

• ABSTRACTS FROM SCIENTIFIC FORUM •



Patient Satisfaction with 3D Simulation of Breast Augmentation Surgery

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Objective: Currently three-dimensional (3D) image simulation is used as a tool to help patients visualize the results of breast augmentation. The aim of this study was to evaluate whether, after having had their surgery, patients were satisfied with the information provided by the 3D simulation. **Methods:** A prospective, randomized study compared patient satisfaction with information provided during preoperative consultation for breast augmentation. In the control group (n=40) photographs of average results of breast augmentation were used, and in the study group (n=36) 3D simulation (Crisalix) of surgical outcome were used. Patients were informed that the results might vary from the image produced by the simulation. Three months following surgery a self-administered questionnaire was used to evaluate patient satisfaction with the information provided during the preoperative consultation and to collect basic demographic information (age, weight, height and implant size). This study was IRB approved. **Results:** The study and control groups were not significantly different in mean age (30 ± 7 vs. 31 ± 6), body mass index (21 ± 3 vs. 21 ± 2) or mean implant size (350 ± 41 cc vs. 355 ± 50 cc). Our results indicated that dissatisfaction with the accuracy of the information provided during the pre-

operative consultation occurred in 25% of the study group compared to 5% of control group ($p < 0.05$). **Conclusion:** After having had their surgery, patients reported a higher percentage of dissatisfaction (25%) with the information provided by 3D simulation. The accuracy of the information is low and often misleading, since tissues respond in different ways to placement of implants (Figure 1).

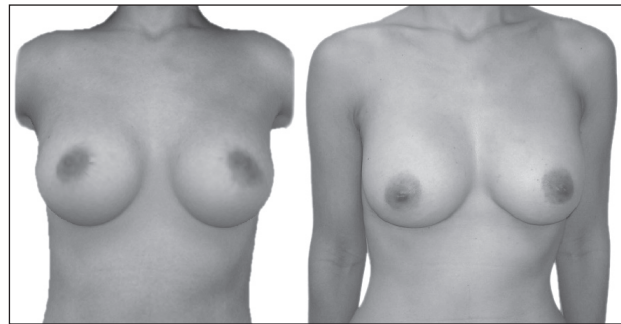


Figure 1. 3D simulation vs. actual results

Prevalence of Diabetes in the Surgical Population of Puerto Rico

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Objective: The prevalence of diabetes in our surgical population has not been studied. Compared to the United States which has a prevalence of diabetes of 9%, Puerto Rico has a high prevalence of diabetes currently estimated at 15%. **Methods:** We examined all surgical cases between April 1 and September 30, 2014 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, diagnosis, surgical procedure performed, presence of diabetes and outcome. This study was IRB approved. **Results:** Information on 2,603 surgical patients was available for the study period. The mean age was 49 ± 23 years. The gender distribution indicated that 56% were females and 44% were males. Diabetes was present in 21% of the surgical population with the age distribution shown in figure 1. The most frequent surgical procedures required by diabetic patients were in the categories of general surgery (36%), colorectal surgery (22%), vascular surgery (16%), oncologic surgery (14%), and amputations (9%). Complications were reported in 5% and postoperative mortality was reported in 2% of diabetic cases. **Conclusion:** The overall prevalence of diabetes in our surgical population was 21% increasing to over 40% after age 71. It is known that diabetic patients have a higher rate of infections and cardiovascular complications following surgery. Estimating the prevalence of this comorbid condition in the surgical population and its associated cost are fundamental to optimizing health care management.

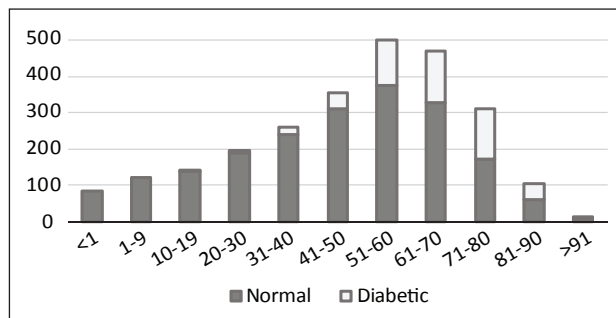


Figure 1. Distribution of diabetes by age

Trauma Epidemiology in Puerto Rico

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Objective: Injuries represent a leading cause of worldwide mortality, being responsible for 9% of deaths and 16% of disability. PR has no information on trauma epidemiology. The aim of this study was to describe the distribution of injury mechanisms and its impact on morbidity and mortality patterns of trauma in PR. Methods: A cross-sectional study was undertaken with patients admitted to Puerto Rico Trauma Hospital secondary to stab wounds (SWs), gunshot wounds (GSWs), falls, road traffic collisions (RTCs), and pedestrians (2002-2011). Trauma Registry of the hospital served as database. A logistic regression model was done to identify the trauma mechanisms that lead to worse health outcomes. A significance level was $p < 0.05$. This study was IRB approved: B0030514. Results: Of the total of 14,874 patients, 36.11%; 19.81%; 15.59%; 11.11%; and 7.21% were admitted for RTCs, GSWs, falls, pedestrians and SWs, respectively. The majority of patients were male. Subjects with GSWs, SWs and RTCs were younger than those with falls and pedestrian injuries. Patients with GSWs were 1.19 (CI 95%: 1.07, 1.33) times more likely to have an ISS ≥ 25 compared to those with RTCs. Pedestrians were 1.76 (CI 95%: 1.49, 2.09) times more likely to have a GCS ≤ 8 than RTC patients. GSW victims (2.64; CI 95%: 2.20, 3.16) and pedestrian (1.51; CI 95%: 1.23, 1.86) had a higher risk to die than RTC victims. Conclusion: Consistently with literature, RTCs had the highest prevalence of all trauma mechanisms; conversely, mortality patterns observed in this study are contrary to the existent evidence.

Determination of the Length of Hospital Stay in Ill Critically Ill Patients after Early Tracheostomy in the Puerto Rico Trauma Hospital

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Objective: There is a debate regarding the timing of tracheostomy in trauma patients. This study aimed to assess the effect of early tracheostomy (ET; ≤ 7 days) in the outcomes associated to hospital stay. Methods: A historical cohort study was undertaken using charts of patients admitted to Puerto Rico Trauma Hospital (PRTH) who required mechanical ventilation (MV) and underwent tracheostomies, 2000-2013. A logistic regression was done to evaluate the association between timing of tracheostomy vs. complications and mortality ratio. To estimate the relationship between ET and outcomes related to hospital stay, a binomial-negative regression was performed. A $p < 0.05$ was considered statistically significant. This study was IRB approved: B0030714. Results: A total of 1,134 patients were evaluated; 313 of whom were ETs and 821, late tracheostomies (LTs). ET patients had a lower ISS compared to their counterparts ($p = 0.004$). ET patients showed lower complications (Respiratory Failure OR=0.61, CI95%: 0.45-0.84; ARDS OR=0.44, CI95%: 0.30-0.64; Pneumonia OR=0.53, CI95%: 0.40-0.71; Septicemia OR=0.48, CI95%: 0.33-0.70; Bacteremia OR=0.59, CI95%: 0.40-0.86) than LT patients. Those with ET had lower MV days (RRadj.=0.74, CI95%: 0.68-0.82), ICU days (RRadj.=0.66, CI95%: 0.59-0.73), and LOS (RRadj.=0.74, CI95%: 0.69-0.80) compared to those with LT, after adjusting by age, ISS, and complications. However, there were no differences in mortality rate (ORadj.=0.66, CI95%: 0.44-1.01) among ET and LT patients, after adjusting for confounders. Conclusion: Our results suggested that ET reduced complications, MV days, ICU days, and LOS, having an indirect effect on mortality ratio. Standardized protocols of ET are recommended to enhance health outcomes in trauma patients.

The Effect of Intraglandular BOTOX® on Salivary Glands Mitotic Rate: A Pilot Study

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Objective: Radiotherapy induces the formation of oxygen free radicals, which cause damage to both tumor and normal cell DNA most effectively when they are mitotically active. Cells in the G0 (dormant) phase of the cell cycle are affected less readily. We believe that by temporarily inhibiting salivary gland acinar cells, we can force them into G0 and thus protect them from the adverse effects of radiation. Methods: Study design, Randomized blinded prospective animal experiment with control. The study consists of 19 CD rats, 3 sacrificed at baseline; the remaining 16 rats were divided in two groups and randomized within each group. Group 1 consisted of 8 rats,

injected on day 0 and sacrificed on day 14; 3 received sham injection, 5 received Botox® injection. Group 2 was randomized and injected similarly, but sacrificed on day 28. After sacrifice, glands were stained with Ki-67, which stains positive for all cells except those in G0. Study approved by IACUC. Results: Our study did not show a difference in mitotic rate between treatment arms in those subjects that were sacrificed at 14 days. It did however show a trend towards decreased mitotic rate of salivary glands treated with Botox® when compared to those treated with sham solution for the group that was dissected on day 28. Conclusion: Our study shows a trend towards decreased mitotic rate in salivary glands treated with Botox® after 28 days. This decreased mitotic rate could potentially have a protective effect for salivary glands in patients receiving radiotherapy.

Anterior-Commissure Laryngoscope Extraction of Esophageal Coins in Children Using Apnea Technique

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Objective: Esophageal foreign bodies represent a common entity amongst children. Coins are the most common object in this population. Methods: Retrospective chart review study approved by IRB of UPR-SOM. Consecutive pediatric patients with a diagnosis of cervical esophageal coin who underwent anterior-commissure laryngoscope extraction during apnea between May 2011-December 2013 at the PRMC (n=59) were evaluated. We analyzed socio-demographic data, apnea time, O₂ saturation and ET/CO₂ of apnea, minimum O₂, heart rates, and foreign body features. Age (independent variable) was categorized as ≤1, >1 and <5, and ≥5 years old. Results: Fifty-four percent of the sample was female. The mean and standard deviation (SD) of age was 3.1±2.4 years. The technique was completed in 94.9% of the sample. The mean and SD of the length of apnea was 57.7±25.2 seconds. The median minimum O₂ Saturation was 99.5% (minimum=93, maximum=100) and the media and SD of the ET/CO₂ at the end of the procedure was 35.7±4.8 mmHg. Heart rates remained at baseline values during the procedure (p<0.001). No complications reported. Conclusion: The anterior-commissure apnea technique represents an efficient and secure modality for treatment. If successful, the patient can be safely discharged home after clearance from anesthesia and a swallowing trial at recovery room.

Hybrid Operative Thrombectomy (HOT) for the Treatment of Symptomatic Iliofemoral Deep Venous Thrombosis: Initial Experience and Intermediate Results

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Objective: In this study we assess the perioperative and midterm outcomes associated with the HOT technique as a surgical therapy for acute iliofemoral deep vein thrombosis (IFDVT). Methods: From July 2011 to May 2014, 32 consecutive patients with symptomatic acute/subacute IF and/or fem-popliteal (fem-pop) DVT were treated with HOT. Exclusion criteria included bilateral IFDVT and caval involvement (n=4). The primary end points were as follows: 1) angiographic evidence of restored venous patency at completion venogram, and 2) duplex findings and clinical outcome at intermediate follow up (1 year). The study was deemed IRB exempt. Results: The IFDVT was located at the left limb in 22/28 (78.6%) of the cases. The IF and fem-pop segments were involved in 27/28 (96.4%) and 19/28 (67.9%) of the surgical limbs, respectively. Mean operative time was 100 min (range 40-190 min). Complete (> 95%) thrombus removal was obtained in 21/28 (75%) limbs, and partial (between 80-90%) resolution in 7/28 (25%). At a mean follow up time of 378 days (range: 94-799 days) duplex showed chronic non-occlusive DVT at the surgical IF and fem-pop segments in 16/20 (80%) and 7/20 (35%) limbs, respectively. Non-significant reflux (time 0-0.9 sec) was found in 15/20 (75%) surgical IF segments. At 504 days (range 100-921 days) the clinical CEAP and Villata's scores were 0.85 (range: 0-3) and 2.25 (0-4), respectively. Conclusion: When used as a standalone procedure, the HOT technique can successfully remove venous thrombus safely and effectively, and is associated with excellent clinical results at intermediate follow up.

The Sonographic Subcentimeter Malignant Thyroid Nodule : What Does It Stand For?

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Objective: We evaluated if node size in a thyroid sonogram is a reliable criterion to determine the extent of surgery in patients with papillary thyroid cancer (PTC). Methods: All cases of thyroid cancer in our database from 2007 to 2014 were reviewed. Patients with a thyroid nodule measuring less than 1 cm in the preoperative sonogram and a permanent pathology of PTC met our inclusion criteria. Patients with preoperative evidence of multifocal lesions or metastasis were excluded. Patients were then further subdivided into two subgroups based on sonography size: A. 1-5mm and B. 6-10 mm. Statistical correlation were made for the presence of the following unfavorable criteria: size > 10mm, multifocality, capsular invasion, angio/lymphatic invasion, invasion of perithyroidal tissue and presence of metastases. This study was IRB approved.

Results: During the study period 1901 thyroidectomies were performed. Papillary thyroid cancer was found in 722 (38%) cases. A total of 182 (25%) patients met the inclusion criteria. There were 30 patients in Group A (1-5mm) and 152 patients in Group B (6-10 mm). Unfavorable criteria were present in 5 (16.6%) patients in Group A and 53 (35%) patients in Group B. The difference between the subgroups was significant, $p < 0.05$. Conclusion: Malignant thyroid nodules with sonography size of less than 5 mm can in theory be candidates for partial thyroidectomy, but 17% of them might still need further surgical intervention. Lesions with sonography size of 6-10 mm still have a moderate to high risk of presenting unfavorable pathological criteria.

Increasing Age, Prostate Weight, and Diabetes Independently associated with Erectile Dysfunction 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 erectile dysfunction (ED). We present the initial report of the impact of DM on erectile function after robotic prostatectomy (RP) in Puerto Rican men. Methods: Of 542 patients in our IRB approved prospective single-surgeon RP database, 197 patients were identified who had normal preoperative erectile function, had undergone a bilateral nerve-sparing procedure, and had follow-up ≥ 1 year. Clinical variables were correlated one year after surgery. Multivariate analysis was performed with SPSS. Results: On follow-up 19.5% (39/197) of men with normal preoperative function exhibited ED. Upon analysis, the 3 clinical variables associated with post-RP ED were age (mean: 60.2 years in men with ED vs. 55.7 years, $p < 0.01$), prostate size (mean size 48.6 in men with ED vs. 41.7 g, $p < 0.01$), and DM (25.6% of men with ED vs. 8.8% in those without ED, $p < 0.02$). The risk of ED was 41.7% in men with DM, 32.9% in men age ≥ 60 years, and 47.8% in those with a prostate ≥ 60 grams compared with 16.7%, 12.5%, and 16.2% in non-diabetics, men younger than 60, and with prostates smaller than 60 g ($p < 0.02$). Conclusion: Diabetes, a prostate size ≥ 60 g, and age ≥ 60 years were independently associated with more than a 3 fold increased risk of ED in men undergoing bilateral nerve-sparing RP.

The Etiologic Role of Human Papillomavirus in Penile Cancer: A Study in Puerto Rico

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Objective: Approximately 40% to 45% of penile cancers are human papilloma virus (HPV) related, with HPV-16 being associated in 63% of the cases. Despite the high burden of penile cancer in Puerto Rico, no studies have been developed to study the association of HPV genotypes with penile cancer. The purpose of this study is to determine the HPV genotypes in penile cancer in Puerto Rican men and correlate with pathological status of the tumor. Methods: Thirty-two paraffin blocks of penile carcinoma and thirty-one fresh penile cancer tumors were identified and collected from patients. Tumors were characterized based on the histological differentiation and pathological features. Following DNA extraction, HPV genotyping was performed in all samples using INNO-LiPA HPV Genotyping Extra Amp and INNO-LiPA HPV Genotyping. This study is IRB approved. Results: HPV was detected in 28 of 63 cases (44.4%). High risk HPV and low risk HPV was detected in 73.2% and 17.1% of the HPV positive samples, respectively. The most prevalent genotypes were HPV-16 (39.0%), HPV-35 (9.8%), HPV-6 (7.3%) and HPV-52 (7.3%). Twenty-nine percent of the HPV positive tumors had multiple HPV genotypes. HPV was preferentially associated with penile cancer. Conclusion: In summary, HPV was found in 44.4% of the cases and the most common genotypes were HPV-16, HPV-35, HPV-6 and HPV-52. This is the first study to document the HPV genotypes that are predominant in this population and suggest the importance of developing primary prevention efforts such as vaccination among Puerto Rican men in order to decrease penile cancer.

Significance of Persistent Asymptomatic Microscopic Hematuria One-Year after Nephron Sparing Surgery: A Review of Clinical and Radiographic Findings

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Objective: Occasionally patients exhibit microscopic hematuria (MH) which persists one year after nephron sparing surgery (NSS). The significance of MH in this setting has not been reported. Methods: 95 patients with renal masses treated with NSS were identified. All had preoperative CT or MR with thin renal cuts. Four patients with preoperative MH or m were excluded. Follow-up ≥ 1 year was available in 81 patients. Postoperative surveillance was based on the UCLA Integrated Staging System recurrence risk. A CT/MR urogram and cystoscopy were performed if MH was present beyond 12 months (mo.). Approved by IRB. Results: Of 81 patients treated

with open or robotic NSS, 11.1% (9/81) had persistent MH after 1 year. CT or MR findings included 2 contralateral renal masses (15 mm, 10 mm) and a simple cyst (1). No contralateral masses developed in patients without MH and there were no local recurrences. Aside from the higher risk for contralateral tumors (2/9 vs. 0/71, $p < 0.02$), patients with MH exhibited a greater increase in creatinine (Cr) after surgery (9.3% vs. 5.3%

increase, $p < 0.02$), and a trend for older age (59.3 vs. 53.8 years, $p = 0.17$). There were no additional differences between the MH and non-MH groups. Conclusion: MH may persist in 11.1% of patients 1 year after NSS. MH was associated with a higher risk of contralateral tumors. These data suggest that if MH persists 1 year after NSS, repeat renal imaging may be warranted even if the mass exhibited low-risk characteristics.
