Cross Leg Flap

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Indications

1. Soft tissue defects of the lower third of the leg or foot with exposed hardware, bone, or tendon.

Contraindications

1. Elderly patients
2. presence of arthritis in hips/knees
3. peripheral edema or venous disease of donor leg
4. morbid obesity

Possible Complications

1. Flap necrosis secondary to ischemia or venous insufficiency
2. Hematoma
3. deep venous thrombosis

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Essential Steps

Preoperative Planning and Marking

1. Measure the total area of the soft tissue defect.
2. Template the defect to the contralateral (donor) proximal posterior lower leg.
3. Plan the axial patterned flap with a superior base centered just lateral to midline and extending to the origin of the Achilles tendon.
4. Mark the flap accordingly, and size it at least 10 % larger than the wound area.

Intra-operative Details

Stage 1: Flap Elevation and Inset

1. General or spinal anesthesia should be used.
2. Position the patient in supine position for anterior defects or prone for posterior defects.
3. Perform wide operative site preparation and draping of the lower extremities to the gluteal fold.
4. Prepare the recipient site with aggressive debridement.
5. Place Steinmann pins through both tibias.
6. Incise the skin, subcutaneous tissue, and fascia along the pre-designed flap borders.
7. Raise the flap in a sub-fascial plane. Care must be taken to not injure the vascular pedicle.

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8. Position the legs to allow for tension-free placement of the flap.
9. Attach the external fixation device to maintain the position.
10. Move and inset the flap to the recipient wound bed.
11. Dress the donor site and exposed underside of the flap with a temporary biologic or non-adherent dressing.

Stage 2: Flap Division

1. General or spinal anesthesia should be used.
2. Position patient in supine or prone position to allow direct access to the flap.
3. Remove external fixation device and Steinmann pins.
4. Divide flap by incising at the point of attachment to the donor leg.
5. Complete flap inset with two-layer closure of the flap to the recipient leg.
6. Remove any temporary biologic dressings and return any redundant flap to the donor site. Split-thickness skin grafts can be used to cover any residual defects on the donor leg, which will be followed with a bolster dressing and compression wrap.

Post-Operative Care

Following Stage 1

1. Monitor the flap.
2. The patient should have physical therapy provide passive range of motion of the hips, knees, and ankles until flap division in Stage 2.

Following Stage 2

1. Remove bolster dressing over skin graft site in 5–7 days.
2. Patient may return to weight bearing as tolerated.

Timing

1. Skin grafts can be unveiled on post-operative day 5–7.
2. Flap division should be performed between post-operative day 14 and 21.

Operative Dictation

Diagnosis: Open wound of (left/right) (leg/ankle/foot)
Procedure: Fasciocutaneous flap for lower extremity reconstruction

Indications

This is a __ with a complicated open wound of the __ leg/ankle/foot with exposed hardware/bone/tendon requiring soft tissue reconstruction with vascularized tissue. All relevant benefits, risks, and alternatives are explained to the patient, including the possibility of joint stiffness and flap loss. The patient understands and accepts these benefits, risks, and alternatives and wishes to proceed with the operation. Informed consent is obtained.

Description of the Procedure

Stage 1

The patient's identity was verified. He/she was brought into the operating room and placed in the supine/prone position. Time out was performed by all operating room staff. Anesthesia was induced by the anesthesia team. Preoperative antibiotics were given. The lower extremities were prepped and draped in the usual sterile fashion. The recipient wound bed was debrided and irrigated of all necrotic and contaminated tissues. Steinmann pins were placed through both tibias. The total size of the wound was measured. Total wound dimensions are __×__ cm. A template was used to transpose the wound dimensions to the contralateral leg donor site area. The flap was designed and marked with a superior base centered just lateral to the midline. Total flap dimensions were __×__ cm. Next, the skin was incised using a #15 scalpel along the markings. The incision was continued through the subcutaneous tissue and fascia. The flap was then elevated and dissected from the apex toward the base in a subfascial plane, taking care to preserve the vascular

pedicle on the underside of the flap. The legs were positioned to allow tension-free placement of the flap to the donor site. External fixation was secured into place to maintain the position. The flap was then mobilized to the recipient site and inset. The flap was evaluated for capillary refill, distal punctate bleeding, and venous outflow. Next, the donor site and undersurface of the flap was measured and a temporary biologic dressing placed. The incision lines were dressed with antibiotic ointment and a sterile non-adherent dressing. The patient was extubated and transferred to the post-anesthesia care unit in stable condition.

Stage 2

The patient's identity was verified. He/she was brought into the operating room and placed in the supine/prone position. Time out was performed by all operating room staff. Anesthesia was induced by the anesthesia team. Preoperative antibiotics were given. The lower extremities were prepped and draped in the usual sterile fashion. The external fixation device and Steinmann pins were removed entirely. Temporary biologic dressings were removed. The pedicle was compressed prior to division to confirm flap viability. Then, the flap was divided by incising at the point of attachment to the donor leg, leaving a comfortable amount of tissue for direct closure. Viability of this divided flap was confirmed. The recipient leg wound was then closed primarily with sutures. Any redundant tissue on the pedicle from the donor leg was returned and sutured in place. Next, the size of the resulting donor site defect was measured. The total size is __×__ cm. A split-thickness skin graft with a thickness of 0.0__ inch was harvested from the __. The graft was then meshed using a 1:1.5 mesher. The skin graft was transferred to the flap donor site and secured into place using __. A bolster composed of __ was applied over the skin graft. The incision lines were dressed with antibiotic ointment and a sterile non-adherent dressing. The patient was extubated and transferred to the post-anesthesia care unit in stable condition.

Suggested Reading

1. Long CD, Granick MS, Solomon MP. The cross-leg flap revisited. Ann Plast Surg. 1993;30(6):560–3.