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IDEAS AND INNOVATIONS

Gender-Affirming Surgery

Gender-affirming DIEP Flap Breast Augmentation

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Summary: Implant-based techniques have been the mainstay of gender-affirming breast augmentation (GABA). Here we describe a novel autologous technique for GABA. We provide a single-patient case report of gender-affirming deep inferior epigastric artery perforator (DIEP) flap breast augmentation. World Professional Association for Transgender Health guidelines were followed according to Standards of Care, version 8. Prepectoral tissue expanders were placed at the time of the patient's facial feminization surgery. DIEP flaps were then used for bilateral breast augmentation. Planned revisions were made about 5 months later. Breast augmentation was performed successfully with DIEP flaps, and the patient was satisfied with her outcome. No complications occurred. Anatomic differences to cisgender women were noted, including relatively thick musculature of the abdominal wall and chest as well as tight anterior abdominal fascial closure. Advantages compared with implant-based GABA were also noted, including feminization of the abdomen and avoidance of potential implant related complications. We report a novel approach to GABA. Our approach borrows well-established techniques with demonstrated efficacy and high satisfaction in postmastectomy breast reconstruction and even cosmetic purposes. However, sex- and hormone-influenced anatomic differences required some modifications compared with postmastectomy DIEP flap reconstruction. *(Plast Reconstr Surg Glob Open 2024; 12:e6217; doi: 10.1097/GOX.0000000000006217; Published online 3 October 2024.)*

INTRODUCTION

The deep inferior epigastric artery perforator (DIEP) flap is a well-established modality for postmastectomy reconstruction. Traditionally, DIEP flaps had been offered for reconstruction in the setting of radiation. However, indications have expanded to include nonradiated breast reconstruction, contralateral augmentation in the setting of unilateral breast reconstruction, and even purely cosmetic augmentation.[1–3] We describe a novel approach using DIEP flaps for gender-affirming breast augmentation (GABA).

CASE REPORT

A 30-year-old healthy transgender woman presented for breast augmentation and facial feminization. She had no previous breast or abdominal procedures. She had taken estrogen for several years. She was confirmed to be a good candidate for GABA, based on the World Professional Association for Transgender Health Standards of Care, version 8.[4]

The patient stated aversion to implant-based augmentation due to the need for lifetime implant surveillance and possible longer-term complications, including capsular contracture, rupture, and breast implant illness. She was not a good candidate for fat grafting as a sole modality due to her desire for significant volume increase.

Hormone therapy was paused for 2 weeks before surgery. This patient's Caprini score was 6. This 30-year-old patient did not require preoperative mammographic screening.[5]

A staged DIEP flap augmentation was planned (Fig. 1). The first stage included placement of bilateral tissue expanders during her facial feminization surgery. Natrelle smooth tissue expanders (133S-MX-12-T, Allergan/AbbVie, North Chicago, Ill.) were placed in the prepectoral position via inframammary fold incision. Each was inflated to 440 mL.

DIEP flap breast augmentation was performed 5 months later. The DIEP flaps were raised in a typical fashion, with anastomosis performed to the internal mammary

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artery and vein bilaterally. Flap inset proceeded with slight coning to create an aesthetic contour. A small skin paddle was left along the inframammary fold for monitoring. The pectoral and abdominal muscles were thicker than what we have experienced in cisgender women. A retrorectus mesh (Parietene 15-cm Macroporous Mesh, Medtronic, Covidien, Dublin, Ireland) was placed bilaterally due to extensive intramuscular dissection and tight fascial closure.

There were no intraoperative or postoperative complications. The patient was discharged home on postoperative day three.

A planned revision was performed five months later. Bilateral DIEP flap skin paddles were excised, and fat was grafted from the abdomen to the breasts: 130 mL on the left and 150 mL on the right. The abdominal scar was lowered. There were no complications. At last follow-up visit, 2 months from this revision, the patient was extremely happy with her outcome.

DISCUSSION

We report a case of bilateral DIEP flap breast augmentation for GABA in a 30-year-old transgender woman. All procedures were well tolerated without complications. The patient achieved an aesthetic result in line with her gender identity.

Only one report exists of autologous GABA.[6] Chun et al described two cases, in which the breasts were amputated and reconstructed using DIEP flaps with nipple-areolar complex (NAC) grafting and large skin paddles.

Takeaways

Question: Gender-affirming breast augmentation (GABA) is a medically necessary surgery for many transgender women. However, implants may not be appropriate for all patients. Our question was whether autologous tissue could be used.

Findings: We report a case of GABA using deep inferior epigastric artery perforator flaps without complication. Implants were avoided. The patient was highly satisfied. Techniques were similar to those used in postmastectomy reconstruction. The abdomen was also feminized with this procedure.

Meaning: GABA using abdominal tissue is a viable option for certain transfeminine patients who are not good candidates for implant-based augmentation.

Fig. 1. Patient photographs before and after expansion and augmentation. A, Preoperative frontal view. B, Preoperative lateral view. C, Postoperative frontal view. D, Postoperative lateral view.

In contrast, our technique allowed the patient to retain her natal NAC with sensation and resulted in a totally buried skin paddle, avoiding significant scar burden on the upper pole of her breast.

Autologous breast augmentation for our patient was performed following mostly established techniques. However, several unique considerations were made, as described below.

Preoperative Considerations

Preoperative discussion for this patient included risks and benefits of autologous augmentation and also pertinent guidelines from the World Professional Association for Transgender Health.[4] Extensive discussions were held between the senior author, the patient, and her mental health providers about the novelty and associated risks of this operation compared with implant-based augmentation. A consensus was reached regarding the patient's understanding of the procedure.

Estrogen may affect fat distribution in a way that is advantageous for DIEP-flap augmentation. Fat increases in the "gynoid" distribution, which increases donor tissue from the abdomen and/or thighs. Estrogen therapy is also associated with growth of breast tissue.

Operative Considerations

Tissue expansion before DIEP flap augmentation allowed for large flaps to be inset. Tissue expansion addresses differences in breast anatomy of transgender women, which include a constricted base, lower pole deficiency, and tighter skin envelope (similar to tuberous breast). Expansion also allowed for a smaller skin paddle to be placed, and for better control of NAC positioning. In contrast, previous reports of autologous cosmetic breast augmentation have not utilized tissue expansion.[2,3,7] Potential reasons include smaller DIEP flaps and placement of DIEP flaps in pockets preexpanded by implants, or in deflated pockets secondary to weight loss or pregnancy.

Abdominal pedicle and perforator dissection in this patient were relatively tedious. Abdominal musculature is often thicker in patients assigned male sex at birth.

Sex-specific differences in abdominal wall structure may also affect rates of hernia and bulge. Abdominal hernias are more common in those assigned male sex at birth.[8] However, pregnancy and decreased muscle mass may result in a more distensible abdominal wall in those assigned female sex at birth. Estrogen exposure may result in stronger and stiffer abdominal fascia.[9] The net effect on postoperative abdominal hernia rates in transgender women is yet to be determined. We placed prophylactic retrorectus mesh due to the tight fascial closure. In future cases, microfascial incision or robot-assisted flap harvest may be considered to minimize abdominal morbidity risk.

DIEP flap augmentation achieved abdominal feminization by improving lower abdominal contour. Second-stage liposuction to the flank and waist along with dog-ear excision further improved feminization. The umbilicus was feminized via conversion to a vertical orientation. Of note, the patient experienced a 20-kg weight gain over her reconstructive course, increasing body mass index from 25.5 to 32.4. During the revision, the abdominal scar was also readvanced to improve cosmesis. However, care was taken to avoid excessive lowering of the scar, which might compromise future penile inversion vaginoplasty.

Systems-based Considerations

Future directions of study include comparative cost analysis of autologous versus implant-based GABA. Autologous augmentation has demonstrated equivocal or even decreased long-term cost in breast cancer reconstruction.[10] Factors include avoidance of the long-term costs of implant revisions, especially in relatively young patients. Costs were further decreased by performing expansion during her scheduled facial feminization, and by simultaneous abdominal contouring during GABA.

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DISCLOSURES

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PATIENT CONSENT

The patient provided written consent for the use of her image.

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