Becky B. Trinh, MD, Ivan E. Rodriguez, MD, Frederic W.B. Deleyiannis, MD, MPhil, MPH, FACS
University of Colorado, Aurora, CO, USA

PURPOSE: The anterolateral thigh (ALT) free flap is one of the most commonly used flaps for head and neck reconstruction. Given that perforators of an ALT flap routinely arise sequentially from the descending branch of the lateral circumflex artery as it descends down the thigh, a long ALT flap can be more reliably harvested than a wide ALT flap. The purpose of this study is to demonstrate indications and outcomes for single-pedicle ALT free flaps compared to double-pedicle ALT flaps as well as multiple simultaneous thigh (MST) flaps.

METHODS: Our series of 81 consecutive patients undergoing head and neck reconstruction with an ALT flap was retrospectively reviewed. Patients with a composite mandibular defect who underwent reconstruction with both a fibular free flap and an ALT free flap were excluded. Receiver operating characteristics curve analysis was performed to determine our cut-off values for width and length of single-pedicle versus double-pedicle ALT flaps.

RESULTS: Fifty-seven and 18 patients were reconstructed with an ALT flap with one or two pedicles, respectively. Six patients underwent MST flaps. Defect size (width ≥12 cm, length ≥17 cm) for cutaneous defects (p<0.05), the presence of divergent mucosal defects, and through-and-through oral cavity or pharyngeal defects were associated with the use of two pedicles. There was one flap failure of a single-pedicle ALT flap. While operative time was increased for the groups of double-pedicle ALT flaps and MST flaps, there were no flap complications including partial flap loss, venous congestion, or wound healing issues from poor flap perfusion.

CONCLUSION: Harvesting an ALT flap with two pedicles has the potential to reduce flap complications and should be considered for divergent and extremely wide (>12 cm) or extremely long (>17 cm) defects. Our proposed algorithms will help guide flap choice when designing an ALT free flap for a cutaneous and/or mucosal defect of the head and neck.

B.B. Trinh: None. I.E. Rodriguez: None. F.W. Deleyiannis: None.

QS59
Resident Needs Assessment And Development Of A High Fidelity Porcine Model For Autologous Breast Reconstruction
Jill P. Stone, MD, FRCSC, George Kokosis, MD, John A. Rose, MD, MPH, Justin M. Sacks, MD, MBA
Johns Hopkins, Baltimore, MD, USA

PURPOSE: The ‘learn as you go’ approach is a common theme in surgical pedagogy but may leave residents with perceived surgical skills deficiencies. Much of the literature on microsurgical education focuses on the execution of the vessel anastomosis while there is a paucity on flap harvest and recipient vessel preparation. The purpose of this study was to perform a needs assessment and pilot a live porcine microsurgical training model for junior residents.

METHODS: Following a didactic lecture given by an experienced microsurgeon, three swine were intubated and prepared according to standard animal ethics protocol at our institution. Five to six plastic surgery residents and a preceptor were assigned to each station. Three surgical objectives were created during this pilot: 1) Prepare the internal mammary vessels (IMVs) 2) Identify perforators to the abdominal tissue 3) Determine if the abdominal tissue should proceed as a pedicled TRAM or free tissue transfer. Eliciting performance while providing real-time feedback was employed to encourage social learning and augment near-peer teaching. Fidelity of the model and utility of the course was tested using an online anonymous survey administered to the resident participants. Self-reported confidence scales were examined for the following skills: IMV preparation, vessel anastomosis, and flap dissection.

RESULTS: Preparation of internal mammary vessels was successfully performed in all three porcine subjects. Bilateral SIEA flaps were performed in Swine #1 and pedicled TRAMs were performed in Swine #2 and #3 due to insufficient deep inferior epigastric vessels. All swine survived the surgical procedures and were euthanized humanely following completion of the training session. Fourteen of the 17 residents responded to the follow-up survey (82.4%). Most residents are ‘very unconfident’ in IMV preparation (n=8, 57.1%), vessel anastomosis (n=6, 42.9%), and
perforator dissection (n=8, 57.1%). Nearly all residents believed the porcine model simulated human surgery well (n=12, 85.7%), live models are superior to non-live models (n=13, 92.9%), and this porcine training model improved their understanding of flap harvest and IMV preparation (n=12, 85.7%). Near-peer learning was endorsed by most residents (n=12, 85.7%) during this training model.

CONCLUSION: This needs assessment demonstrates that residents lack confidence in the surgical skills required for micro-surgical breast reconstruction. The model was well received by the resident learners and incorporates surgical decision-making and technical skills execution. Residents can gain confidence in their surgical technique in this high-fidelity model and thus may improve self-assurance and autonomy in the clinical setting.

J.P. Stone: None. G. Kokosis: None. J.A. Rose: None. J.M. Sacks: None.

QS60

The Plastic Surgery Prisoner’s Dilemma: The Relationship Between Applications and Match Rate

Felipe Molina Burbano, BA, Amy Yao, BS, Jeffrey Stock, MD, Peter Taub, MD, FACS, FAAP

Mount Sinai Hospital, New York, NY, USA

PURPOSE: Plastic surgery is one of the most competitive residency matches. The mean number of applications per applicant is correspondingly high, creating significant time and financial strains. With the increasing cost of the application process in time and money, limiting the number of applications per applicant may offer a potential solution. In this study we examine whether an increased number of applications confers a benefit to applicants.

METHODS: The authors analyzed annual data from NRMP and ERAS for integrated plastic surgery programs between 2010 and 2017. The number of U.S. seniors that matched in each year, and the number of applicant U.S. seniors that year, was obtained from NRMP’s Main Residency Match Results and Data report and used to calculate the match rate for that year. The average number of applications per year reported by ERAS was used for our calculations.

RESULTS: Presents a summary of our findings. The number of integrated Plastic Surgery programs has increased from 31 in 2010 to 73 in 2017. The average number of applications per US senior in 2017 was 58.36, which corresponds to 80% of programs. In 2010 the average number of applications was 22.75, or 73% of programs. Two programs went unfilled in 2017, one in 2016 and three in 2015. The number of positions offered has increased from 69 in 2010 to 159 in 2017. However, the number of applicant has increased at a slower rate from 168 in 2010 to 200 in 2017. Accordingly, there has been an increase in the match rate from 36% in 2010 to 74% in 2017. Overall, since 2010, there is a statistically significant correlation between the mean number of applications and the match rate (p=0.005). However, if the increased number of positions available each year is taken into account by using the percentage of programs applied to instead of the mean number of applications, there is no statistically significant relationship between percentage of programs applied to and match rate (p=0.78).

CONCLUSIONS: Our study suggests that there is no benefit to students applying to a greater number of programs as the percentage of programs applied to does not correlate with a higher match rate. Additionally, even though integrated plastic surgery programs are extremely competitive there have been unfilled positions every year since 2015. This could be explained by the Prisoner’s Dilemma in Game theory. The economic theory that all parties are worse off when individuals act in their own self interest. In other words, while a student may increase their own chances by applying to as many programs as possible while other students do not, if every student applies to most programs, all students have a reduced chance of matching.

F. Molina Burbano: None. A. Yao: None. J. Stock: None. P. Taub: None.