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CORRESPONDENCE AND COMMUNICATION

Implant augmentation after perforator flap breast reconstruction

Dear Sir,

We congratulate Figus and colleagues on their series of 14 patients with DIEP flap breast reconstruction who underwent immediate (14 implants) or delayed (four implants) augmentation.[1] We concur that implant augmentation offers an effective option for optimising the results of autologous tissue breast reconstruction but have independently taken a different approach. We would like to share our recent experience with delayed augmentation of abdominal perforator flap reconstructions and comment on several important issues raised by their paper.

In our unit, three patients have undergone delayed augmentation of perforator flap reconstructions with a total of five implants (Table 1). The internal mammary vessels were the recipients in all patients. Both round and anatomical fixed-volume silicone gel implants were used and all were placed in the subpectoral position. There were no intra-operative complications and the vascular pedicles were easily identified and preserved in all patients. At most recent follow-up (5, 24 and 40 months), a satisfactory aesthetic result had been achieved in all patients and no further interventions were required.

The Chelmsford group advocates primary DIEP/implant in those patients in whom abdominal tissue is deemed insufficient; they only perform delayed augmentation in patients with considerable asymmetry after earlier DIEP reconstruction.[1] However, the limited evidence available from augmentation of TRAM flaps suggests that there is a higher complication rate with immediate augmentation, including infection and partial flap failure.[2,3] We believe that immediate DIEP/implant augmentation may interfere with the flap vascular pedicle. The small, delicate perforator vessels are potentially susceptible to pressure between the flap and the implant, even if placed subpectorally, increasing the risk of venous stasis. In addition, the chest wound is open for several hours and is therefore not an ideal environment for the immediate insertion of prosthetic material. Delayed implant augmentation is also more appropriate for patients with planned radiotherapy in whom early implant insertion increases the risk of complications including capsular contraction.[4] For all these reasons, we do not recommend an immediate augmentation strategy and have performed only delayed augmentation for patients with inadequate volume, superior pole deficiency or fat necrosis-induced asymmetry. Patients being counselled for perforator flap breast reconstruction should be made aware that a subsequent revision procedure may be required, although it could be combined with

Table 1 Our patient data

Patient	Age	Previous reconstructions	Indications for augmentation	Implant(s)	Outcome
1	52	Bilateral therapeutic mastectomies + immediate DIEPs.	Decreased breast volumes after revision. Right breast haematoma and fat necrosis.	L: 315 ml R: 395 ml	No complications. Subsequent nipple reconstructions.
2	45	Bilateral prophylactic mastectomies + immediate reconstruction. Right DIEP to left breast; left SIEA to right breast.	Right breast re-explored three times. Progressive right volume loss leading to asymmetry. Simultaneous nipple reconstructions.	R: 275 ml	No complications.
3	42	Previous bilateral revision of expander-reconstructed breasts with DIEPs. Referred to our unit for second opinion.	Excellent symmetry but anterior axillary depressions and lack of superior fullness.	L: 320 ml R: 320 ml	No complications.

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Table 2 The Cambridge Breast Unit Indications for implant augmentation following perforator flap breast reconstruction

Indication
• Inadequate breast volumes
• Breast mound deficiencies
• Breast asymmetry including from fat necrosis
• Slim patients with large ptotic breasts
• Lack of projection
• Significant abdominal scarring
• Large skin defect following non-skin sparing mastectomy

nipple-areolar reconstruction to avoid an additional hospital episode (Patient 2).

In contrast to the prepectoral (subflap) approach described by Figus et al for delayed augmentation, we placed our implants in the subpectoral position. This plane is easier to create, avoids disruption of the perforator flap inset and provides a new and sterile pocket for the implant. Meticulous dissection is required to avoid pedicle injury, especially when the internal mammary artery has been used, although damage may be more likely with subflap dissection[1] because of prior scarring. The submuscular position also reduces the incidence of capsular contractures[4] and aids concealment of any visible or palpable contour abnormalities.

We agree with the authors on the use of fixed-volume implants. Our patients had adequate skin and soft tissue to accommodate implants and achieve the desired breast mound sizes and volumes, hence expansion was not required. However, our delayed implants were significantly larger than those used by Figus et al. (325 ml versus 165 g) in order to adequately restore pre-operative volume and symmetry. Immediate augmentation may preclude the usage of sufficiently large implants for fear of compression of the vascular pedicle. In addition, we are reluctant to advocate the use of expanders as the fat tissue in perforator flaps is not resistant to expansion and may be at risk of necrosis and atrophy during inflation.

In conclusion, implant augmentation following perforator flap reconstruction produces good breast volume and symmetry whilst attempting to preserve the natural appearance of the reconstructed breast. We believe that delayed augmentation offers a safe and effective approach for optimising inadequate reconstructions (Table 2). Further experience with longer follow-up is required to adequately compare the potential roles of immediate and delayed implants in improving the outcome of perforator flap breast reconstruction.

Yours faithfully,

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