

# **Prospective Analysis of Double Skin Paddle Fibula Flap for Composite Head and Neck Reconstruction**

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**Background:** A double skin island free fibula flap can be used successfully for reconstruction of complex composite head and neck defects including bone and soft tissue, but prospective studies are lacking regarding patient outcomes.

**Methods:** Prospective analysis of all double island fibula flaps (DIFF) performed by the authors from 2010-2016.

**Results:** Sixteen patients (average age: 54.1 years) underwent a DIFF based on our P-A-B-C perforator mapping system, and one patient needed a second DIFF for a total of 17 DIFF. Thirteen patients underwent radiation therapy. Defects included through-and-through mandibulectomy defects due to osteoradionecrosis (n=7) or following tumor extirpation (n=8). One patient underwent maxillectomy reconstruction for a sinocutaneous fistula following resection of an adenoid cystic carcinoma, and another patient underwent reconstruction of a composite mandibulectomy and hemiglossectomy defect. One skin paddle was used for the intraoral mucosal defect, but the P perforator perfusing the proximal skin paddle did not join the peroneal vessels and was harvested as free proximal peroneal artery perforator (PPAP) flap for hemiglossectomy reconstruction. All other DIFF only required a signal anastomosis as all perforators arose from the peroneal vessels. There were no fibula flap losses, but the external skin paddle was lost in one patient and reconstructed with a pedicle pectoralis myocutaneous flap. There were no donor site complications. All patients were tolerating an oral diet,

one patient is alive with disease, and one patient passed away secondary to recurrent disease.

**Conclusions:** The double island free fibula flap is a reliable flap that can reconstruct complex composite defects often obviating the need for a second free flap thereby decreasing operating time, added donor site morbidity, and the need for additional recipient vessels.