Anterior Flap Hemipelvectomy

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OVERVIEW

The anterior flap hemipelvectomy is a modified version of the classical posterior flap hemipelvectomy. Instead of utilizing the traditional posterior skin flap of the gluteal region, a myocutaneous flap from the anterior thigh is used to close the peritoneum following amputation through the sacroiliac joint and the pubic symphysis. This modification has permitted the treatment of difficult buttock and pelvic tumors where the posterior flap was involved and/or contaminated by tumor. This technique offers patients, initially thought to be incurable by standard technique, a good oncological procedure. The anterior myocutaneous flap consists of a portion or the entire quadriceps muscle group on its vascular pedicle, the superficial femoral artery. This flap covers the entire peritoneal surface and generally heals with minimal problems.
INTRODUCTION

Patients with extensive soft-tissue sarcomas of the buttoc or bone sarcomas of the pelvis that extend posteriorly, once thought to be incurable by standard posterior flap hemipelvectomy, can often be treated with an anterior flap hemipelvectomy (Figure 19.1). The procedure, which originally entailed use of an anterior skin flap raised off of a portion of the superficial femoral vessels,1 was later modified to include a full-thickness myocutaneous flap raised from the anterior thigh.2,3 This procedure may also be indicated following failed attempts at limb-sparing surgery,1 as well as for patients with nononcologic indications for amputation (e.g. uncontrollable sepsis from sacral or trochanteric osteomyelitis). The major advantage of anterior flap hemipelvectomy is the creation of a large vascularized myocutaneous flap that is ideal for closure of significant posterior defects. As much of the anterior thigh compartment may be saved as needed, depending on the size of the defect being closed. As always, careful patient selection is critical in ensuring that an acceptable outcome is achieved. For example, elderly patients and diabetics with silent atherosclerotic disease of femoral vessels must be carefully evaluated with preoperative angiography. The suitability of this procedure may also be limited by the anatomic location of the tumor.

CLINICAL CONSIDERATIONS

Sugarbaker3,6 and others1–5,7–9 have shown the utility of a myocutaneous pedicle flap based upon the femoral vessels and anterior compartment of the thigh for closure of the wound in patients with tumors involving the posterior buttock structures (Figure 19.2). This procedure has been termed an "anterior flap" hemipelvectomy to distinguish it from the more common "posterior flap" hemipelvectomy. Anterior flap hemipelvectomy is indicated for tumors involving the buttock that cannot be resected with a less radical procedure. Patients who have failed prior attempts at limb-sparing surgery, with or without radiation, or who have tumors that primarily involve the posterior thigh and sciatic nerve, are also candidates for this procedure (Figure 19.3). Nononcologic indications include selected paraplegics with uncontrollable chronic osteomyelitis of the pelvis and/or hip joint. The primary advantage of this procedure in all of the above cases is that the anterior flap raised from the thigh can be used to reconstruct an enormous posterior defect with little risk of flap necrosis. Patients who are expected to require substantial doses of radiation postoperatively should be considered for this procedure whenever possible, since the well-vascularized myocutaneous flap tolerates radiation well.

Because of the vascular nature of this flap, the surgical wound heals rapidly in the vast majority of patients. Accordingly, the 10–30% risk of ischemic necrosis associated with posterior flap hemipelvectomy is not seen with an anterior flap procedure. Likewise, the risk of subsequent infection in the postoperative period is markedly reduced. Great care must be taken not to dissect or shear the subcutaneous tissue and skin overlying the quadriceps during the creation of the flap, because this will compromise the cutaneous circulation.

Rehabilitative considerations and the risk of phantom pain are similar to those associated with other types