



## ASRM SCIENTIFIC PAPER PRESENTATIONS: PATIENT SAFETY/TORSO TRUNK RECONSTRUCTION

Tuesday, January 17, 2017, 10:15am – 11:00am

### 129. Microsurgeon's Job Satisfaction: Result from 245 International Responses

Mackay Memorial Hospital, Mackay Medical College, Taipei, 256, Taiwan

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#### Introduction

Microsurgeons are thought to be a highly stressed group. The prolonged operative times and particular unexpected operations make this specialty very different from others in the surgical field. To clarify the possible reasons of stress and sources of relief, a satisfaction survey (score 0-100) was distributed and the details of working and family life were studied for microsurgeons internationally.

#### Materials and methods

The online questionnaire was created using the Google Doc system and known microsurgeons were all invited to complete the questionnaire using various methods, such as email, Facebook, LinkedIn, and ResearchGate. A total of 245 microsurgeons replied to the questionnaire. The differences in satisfaction scores were studied by geographic area, age, and gender. Two sub-groups, the UNHAPPY group (n=19, score  $\leq 60$ ) and HAPPY group (n=29, score  $\geq 95$ ) were chosen from these 245 responses for further studies. SPSS was used to analyze all the data.

#### Results

The average satisfaction score for the 245 microsurgeons was  $80.6 \pm 14.6$ . There was no difference between geographic areas, gender, and age. Further analysis showed that the UNHAPPY group had longer working hours than the HAPPY group (79 vs. 59 hours/week,  $p=0.02$ ) and that more surgeons criticized an “unreasonable salary” (68.4% vs. 27.6%,  $p=0.01$ ). There were no differences between housework burden, sleeping hours, exercise frequency,

physical problems, marital status, and family composition. However, most microsurgeons reported that they would still choose the same career path if given the option (UNHAPPY:HAPPY= 88.9% vs. 85.2%).

### **Discussion**

On average, most microsurgeons are satisfied with their jobs and do not regret their decisions. However, the long working hours and an unreasonable salary are potential risk factors that can negatively affect the satisfaction of microsurgeons. These issues cannot be attributed to specific individuals in isolation and should therefore be further explored by the medical system as a whole.

### **130. A Systematic Review Examining Radial Forearm Flap Phalloplasty in Female-to-Male Transgender Genital Reconstruction: Is the Ideal Neophallus an Achievable Goal?**

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#### **Introduction:**

The number of patients experiencing gender dysphoria seeking surgical intervention is increasing. The ideal neophallus in female-to-male genital reconstruction is very difficult to achieve given the complex anatomy and function of the native penis along with a paucity of "like" donor tissue. The radial forearm free flap phalloplasty (RFFP) is among the most common procedures for neophallus construction and is often considered the gold standard. However, the literature examining these procedures in transgender phalloplasty is largely limited to case series with little cumulative or comparative data.

#### **Methods:**

A MEDLINE search for RFFP in female-to-male genital reconstruction was performed with outcomes compared. Variations in techniques were allowed for and this was not cause for exclusion of an article. Outcomes were analyzed based on the ideal characteristics of a neophallus as first described by Hage in 1993.

#### **Results:**

A total of 55 articles were identified; 11 articles related to RFFP met inclusion criteria. A total of 665 patients were cumulatively included in these studies.

In RFFP, study size and follow-up was 60.4 patients and 6.23 years (6 studied did not report [NR] these metrics). No patients had single-stage reconstruction (8 NR). 70% reported a satisfactorily aesthetic neophallus (4 NR). In the majority of studies, aesthetic satisfaction was determined through subjective patient report without the use of a validated questionnaire. 69% of patients reported erogenous sensation (6 NR) while 77% reported tactile sensation (9 NR). 43% were able to achieve sexual intercourse (6 NR). Average strictures/fistulae per patient was 0.51 (4 NR) while 75% achieved standing micturition (6 NR). The average overall complications per patient was 0.88 (3 NR), and donor site morbidity was 11% (3 NR).

#### **Conclusions:**

Current literature suggests that radial forearm free flap phalloplasty adequately achieves the majority of the ideal characteristics of a neophallus with high patient aesthetic satisfaction and acceptable rates of sexual and urinary function as well as complications. However, high-quality studies with emphasis on validated patient-reported outcome measures are lacking and will be necessary to critically evaluate female-to-male genital reconstruction in the transgender population.

Table 1: Demographics and Outcomes in Included Studies Examining Radial Forearm Flap Phalloplasty for Female-to-Male Transgender Genital Reconstruction

	N	F/U (y)	Single Stage (%)	Aesthetic Satisfaction (%)	Erogenous Sensation (%)	Tactile Sensation (%)	Stricture/Fistulas per Patient	Standing Micturition (%)	Overall Complications per Patient	Donor Site Complication Rate (%)	Sexual Intercourse (%)
Garcia et al 2014	15	6.8	NR	90.5	100.0	NR	NR	NR	NR	NR	NR
Van Caenegem et al 2013	44	7	NR	NR	NR	NR	NR	NR	NR	0.0	NR
Song et al 2011	19	NR	0	50.0	50.0	NR	0.79	75.0	1.16	15.8	37.5
Monstrey et al 2009	287	NR	NR	NR	NR	NR	0.41	NR	0.75	0.70	NR
Schaff et al 2009	6	NR	NR	NR	NR	NR	NR	NR	NR	NR	83.3
Leriche et al 2008	56	9.17	NR	90.0	9.0	83.0	0.32	NR	0.57	0.0	51.0
Kim et al 2009	40	6	NR	87.5	100.0	NR	0.20	90.0	0.40	5.0	NR
Fang et al 1999	22	NR	0	36.4	NR	NR	0.77	NR	1.27	45.5	40.9
Fang et al 1994	56	NR	NR	NR	NR	71.4	0.80	71.4	1.16	0.0	NR
Matti 1988	5	NR	NR	40.0	NR	NR	0.40	40.0	1.00	NR	0.0
Garaffa et al 2010	115	2.17	0	97.4	86.0	NR	0.35	99.0	0.70	19.1	NR
<i>Average</i>	60.5	6.23	0	70.0	69.0	77.0	0.51	75.0	0.88	11.0	43.0

N=Number of Patient, F/U=Follow-Up, y=Years, NR=Not Recorded

### **131. An Analysis of Characteristics Associated with Requiring Flap Reconstruction following Abdominoperineal Resection**

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#### **Introduction:**

Following abdominoperineal resection (APR), primary closure of the perineal defect is often possible. Some patients, however, require flap reconstruction to provide vascularized tissue for wound coverage. Identifying patients who are likely to need flap reconstruction pre-operatively is critical to optimize collaboration between the surgical team performing the resection and the reconstructive team. This also facilitates more thorough patient counseling prior to surgery.

#### **Materials & Methods:**

A retrospective review of patients undergoing APR over a 10-year period was performed to identify demographic, oncologic and co-morbid factors associated with patients requiring flap reconstruction with a vertical rectus abdominis myocutaneous (VRAM) flap compared to those for whom primary closure was adequate. Student's t and Fisher's exact tests were utilized for statistical analysis.

#### **Results:**

A total of 158 patients underwent APR, 29 of whom (18%) required reconstruction with a VRAM flap. A significantly higher average perianal skin resection area was seen among those requiring flap reconstruction ( $p < 0.0001$ ). Flap recipients were also more likely to be smokers ( $p = 0.0197$ ) or have a tumor located at the anus ( $p < 0.0001$ ). Although not statistically significant, neo-adjuvant radiation was more common and the average tumor diameter was larger in the flap group compared to the primary closure group (Table 1). No significant difference in gender, history of diabetes mellitus, body mass index, chemotherapy status, type of cancer or cancer stage was seen between the two groups.

#### **Conclusions:**

While the appropriate method of closure for those undergoing APR needs to be carefully considered on an individual case basis, those patients who are smokers, have a tumor located at the anus or will likely require large perianal skin resection are more likely to require flap reconstruction and should be counseled accordingly.

**Table 1. Results**

<b>Characteristic</b>	<b>Flap Reconstruction (n = 29)</b>	<b>Primary Closure (n = 129)</b>	<b>p-value (95% Confidence Interval)</b>
<b>Average Perianal Skin Resection Area (cm<sup>2</sup>)</b>	73.1	12.3	<b>&lt;0.0001</b> (-69.99 to -51.70)
<b>Tumor Location:</b>			
<b>Anus</b>	51.7% (15)	8.5% (11)	<b>&lt;0.0001</b>
<b>Rectum</b>	34.5% (10)	89.1% (115)	<b>&lt;0.0001</b>
<b>Tumor Diameter (cm)</b>	4.50	3.96	0.338 (-0.58 to 1.68)
<b>Radiation:</b>			
Neo-Adjuvant	62.1% (18)	47.2% (61)	0.217
Adjuvant	6.9% (2)	22.5% (29)	0.070
<b>Current Smoker</b>	44.8% (13)	22.5% (29)	<b>0.0197</b>

*p*-values <0.05 were considered statistically significant

## **132. Profunda Artery Perforator Flap for Isolated Vulvar Defect Reconstruction After Oncological Resection**

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### **Summary:**

Isolated vulvar reconstruction using profunda artery-based perforator flaps have good functional as well as quality of life restoration. Surgical techniques, complications, and final evaluation using questionnaires are presented.

### **Background:**

Vulvar reconstruction remains a great challenge to reconstructive surgeons. A local fasciocutaneous flap from the medial thigh is a good option with multiple choices of the donor arteries. Here, we extended the clinical application of a profunda perforator artery (PAP) flap with the design of an island pedicle flap.

### **Methods:**

From 2012 to 2015, 12 female patients with vulvar cancer received tumor ablation and immediate reconstruction using a PAP flap. The flaps (n 1/4 19) were divided into V-Y advancement perforator flap (group I, n 1/4 4) and island pedicle perforator flap (group II, n 1/4 15). All of the demographic data were collected and analyzed.

### **Results:**

All of the flaps were transferred successfully, and all of the donor sites were closed without morbidities. Group II was superior to group I because of the smaller required flap size (P 1/4 0.004), the smaller defect size/flap size ratio (P 1/4 0.001), and a lower rate of post-op debridement (P 1/4 0.037). The other parameters were not statistically significant.

### **Conclusions:**

PAP flap is a good choice for vulvar reconstruction. We preferred an island pedicle setting for its thin and pliable fasciocutaneous component and robust flap circulation. The favorable functional and aesthetic results can be achieved with limited donor site morbidities.

### **133. Extrapelvic Inferior Gluteal Artery Trunk And Perforator Pattern And Topological Anatomic Relation With Surrounding Nerves**

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#### **Extrapelvic inferior gluteal artery trunk and perforator pattern and Topological anatomic relation with surrounding nerves**

##### **Introduction**

Inferior gluteal artery is commonly used pedicle in use of the flap involving gluteus maximus muscle(GMxM) or inferior gluteal artery perforator flap. However, it is shorter than other commonly used flap sites and the considerable depth of its location makes it a great challenge to find and neatly separate it. In this study, we intend to provide the helpful information for flap surgery including inferior gluteal artery pedicle through the evaluation of inferior gluteal artery anatomy and perforator distributions.

##### **Materials and Methods**

The topographic anatomy of the IGA was studied on 37 cadavers (72 sides) of Korean adults. Of them, 27 (52 sides) were formalin-fixed cadaveric specimens (male: 18, female: 9; mean age: 72.7 years) and 10 (20 sides) were fresh cadavers (male: 5, female: 5; mean age: 80 years). Red latex was injected into the abdominal aorta of eight fresh cadavers (16 sides), which were then immersed in cadaver fixative for 2–4 weeks before dissection. Two remaining cadavers (4 sides) were injected with blue latex in the IGA and red latex in the SGA.

##### **Results**

###### **1) Extrapelvic course of IGA trunks**

The course of a descending trunk of the one-trunk or two-trunk type IGA was measured with respect to line A (PSIS-IT) and line C (IT-GT). Line A measured on average 129.5 mm (range: 120–145 mm) and average length of line C was 76.9 mm (range: 63–88 mm).(Fig 1)

###### **2) IGA Peforators**

The IGA yielded 24.0 perforators on average (range: 15–38), and the yield for SGA was 9.6 (range: 5–15). Perforators showed varying densities according to the regions .(Fig 2)

###### **3) Relation between the PFCN and SN**

The trunk of the PFCN descended medially to the SN. We classified the relation between the PFCN and SN into five morphological types according to the extent of contact and overlap. (Fig 3) .

###### **4)Relation between the IGA and nerve**

The positional relation between the IGA trunk or the descending branch and nerves was studied for the five types of topographic anatomical relation between the SN and PFCN.

**Conclusion**

The results of this study are expected to greatly contribute to the safe dissection of a pedicle without damaging it by safely dividing the GMxM apart.

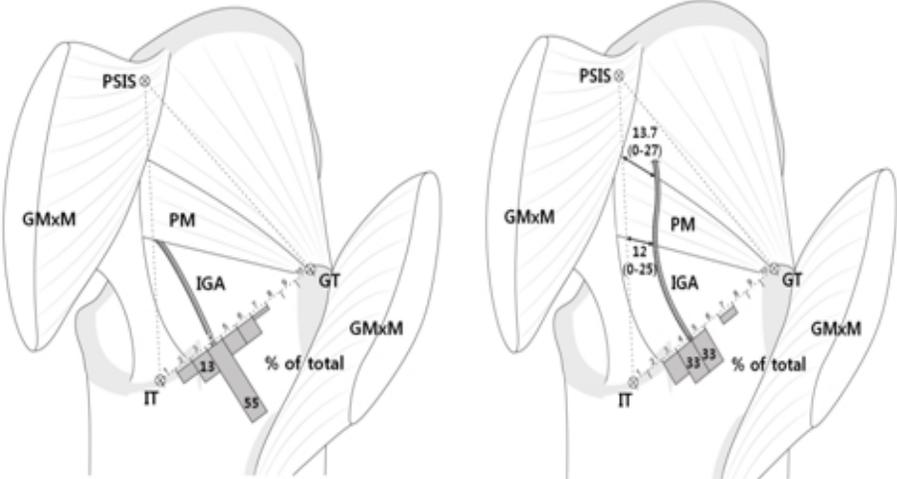


Figure 1.

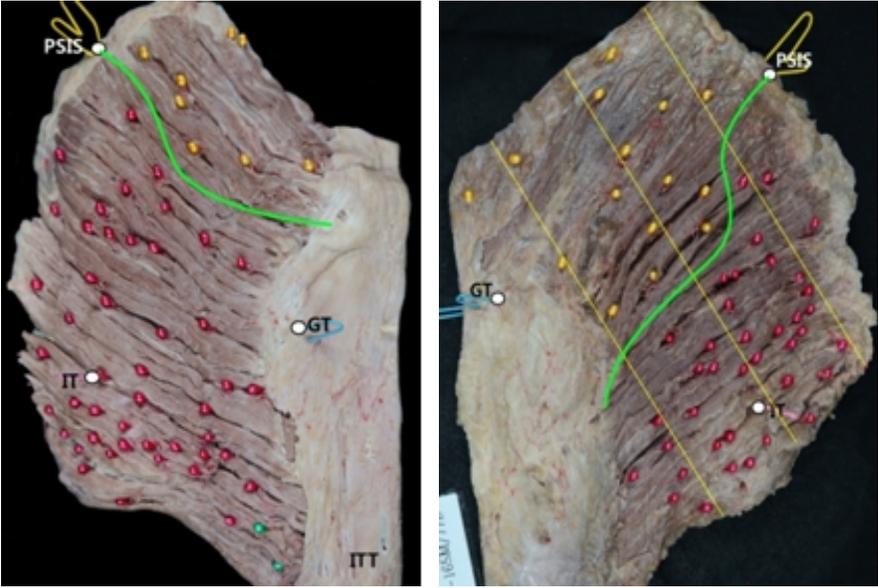


Figure 2.



**Type 1: 7.7%**



**Type 2: 9.6%**



**Type 3: 25.0%**



**Type 4: 15.4%**



**Type 5: 42.3%**

**Figure 3.**

## 134. The Evolving Role of Microsurgery in Living-Donor Liver Transplantation

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### Background

Hepatic arterial reconstruction is challenging in living donor liver transplantation (LDLT) as the artery is generally small in diameter and has limited length at its origin from the donor segment. Hepatic artery thrombosis is a significant cause of graft loss and historically the most cited complication of living-donor liver transplantations, with an incidence ranging from 1-26%. The introduction of microsurgical techniques in hepatic artery reconstruction has significantly improved graft survival and post-operative outcomes. The purpose of this study was to analyze our institution's experience transitioning to microsurgical techniques for LDLT over the last 6 years.

### Methods

A retrospective review was conducted for all patients who underwent a LDLT either at the Children's Hospital of Philadelphia or the University of Pennsylvania, from 3/2010 through 6/2016. The primary outcome measure was hepatic artery thrombosis diagnosed by ultrasound, CT angiogram, or direct visualization. Other outcomes were collected in combination and analyzed using STATA to determine statistical significance between the two cohorts of patients.

### Results

Seventy-one LDLT were performed over 6-years, 23 (32%) cases were completed with microsurgical techniques and 48 (68%) were without. Patients in the microsurgical cohort were significantly younger (average 28.2 years vs. 47.0 years;  $p=0.0199$ ) with shorter follow up time (average 456 days vs. 1100 days;  $p<0.001$ ). The non-microsurgical cohort had 3 (6.25%) complete graft failures, 3 (6.25%) hepatic artery thrombosis, 2 (4.2%) hepatic artery pseudoaneurysms, 4 (8.3%) requiring non-operative procedures, and 3 (6.25%) mortalities, compared to zero events in the microsurgical cohort. There were statistically significant differences between non-microsurgical and microsurgical patients in the number of biliary complications (21/43.8% vs. 1/4.3%;  $p=0.001$ ), ERCP with stents (15/31.25% vs. 0/0%;  $p=0.002$ ), and complications requiring return to the operating room (10/20.8% vs. 3/13%;  $p=0.025$ ).

### Conclusions

Based on our institution's short and long-term outcomes, microsurgical techniques have significantly improved post-surgical outcomes and reduced the morbidity and mortality in our LDLT population.

## Outcomes

	Microsurgical cases N = 23	Non-microsurgical cases N = 48	p-value
Graft failures	0 (0%)	3 (6.25%)	0.546
Hepatic artery thrombosis	0 (0%)	3 (6.25%)	0.546
Hepatic artery pseudoaneurysm	0 (0%)	2 (4.2%)	1.0
Complication requiring return to the OR	3 (13.0%)	10 (20.8%)	<b>0.025</b>
Complication requiring non-operative procedure	0 (0%)	4 (8.3%)	0.297
Mortality	0 (0%)	3 (6.25%)	0.546
Required placement of biliary drain(s)	1 (4.3%)	7 (14.6%)	0.261
ERCP + stent(s) placement	0 (0%)	15 (31.25%)	<b>0.002</b>
Biliary complication (leak or stricture)	1 (4.3%)	21 (43.8%)	<b>0.001</b>

### **135. Strategic Approach for Vagina/Perineum Reconstruction – A Review of 25-Year Experience**

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**Introduction:** Current development of reconstructive surgeries has provided a broader spectrum of cancer surgeries, being able to reconstruct larger, complicated defects, or simply provide additional reconstruction to facilitate wound healing in a naturally poorly healed geographic. Reconstruction of the vagina and/or perineum is such an example. Complex tumor resections, the involvement of anus, vagina, and urethral, intra-abdominal dead space presenting after organ resection, and vital structure exposure often require specific considerations for reconstruction. High incidence of perioperative radiotherapy contributes complexity of wound healing. The senior author has more than 25 years experience performing cancer reconstructions. This study is to review single surgeon's experience of performing vagina and/or perineum reconstruction to conclude a strategic approach.

**Materials and Methods:** A retrospective chart review was conducted to identify patients who received vagina and/or perineum reconstruction after cancer resection. Their disease character including the cancer origin, type, primary or recurrence, previous treatment, as well as the defect size and location and reconstruction method were reviewed. Post-operative complications and disease outcome were reviewed.

**Results:** A total of 125 major flaps were performed in 97 patients with mean age of 54.2 and follow-up of 28.9 months. 26 of them were primary cancer and 71 were recurrence. 73 patients had history of previous radiotherapy before surgeries and 30 patients received intraoperative radiotherapy. Primary location of the cancer included gynecological cancer of vulva, perineum, vagina, cervix, or endometrium (N=50), colorectal (N=24), anal (N=17), bladder or urethra (N=5), and small bowel (N=1). Resection procedures included pelvic exenteration of anterior (N=13), posterior (N=10), or total (N=16); abdominal perineal resection (N=29); combination resection surgery (N=1); wide tumor excision (N=22) and other (N=1). Flaps used for reconstruction include vertical rectus abdominis myocutaneous flap (N=53), gracilis myocutaneous flaps (N=36), pudendal thigh flaps (N=33), deep inferior epigastric artery fascioperitoneal flap (N=1), gluteus myocutaneous flap (N=1) and local advancement flap (N=2). All the flaps survived. Surgical complications occurred in 35 patients with intra-abdominal abscess as the most common one (N=12) and history of previous radiotherapy increase the presence of surgical complications. Medical complications presented in 18 patients. By grouping patients according to their resection procedure and reconstruction methods, we concluded a novel defect classification system and proposed a useful reconstructive algorithm basing on 25-year experience.

**Discussion and Conclusion:** Vagina and/or perineum reconstruction is challenging and often presented high surgical complications. We found our reconstructive approach to be useful with acceptable complications and good results.