

First profunda artery perforator flap for breast reconstruction performed at a VA Hospital

Kaitlynn Pak, Amanda Fang, Garrison Leach MD, Riley Dean MD, Sarah Crowley MD

1. Boonshoft School of Medicine, Dayton, OH.

2. Department of Plastic Surgery and Reconstruction, University of California, San Diego, San Diego, CA.

Introduction

- Breast cancer incidence is 1:8 women; while rapidly rising in the last 40 years, especially in the US
- Mastectomy is therapeutic and prophylactic
- Breast surgery can be debilitating functionally, psychologically, and aesthetically
- Studies show 23% of women understand what the breast reconstructive options are (implant v. autologous graft)
- The current gold-standard reconstructive method is using the DIEP flap but growing method is PAP
- We performed an extensive literature review on PAP versus other flaps (DIEP, TRAM, SIEA, LD) for breast reconstruction with a focus on complication rates and recovery
- This is a sophisticated procedure and has never been performed at a VA hospital before this case

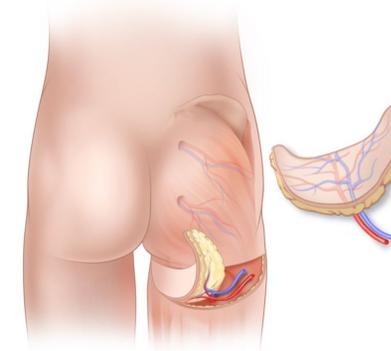
Case Report

- We present a 44-year-old female patient with intraductal carcinoma of the right breast, phenotype ER+/PR+/HER2+/BRCA-
- Imaging showed five suspicious axillary lymph nodes and possible liver metastasis
- Neoadjuvant therapy included six cycles of neoadjuvant chemotherapy TCHP (trastuzumab, carboplatin, docetaxel, and pertuzumab) with good response
- Patient preferred autologous free flap reconstruction
- The PAP flap was then inserted into the breast defect and coned into a shape of a neo-breast. A new nipple and areolar complex region were simultaneously created
- No complications peri- or post-operatively
- Patient presented back weeks later for breast revision to improve overall contour and symmetry

Flap Options

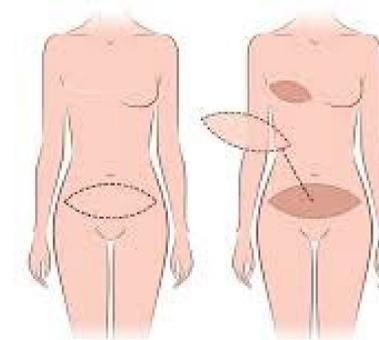
Profunda Artery Perforator Flap (PAP)

- Originated by Dr. R Allen in 2010 after multiple failed attempts at MS-TRAM and implants
- 2nd most commonly used flap (16%) with 99% success
- Pros: muscle sparing, non-abdominal donor site, good for low BMI/previous liposuction, large fat paddle with reliable blood supply, available for bilateral work, graft scar hidden
- Cons: wound healing complications (12%), lack of fat volume requiring additional grafting, caudal scar migration



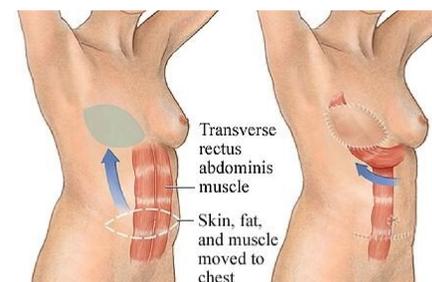
Deep Inferior Epigastric Artery Perforator (DIEP)

- Most common (76%)
- Pros: long vasculature to work with, no muscle loss, tummy-tuck
- Cons: unilateral work only, abdominal scar, contraindicated with history of liposuction or abdominal surgery



Transverse Rectus Abdominal Muscle (TRAM)

- First historic flap, decreasing popularity
- Pros: free flap or pedicle flap, aesthetic breast fullness
- Cons: not ideal for obese pts with pannus, abdominal scar, loss of muscle (risk of hernia)



Conclusion/Discussion

- Reconstruction after mastectomy can be a complex and challenging procedure where multiple details of a patient's medical history, anatomy, and goals need to be taken into account
- Although there is a gold-standard of care, our paper encourages use of PAP as an upcoming approach
- The PAP flap is an excellent surgical option in that it is a forgiving skin paddle that can range widely in dimensions and volume
- The new availability for this procedure at a VA hospital is a huge step in the right direction; allowing veterans and their dependents to have access to this sophisticated procedure
- As PAP grows in popularity, we hope more underprivileged hospitals will offer its availability with practiced surgeons

References

1. M. C, LoTempio M, J. R. Profunda Artery Perforator (PAP) Flap for Breast Reconstruction. In: Breast Reconstruction - Current Perspectives and State of the Art Techniques. ; 2013. doi:10.5772/56332
2. Haddock NT, Teotia SS. Consecutive 265 Profunda Artery Perforator Flaps: Refinements, Satisfaction, and Functional Outcomes. *Plast Reconstr Surg - Glob Open*. 2020. doi:10.1097/GOX.0000000000002682
3. Allen RJ, Haddock NT, Ahn CY, Sadeghi A. Breast reconstruction with the profunda artery perforator flap. *Plast Reconstr Surg*. 2012. doi:10.1097/PRS.0b013e3182363d9f
4. Tielemans HJP, van Kuppenveld PIP, Winters H, Hupkens P, Ulrich DJO, Hummelink S. Breast reconstruction with the extended profunda artery perforator flap. *J Plast Reconstr Aesthetic Surg*. 2020. doi:10.1016/j.bjps.2020.08.109.