Raising the osteocutaneous fibular flap for oral reconstruction with reduced tissue alteration.

Abstract:
Raising the osteocutaneous fibular flap offers excellent possibilities for oral reconstructive surgery but is associated with specific donor-site risks. Moreover, with inadequate surgical technique, flap-specific complications can occur, such as loss of the skin paddle or inadequate pedicle length. A flap-raising technique has been used to decrease surgical damage but provide maximal pedicle length. Sixty-six osteocutaneous fibular flaps were raised by the lateral approach with the following modifications: 1) flap-raising was carried out without a tourniquet, 2) only the amount of bone needed was removed, leaving the rest of the fibula intact, 3) only a minimal muscle cuff was included, and 4) the complete pedicle was dissected along the posterior intermuscular septum without opening the interosseous membrane and without touching the deep flexor muscles proximal to the osteotomized fibular segment. The skin paddle was placed distally in the leg, perfused by only 1 perforator in most cases. Medical records were analyzed and patients were examined postoperatively for up to 32 months to evaluate the above-mentioned complications. Of the 66 reconstructions, 44 were performed in a previously operated or irradiated neck. Three flaps and 1 skin paddle were lost. The most common donor-site complications were temporary wound-healing disturbances of the skin graft (n = 17).
and transient pain or sensory alterations (n = 12). No compartment syndrome, ankle instability, or need for walking aids was recorded. A hammertoe deformity developed in 1 patient. On average, pedicle length was 9 cm and flap-raising took 130 minutes. In conclusion, maximal pedicle length and minimal bone and muscle resections can be achieved with a small number of donor-site complications. The skin paddle is highly reliable based on only 1 perforator. Perforators can be precisely controlled when raising the flap in the perfused leg.