

## **The Use of Both Antegrade and Retrograde Internal Mammary Vessels in the Bipedicled (double-barrel) Deep Inferior Epigastric Perforator Flap for Unilateral Breast Reconstruction**

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**Background:** Autologous abdominal tissue transfer is a well-established method of breast reconstruction. The deep inferior epigastric perforator flap (DIEP) has the additional benefit that donor site morbidity is minimal as it spares the muscle and fascia. Conventional DIEP flap reconstruction may not provide adequate volume in cases where the patient is thin, has midline abdominal scars, and/or has a large volume of tissue to replace. One solution is to use a bipedicled DIEP flap, which can incorporate all of the available abdominal tissue.

Bipedicled DIEP flaps have been described in a number of different configurations. The literature appears to favor intra-flap anastomosis, with a minimal exposition of two recipient vessels. It has been demonstrated that both the antegrade internal mammary artery (aIMA) and retrograde internal mammary artery (rIMA) are adequate recipient vessels. The authors are interested in presenting a single center experience with bipedicled DIEP flaps to both the aIMA and rIMA, showing their feasibility and safety.

**Methods:** Following approval by the Icahn School of Medicine at Mount Sinai Institutional Review Board, a retrospective review was performed identifying patients who underwent unilateral breast reconstruction using a double pedicle DIEP flap by a single two-surgeon team. Data was collected on patient characteristics, pre-operative risk factors, and post-operative complications. Data was analyzed with a specific emphasis placed on post-operative complications and how they related to pre-operative risk factors.

**Results:** 20 patients were identified who underwent unilateral breast reconstruction using a bi-pedicled DIEP flap. All patients were female and were previously diagnosed with cancer. There were zero flap failures and zero instances of abdominal hernia or issues with abdominal wall functionality following the operations.

**Conclusions:** The series of surgeries described in this study resulted in successful breast reconstruction in 20 women using a bi-pedicled DIEP flap. The results show that this novel approach allows for reconstruction in places where a conventional DIEP does not provide adequate volume, achieved safely and without increased morbidity.

The bi-pedicled deep inferior epigastric perforator flap is a viable option for large-volume autologous breast reconstruction, providing ample tissue for successful reconstruction while also allowing for shorter recovery and limited donor-site morbidity.