

# 21

## Hip Disarticulation

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### OVERVIEW

Hip disarticulation is an amputation through the hip joint capsule, removing the entire lower extremity, with closure of the remaining musculature over the exposed acetabulum. Hip joint disarticulation was the classic procedure for the treatment of distal femoral osteosarcomas. The oncological thinking during the 1970s was that the existence of skip metastases throughout the introsseous extent of the femur was extremely significant and a cause of local recurrence and metastatic disease. Therefore, the philosophy of the day (1940s–1970s) was to remove the entire bone when involved by an osteosarcoma, tumors of the distal and proximal femur were treated by total femur resection/removal; that is, a hip disarticulation. Similarly, an osteosarcoma of the proximal humerus was treated with a forequarter amputation to remove the entire humerus.

Fortunately, today, hip disarticulations are rarely performed for tumors of the distal femur. Ninety to 95% of distal femoral sarcomas can be treated with limb-sparing procedures. Those that cannot are treated with a mid-thigh to a high above-knee amputation. Soft-tissue sarcomas, which involve the distal or mid-portion of the thigh, can often be treated by a limb-sparing resection. A hip disarticulation for a soft-tissue sarcoma is rarely performed, although, similar to bone sarcomas, it was the standard operation for mid-thigh, high-grade soft-tissue sarcomas during the 1940s and 1970s.

It must be noted that tumors that involved the proximal femur are best treated by a modified hemipelvectomy. A hip disarticulation would leave extremely close or positive margins along the remaining hip capsule and/or the musculature around the hip joint that attaches to the ilium anteriorly and posteriorly.

Today, most diaphyseal femoral tumors are treated with an intercalary resection or total femoral replacement. An intercalary resection can be reconstructed with a composite, consisting of an allograft spanned with an intramedullary rod, or an allograft spanned by an autogenous fibula from the same side. MRI is extremely useful in determining the introsseous extent of diaphyseal tumors.

Today hip disarticulation is considered a poor oncological operative procedure. Its main use is for failed vascular procedures following multiple lower-level amputations, or for massive trauma with crush injuries to the lower extremity.

The surgical technique is based upon a wide fish-mouth incision placed over the central aspect of the femoral triangle. This incision passes medial and lateral at the level of the greater trochanter and then transverves around the posterior thigh. The femoral vessels are initially exposed, ligated, and doubly transected. The medial and lateral thigh musculature is transected above the level of the greater trochanter. The adductor attachments of the muscles are removed from their origin along the ischium and pubic rami.

The hip is then flexed and the posterior incision is made. The posterior musculature is released from the ischium. The sciatic nerve is cut high above the profundus to allow it to retract. The inferior and superior gluteal vessels are ligated prior to removal of the extremity. We routinely utilize epidural narcotic catheters placed into the sciatic and femoral nerves at the time of surgery for postoperative pain control. It has been our experience that this dramatically reduces the amount of postoperative narcotics by 95%. This is especially true in younger patients who have extreme pain following amputations at any level. This catheter is continued for a minimum of 3–5 days postoperatively and, if necessary, the patient can go home with the catheter in place with a portable infusion pump (these pumps are made by several manufacturers).

Function following a hip disarticulation with a modern prosthesis is acceptable. Patients are ambulatory at approximately 6 months with the use of one cane. Intensive physical therapy and psychological rehabilitation is required prior to and following surgery, for optimal results. We routinely transfer patients to a rehabilitation hospital immediately after surgery for a 2-week period of intensive therapy. Patients are instructed in the use of crutches and a walker, and are taught how to wrap their stump. This, in conjunction with a support group for amputees and sarcoma patients, has been found to be beneficial. Early and intensive psychological and physical rehabilitation results in most patients being completely independent and ambulatory at the end of 1 year. Surprisingly, all patients who require amputation at the hip-joint level for vascular disease can also become functional with crutches and/or a wheelchair. Amputations performed for vascular disease are often on a semi-emergency basis. The typical patient is in sepsis from multiple failed above-knee procedures or clotted femoral-popliteal grafts.

# 21 Hip Disarticulation Sarcoma

**RJ Shavelson**



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