecting the peritoneum while providing excellent vision of the medial cortex. After hemostasis is achieved, the wound is copiously irrigated, and a closed suction drain may be used. Fluff Avitene® placed in a bulb syringe can be blown into the harvest site for additional hemostasis. If spared, the periosteum over the defect may be repaired. The subcutaneous tissues and skin are then repaired in layers. A separate subcutaneous catheter may be left for infusion of anesthetic.

- **Postoperative management:** No specific care is needed in the postoperative period following iliac crest harvest. If a drain is used in the harvest site, it may be left until residual fluid output is minimal. Patients may be kept at bed rest for a day or two on account of the anticipated discomfort. Since there is no violation of the structural integrity of the hip joint, gentle range of motion may be resumed immediately after surgery.
- **Pitfalls:**
 - Change in sensation around the donor site is one of the most commonly reported complications of iliac crest bone harvest.
 - Bone grafts are prone to resorption and have a rigid feel.
- **Tips:**
 - Knowledge of the anatomy of the above mentioned nerves should be understood so that injury can be avoided.
 - Care should be used when harvesting the bone so that a usable piece of crest is available for contouring. Multiple fractures through the graft will result in a less-than-satisfactory segment for nasal support.

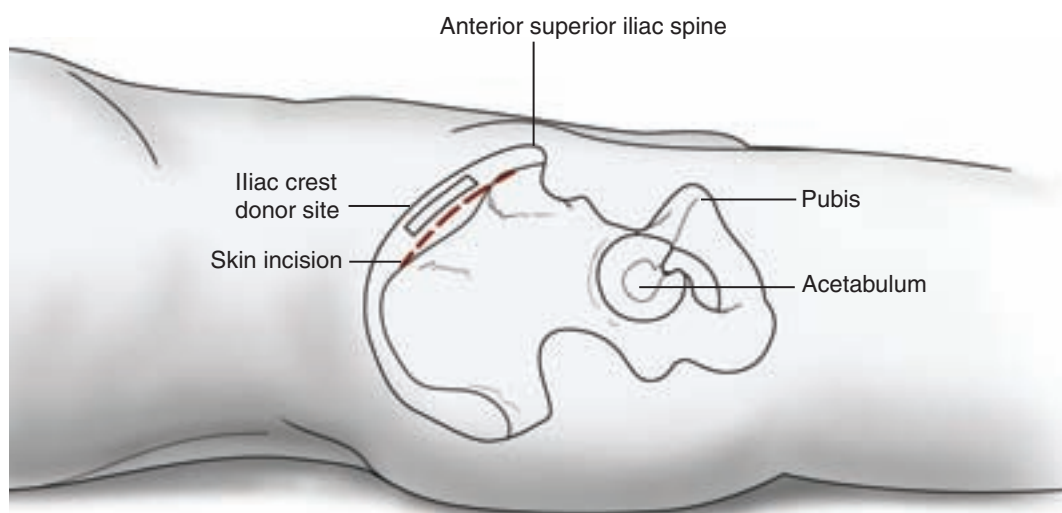


Figure 13-1. Lateral thigh anatomy.

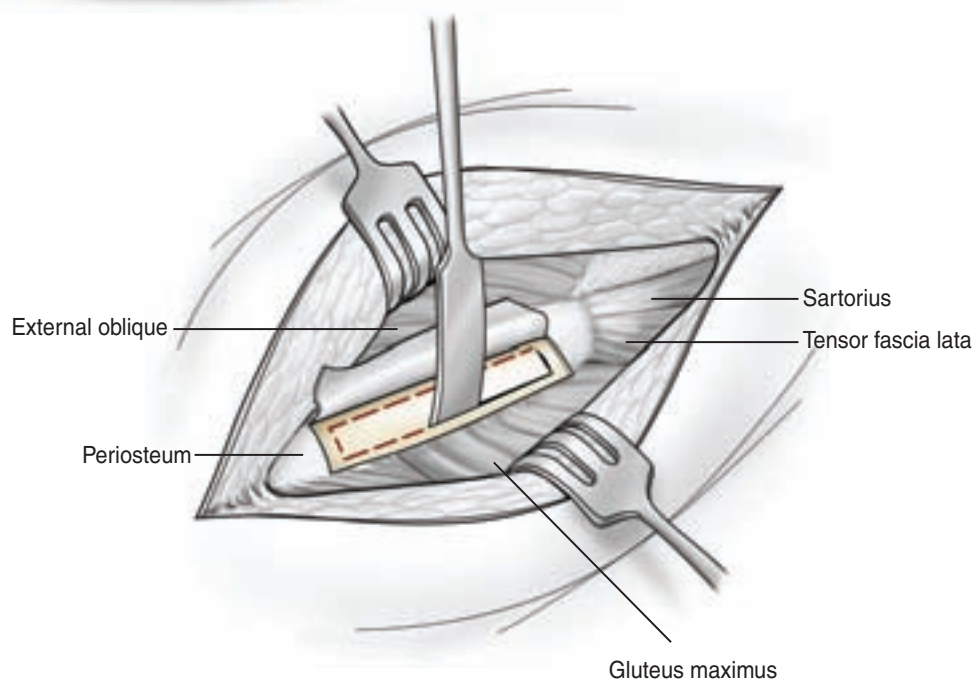


Figure 13-2. Removal of a portion of the iliac crest.

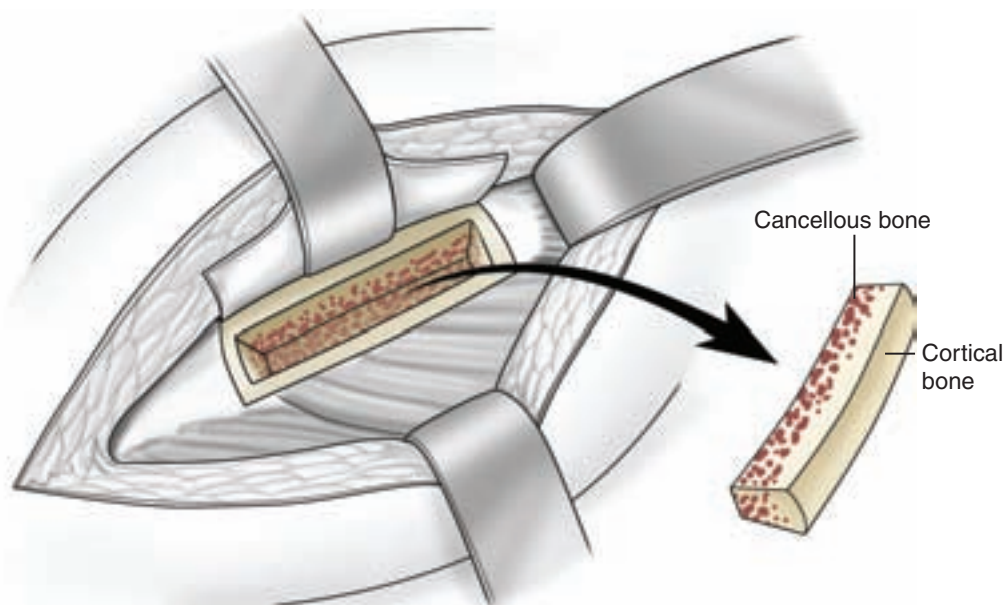


Figure 13-3. Harvested outer table iliac crest cortical bone and the resultant donor site.