Bilateral Subcutaneous Island Pedicle Flap for Closure of Lower Extremity Surgical Defects

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The closure of some lower extremity surgical defects may challenge the dermatologic surgeon. This is especially the case with older patients who have severely atrophic, friable skin that makes suture placement difficult if there is any wound tension.

We describe the bilateral subcutaneous island pedicle flap as a suitable closure technique for lower extremity defects when primary linear or layered closure is not an option. In our case report, 2 triangular flaps on opposite sides of the defect were incised down to the subcutaneous tissue, advanced into the surgical defect, and sutured into place with buried subcutaneous sutures.

This repair is an excellent consideration for thin skin resembling tissue paper in which minimal wound tension is necessary for sutures to hold properly. The bilateral subcutaneous island pedicle flap is a versatile, effective means of repairing many lower extremity defects when primary linear or layered closure is not an option.

A variety of repairs has been described for closure of surgical lower extremity defects. These include second intention, full- and split-thickness skin grafts, rotation flaps, triangular flaps, and primary closures, side-to-side layered closures, or simple closures. The bilateral subcutaneous island pedicle flap, or bilateral V-Y advancement flap, is shown to be a versatile, effective means of repairing many facial defects following excisional surgery and has been widely described for defects of the ear, nasolabial fold, and lip area.1-3 We demonstrate how this repair may also be considered for closure of lower extremity defects.

In many instances, skin on the lower extremities is very friable secondary to epidermal and dermal atrophy that occurs over time. When repair of these defects is attempted with a primary or complex layered closure, tension causes the suture to tear through the cutaneous tissue. When this occurs, other methods, such as second intention, adjacent tissue transfer, grafting, and the bilateral subcutaneous island pedicle flap, must be considered. The bilateral subcutaneous island pedicle flap is an excellent choice because it has reduced tension for closure compared with primary linear or layered closure and has better vascular supply than a graft.

The bilateral subcutaneous island pedicle flap has advantages over other closure techniques that make it well suited for many lower extremity defects. One advantage is that the bilateral subcutaneous island pedicle flap is smaller than a standard advancement flap and, because the tissue is mobilized without having to elevate the central portion of the flap, does not require as much undermining as other cutaneous repairs. Less undermining limits complications, such as hematoma and nerve damage, and increases the surrounding vascular supply, thereby reducing the risks of ischemia and wound dehiscence. This especially benefits patients taking anticoagulant medication or who have a bleeding diathesis.1

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