34th Raffucci Surgical Research Forum

Severe Tuberous Breast Deformity and Breastfeeding

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Objective: The tuberous breasts are characterized by a constricting ring at the base, leading to deficient parenchymal development. Though women with small breasts are usually successful at breastfeeding, this may not be the case in women with severe (type III) tuberous breasts. Methods: The breastfeeding success of women who had severe (Fig. 1) tuberous breasts was compared to the breastfeeding success of women who had normal small breasts. Data was collected from 103 women, all of whom had small breasts, and had requested an evaluation for possible breast augmentation. Those who had tubular breast deformity were assigned to the study group (n=47) and the ones who had normal small breasts (bra cup A) to the control group (n=56). The inclusion criteria for the study were: no prior breast surgery, having had a live birth, and having attempted breastfeeding following good breastfeeding practices. A self-administered questionnaire was used to collect data on demographics and breastfeeding success. This database was IRB approved. Results: The study and control groups were not significantly different in age (29±6 vs. 28±8) or body mass index (22±3 vs. 21±2). However, the women who had severe tuberous breasts were significantly less successful at breastfeeding when compared to the control group (30% vs. 75%). The difference between the study and control group was statistically significant, $p<0.5$. Conclusion: Women who have severe tuberous breasts are significantly less successful at breastfeeding. Insufficient glandular tissue within a breast that has restricted growth may be responsible for this problem.

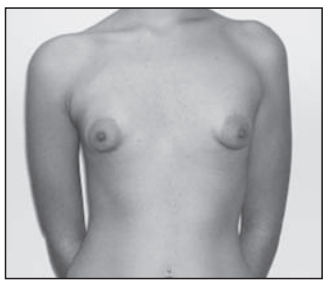

Figure 1. Tuberous breasts

Characteristics of the Surgical Population in Puerto Rico

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Objective: The characteristics of the surgical population of Puerto Rico need better evaluation. Methods: We examined all surgical cases between November 1, 2012 and November 1, 2013 at the Surgery Database. This database collects patient and procedural information from the surgical services of the University of Puerto Rico affiliated hospitals. The variables evaluated were: patient's age, gender, outpatient/inpatient status, diagnosis, international classification of disease code, surgical procedure, current procedural terminology code, if elective or emergency, wound classification and outcome. This database was IRB approved. Results: Information on 5,311 surgical patients was available for the study period. The average age of the group was 48±23 years. We found that 27% of the surgical population was over 65 years of age. The most populated age interval was the 61-70 (Fig. 1). The gender distribution of the surgical population indicated that 55% were females and 45% were males. Distribution by specialty was: general surgery 33%, colorectal surgery 20%, oncologic surgery 22% and other 25%. Surgeries were elective in 87% and emergency in 13% of the cases. Complications were reported in 2% of the cases with 1% mortality. Conclusion: Despite the fact that only 14% of our current population is older than 65 years of age, over 27% of the patients requiring surgery during the past year were 65 years or older. Older patients now represent a significant proportion of the surgical workload. Our study also found that about 76% of the demand for surgery is in general surgery, colorectal and oncologic surgery.

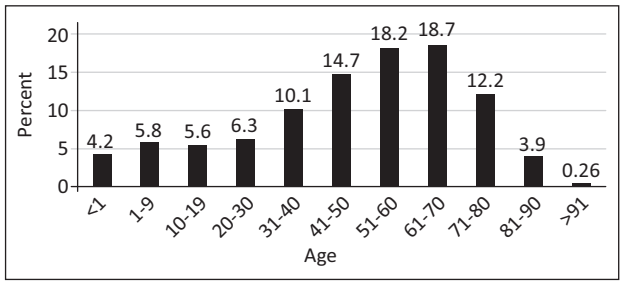

Figure 1. Percent distribution of patients by age

Gender Distribution of Surgery Residents at the University of Puerto Rico

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Objective: The literature suggests that the number of women choosing surgical careers has increased in recent years. Method: We examined the gender distribution of residents accepted by the Surgery Department of the University of Puerto Rico from 1958-2013. The information was obtained from the Graduate Residents Database of the Department of Surgery. This database collects information on: gender, the medical school from which the MD degree was obtained, years of appointment to the residency program and departure, current activity and

specialty. We reviewed the overall gender distribution and that of categorical residents in the Surgery Department during the last 20 years (1983-2013). This study was IRB approved. Results: Since 1958 the number of women in the Surgery Department of the University of Puerto Rico has increased, starting with 2% in the 1960's to the current 31%. The findings are in table 1. Conclusion: This study found a steady increase in the number of women requesting admission to the surgery program over the last 20 years. However, despite this increase, the literature suggests gender inequality in surgery programs. Currently, 60% of undergraduate students and 50% of medical students are women, but only 31% of surgical residents are women. Future studies need to address the reasons for the small number of women in surgical programs.

Table 1. Percentage of women who were categorical surgery residents

Time period	Percentage of women
1983-1989	10%
1990-1999	14%
2000-2009	18%
2010-2013	31%

Normocalcemic Hyperparathyroidism: An Evaluation of Surgically Treated Patients

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Objective: Higher numbers of patients have been identified with elevated PTH and normal calcium levels. Methods: Record reviews were performed of our parathyroidectomy cases from 2007-13. We defined normocalcemic primary hyperparathyroidism (NCPHPT) as PTH >65 pg/ml, serum total calcium <10.4mg/dl or ionized calcium <5.7 mg/dl, no diuretic use and normal serum vitamin D. We identified 43 patients. Preoperative localization studies were correlated with intraoperative findings. The intraoperative PTH (ioPTH) percentage drop was correlated with postoperative PTH. This study database was IRB approved. Results: From 217 parathyroidectomies, 20% had NCPHPT. Mean age was 60±2 and 88% were females. Clinical presentation included: osteoporosis (37%), nephrolithiasis (26%), bone pain, chronic fatigue (33%), fractures (2%), and MEN1 syndrome (2%). Patients had at least one positive localization study. Forty patients had a single hypercellular parathyroid and three patients had multiple glands involved. Mean preoperative PTH was 130 ±8. Nineteen patients underwent parathyroidectomy guided by ioPTH, using the >50% drop criteria. All patients whose ioPTH was measured had ≥ 50% drop. No statistical significance between the highest to lowest ioPTH (p=0.197). We found that postoperative PTH levels were significantly higher than the lowest ioPTH levels (p<0.000). Sixty-seven percent of patients had an ioPTH percentage drop >75, which was statistically associated with postoperative PTH levels <65 pg/dL (OR:3.6, CI:0.13-1.10, p=0.16). Conclusion: The observed rate of postoperative PTH elevation in NCPHPT is similar to that of patients with hypercalcemic hyperparathyroidism. NCPHPT patients may require stricter ioPTH criteria if the definition of successful parathyroidectomy is normalization of postoperative PTH.

Increasing Age, Obesity, and Diabetes Independently Associated with Urinary Incontinence after Robotic Prostatectomy in Hispanic Men

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Objective: Puerto Ricans have the highest rate of diabetes mellitus (DM) of any ethnicity in the US. DM has been associated with a higher risk of post prostatectomy incontinence. Methods: A prospective database was created for 453 consecutive prostate cancer patients who underwent robotic prostatectomy (RP) by a single surgeon. The cohort consisted of 300 men with follow-up ≥ 1 year. Clinical variables were correlated with continence one year after surgery. This study was IRB approved. Results: After a median follow-up of 25 months, 9.7% of men exhibited stress incontinence (SUI). Fifteen percent of all patients had type II DM and 28% were obese. The 3 variables independently predictive of SUI in multivariate analysis were age (mean: 60.3 in incontinent men vs. 57.4 yrs, p<0.04) (OR:3.25, CI: 1.45 to 7.31), BMI (28.9 vs. 27.5, p< 0.05) (OR:2.09, CI:1.02 to 4.73), and a history of DM (31% of men with SUI had DM vs. 12.3%, p< 0.03) (OR:2.59, 95%CI:1.07 to 6.31). The risk of SUI increased linearly both with BMI and age. Diabetic patients exhibited a 20% risk of SUI compared with 7.8% in non-diabetics (p<0.03), even in patients with a BMI ≤25 (42.9% with DM vs. 4.1%, p<0.003). Conclusion: While Puerto Rican men who undergo RP who are not diabetic, have a BMI< 30 and are younger than 61 years have a SUI rate of 3.4%, this increases to 14.5% with a BMI≥30, 16.3% when older than 60 years, and beyond 20% with DM even in the absence of obesity.

Significance of Persistent Asymptomatic Microscopic Hematuria One Year after Robotic Prostatectomy: A Review of Clinical and Endoscopic Findings

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Objective: Occasionally patients exhibit microscopic hematuria (MH) which persists one year after robotic

prostatectomy. The clinical significance and predictors of MH in this setting have not been reported. Methods: Patients who underwent robotic prostatectomy (RP) for cancer were identified in our prospective database. Follow–up beyond one year was available in 300 patients. MH was defined as 3 red blood cells per high power field in one urinalysis in the absence of an obvious benign cause. If MH was present after 6 months, a CT or MR urogram was obtained if no preoperative renal imaging was available. If MH persisted after 1 year, all patients underwent a cystoscopy and upper tract imaging. This study was IRB approved. Results: Of 300 men with a median follow–up of 25.2 months, MH beyond one year was present in 8.7% (26/300) of patients. Clinical variables that correlated with the presence of MH in univariate analysis included a history of a postoperative leak (11.5% vs. 1.1%, p<0.01), pathologic stage T3a/3b (14.9% vs. 6.9%, p<0.05), a positive surgical margin (22.6 vs. 7.1%), and a history of postoperative radiation (21% 8%, p<0.03). In multivariate analysis, a history of a leak was the only variable predictive of MH (Odds Ratio: 6.64, 95% Confidence Intervals: 1.45 to 30.5). Conclusion: Asymptomatic microscopic hematuria may persist in 8.7% of patients one year after prostatectomy and is independently associated with a history of an anastomotic leak. While a standard hematuria evaluation is warranted, patients could be reassured that a life–threatening finding is unlikely.

Preoperative International Prostate Symptom Score (IPSS) predicts the presence of inguinal hernia in patients undergoing robotic prostatectomy

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Objective: Prior studies have shown that encountering an incidental inguinal hernia during robotic prostatectomy (RP) is not uncommon. Methods: We evaluated 453 consecutive patients who underwent RP. Inguinal hernia defects were identified once the bladder was dissected and were repaired with mesh by the same surgeon after the anastomosis. The mesh used was equal parts absorbable poliglecaprone-25 monofilament and non-absorbable polypropylene monofilament (UltraPro, Ethicon). Statistical analysis was performed with SPSS for hernia predictive variables. This study was IRB approved. Results: Inguinal hernias were encountered during RP in 8.7% of patients. These were unilateral in 6.2% and bilateral in 2%. Locations were right (43.3%), left (32.3%), and bilateral (24.3%); 56.7% were direct, 32.4% indirect, and combined in 10.9%. Only 50% (18/36) of men had hernias evident on their preoperative examination or staging studies. Patients with a preoperative IPSS ≥15 had a 21.4% chance of requiring a hernia repair compared with 4.4% in patients without voiding dysfunction (p<0.001). This difference persisted on multivariate analysis after adjusting for prostate weight. After a median follow-up of 18.2 months, there was one hernia recurrence repaired with open surgery. There were no patients with mesh-associated neuralgic pain or erosion. Conclusion: Independent of prostate size, men with preoperative voiding dysfunction have five times the probability of requiring a hernia repair at the time of robotic prostatectomy (21.4% vs. 4.4%). Given that 50% of these hernias are subclinical, patients with an IPSS ≥15 should be counseled regarding the need for a concurrent hernia repair and its potential complications.

Preoperative International Prostate Symptom Score (IPSS) Predicts the Risk of Anastomotic Leak after Robotic Prostatectomy

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Objective: Animal models using the rabbit bladder have shown that outlet obstruction is associated with bladder fibrosis and diminished aerobic metabolism. Methods: Data was collected from 453 robotic prostatectomy (RP) cases. The bladder neck was not spared and reconstructed at the 5 and 7 o'clock positions with 3–0 Monocryl. An anterior and posterior (Rocco) reconstruction was performed in all cases. The incidence of anastomotic leaks was reviewed and correlated with preoperative parameters. Multivariate analysis was performed with SPSS. This study was IRB approved. Results: Anastomotic leaks were seen in 2.6% of patients; all were confirmed with cystography. This group had a longer mean length of stay (2.1 vs. 1.3 days, p<0.001) and catheterization time (15 vs. 8 days, p < 0.001) versus those without a leak. Patients with a history of voiding dysfunction before surgery (IPSS≥15) had a higher risk of a urine leak (6.8 vs. 1.4%, p< 0.007) compared to those without and independent of prostate size (49.7 vs. 45.6 grams, p=0.4) on multivariate analysis (Odds ratio: 5.26, 95% Confidence Intervals: 1.58 to 17.5). There was a trend for the urine leak group to have a higher BMI (29.4 vs. 28.1, p=0.25), bladder neck contractures (8.3 vs. 0.7%, p=0.11), and incontinence but this was not statistically significant (16.7 vs. 9.5% requiring ≥1 pad/day after one year, p = 0.46). Conclusion: Although uncommon, anastomotic urine leaks after robotic prostatectomy are nearly five times more likely in patients with preoperative voiding dysfunction. This may be associated with bladder neck ischemia.

Effectively Reducing Recurrence of Venous Ulcerations with Radiofrequency Ablation of the Greater Saphenous Vein (GSV) in Patients with a CEAP class 5

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Objective: Chronic venous insufficiency with a CEAP (clinical-etiology-anatomy-pathophysiology) score of 5 is associated with high recurrence rates with conservative management. Methods: We evaluated 68 patients with a CEAP score of 5 between 2010 and 2012. Of these, 39 patients were treated with elastic graded compression stocking, elevation plus exercise and 29 patients underwent radiofrequency ablation RFA of the greater saphenous (GSV) plus elastic graded compression stocking (20-30 mm hg), elevation plus exercise. Data analyzed included age, gender, and ultrasonography findings as DVT, and superficial venous reflux with or without deep venous reflux and recurrence rate at 6 months. This study was IRB approved. Results: The mean age was 66 years, with females accounting for 76.8% of the cases. In the RFA group, 96.5% underwent unilateral RFA and one patient bilateral RFA. The recurrence rate in the conservative therapy group was 33%, while we had no reoccurrence (0/29) in the RFA + conservative therapy group. The risk of recurrence was significantly reduced in patients who received RFA with compression therapy (OR=0.32, CI=0.0018-0.56, p=0.035). A subgroup analysis of patients with isolated superficial reflux, showed recurrence rates at 6 months of 35.7% for the compression therapy group and 0% for the RFA plus compression group (P<0.05). For patients who had superficial insufficiency with deep reflux or isolated deep reflux, recurrence rates at 6 months were 38% for the compression therapy group and 0% for the RFA plus compression group (p=0.11). Conclusion: Treatment with RFA was better than conservative management for chronic venous insufficiency.

Smoking Associated with Higher Risk of Pathologic Upgrading in Hispanic Men with Low-Risk Prostate Cancer Who Undergo Surgery: Implications for Brachytherapy and Active Surveillance

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Objective: In contrast to Mexican American Hispanics, the Puerto Rican community has a greater West African genetic admixture, a group with a higher risk of adverse prostate cancer. Methods: Of 453 consecutive patients who underwent robotic prostatectomy (RP) by a single surgeon, 188 patients were identified with the following criteria: PSA ≤ 10 ng/ml, Gleason score ≤ 6 (3+3) on biopsy, < 50% positive cores, and cT2b or less. All outside slides were centrally reviewed by a single pathologist. Preoperative variables were correlated with prostatectomy pathology to ascertain which were predictive of upgrading or upstaging. Multivariate analysis was performed with SPSS. This study was IRB approved. Results: Of 188 men with low-risk disease, who underwent prostatectomy, 20.2% had their Gleason score upgraded to 7 or greater and 8% had extraprostatic extension. Fifty percent were found to have perineural invasion not previously identified on the prostate biopsy. Nearly 30% of patients were past or current smokers. Having a history of smoking was the only variable which correlated with a higher likelihood of Gleason score upgrading ($p< 0.001$) or having new perineural invasion identified in the prostatectomy specimen ($p < 0.038$). There was a trend for patients with diabetes to have a higher risk of extraprostatic extension but this was not statistically significant. No other variables predicted pathologic upgrading. Conclusion: Caribbean Hispanic patients with a history of smoking and apparent low-risk prostate cancer have nearly twice the risk of Gleason score upgrading and a 38% higher risk of having occult perineural invasion.

Evaluation of the Trauma Decannulation Protocol: Seven Years Experience and Outcomes

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Objective: Few evidence-based studies and standardized protocols for decannulation have been described. Deciding when and how to remove a tracheostomy tube is still controversial and is usually based on subjective clinical judgment. We propose a decannulation protocol for trauma patients, which has been established in Puerto Rico Trauma Center for seven years. Methods: A cross-sectional study from 2005-2012 was performed by analyzing decannulation outcomes collected by a trauma speech pathologist with collaboration of the Department of Otolaryngology-Head and Neck Surgery. Inclusion criteria consisted of trauma patients 18 years and older with a tracheostomy performed at our Institution using our decannulation protocol. Study variables included sex, age, post-decannulation complications, and decannulation failure. Protocol success was defined as a patient not requiring a second tracheostome placement, intubation, tracheostomy revision in 72 hours post-decannulation. An univariate and bivariate analysis were performed utilizing SPSS. Protocol was approved by our Institution's IRB. Results: Our study sample consisted of 840 trauma patients. The mean sample age was 38.4 ± 17.8. Population was predominately male (85%). All patients that followed our protocol were successfully decannulated (n=676). Twenty percent (164/840) of patients did not follow the protocol. Among those, 9% (79/840) died before ending protocol and 6% (54/840) were decannulated either by other physician not following the protocol or auto-decannulated.

Only 4% (31/840) were poor candidates for decannulation. Conclusion: Few data has been published on standardized decannulation guidelines that will help evaluate outcomes in trauma patients. We propose a safe multidisciplinary protocol to identify which trauma patient is a candidate for decannulation.

Endovascular Repair of Penetrating Arterial Injury at the Puerto Rico Trauma Center

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Objective: The use of endovascular stentgrafts in vascular injuries has become widespread. Methods: Data from all patients with thoracic or abdominal large vessel arterial injury due to penetrating trauma consulted to the Vascular Surgery Service was evaluated. Patients considered for endovascular repair were hemodynamically stable and had contained arterial injuries in the aorta, axillosubclavian, or visceral arteries. All endovascular procedures were performed by the same vascular surgeon. Analyses of demographics, injury severity scores, type of injury, complications, and outcomes were performed. This database was IRB approved. Results: A total of 218 penetrating arterial injuries were identified. Eight patients underwent endovascular repair for penetrating arterial injury. The mean age was 22±1.1 years, and the mean Injury Severity Score was 25±3.6. The vessels injured included 4 (50%) subclavian artery injuries, 3 (38%) aortic injuries and 1 (12%) renal artery injury. All injuries were repaired via an endovascular approach with covered stents. Of the aortic injuries 2 were abdominal posterior aortic pseudoaneurysms (PSAs) and 1 descending thoracic aortic PSA. All 4 cases of subclavian injury were repaired with stentgrafts due to PSAs. One patient with a right renal artery PSA underwent successful repair with a stentgraft. There were no access site, renal, or procedure-related complications. Three patients required video assisted thoracoscopic surgery due to retained hemothorax. There were no major postoperative complications. There was a mean follow up of 5 months with three patients lost earlier. Conclusion: Hemodynamically stable trauma patients with penetrating arterial injury may be successfully treated with an endovascular approach.