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Computed Tomographic Angiography-Assisted Vascular Assessment of Internal Mammary Vessels

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INTRODUCTION: The internal mammary (IM) vessels are the most common recipient vessels in free flap breast reconstruction. The literature on IM vascular anatomy is limited by small sample sizes, cadaveric studies, or intraoperative changes. The purpose of this study is to assess IM anatomy in the context of vascular comorbidities using computed tomographic angiography (CTA).

MATERIALS AND METHODS: A retrospective review of 110 consecutive CTA studies of female patients was performed. Measurements of vessel caliber, distance of IM vessels to sternum, location of IMV bifurcation, intercostal height, and chest width were analyzed. Patient demographics and comorbidities were also reviewed.

RESULTS: The right IM artery and vein had a significantly larger caliber than the left side in all intercostal spaces ($p = 0.02$ and $p < 0.001$, respectively). A positive, statistically significant correlation was found between both skeletal chest width and BMI with IM vessel caliber at all intercostal spaces, bilaterally ($p = 0.02$, $p \leq 0.05$, respectively). There was no significant difference in IM vessel caliber in patients with hypertension or hyperlipidemia. However, the left IMA at the second intercostal space was significantly larger in diabetic individuals than in non-diabetic individuals ($p = 0.01$). The third ICS was < 1.5 cm in 25% of patients.

CONCLUSION: Understanding the anatomy, bifurcation, and caliber of internal mammary vessels can help preoperative planning of autologous, free flap breast reconstruction. On average, the internal mammary vein bifurcates at third intercostal space; patients with larger chest widths and body mass index had increased internal mammary vessel caliber, and 25% may not be candidate for rib-sparing techniques due to an ICS diameter of less than 1.5 cm.

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Even Better Than the Real Thing? The Use of Xenografting in Pediatric Patients with Scald Injury -- A Single-Institution, 10-Year Review

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INTRODUCTION: Scald injuries remain the most common type of burn in children, but best practices continue to evolve. Over 250,000 children are burned each year in the United States, and 100,000 of these are scald burns. The use of Xenografting in burns has been described as early as 1880, followed by the description of split- or intermediate-thickness skin grafts in 1929. Depending on depth of injury, management can range from non-operative wound care to excision and autografting. In 2004, we introduced xenografting for intermediate partial-thickness wounds at our institution. We report our 10-year experience with pediatric scald burns, comparing Xenografting to Autografting.

METHODS: Using prospectively collected data submitted to the National Burn Repository, verified by individual chart review, we identified all patients < 18 years old, admitted to our burn center, who sustained scald burns from 2004–2013. Patients were divided into three cohorts, based on wound closure method (Autograft, Xenograft, Non-Op) and compared by two tailed t-test and chi-square analysis.

RESULTS: 1867 children with scald burns were admitted from 2004–2013. Compared to Autografting, patients who underwent xenografting had a similar TBSA, but lower incidence of hospital-acquired infections (HAIs), shorter ICU and facility stays, less expensive hospitalizations, and decreased development of hypertrophic scar formation or need for reconstruction. However compared to the Non-Op group, Xenografting patients had a larger TBSA, higher cost, and LOS.
CONCLUSIONS: Xenografting appears to be a reasonable option for patients with partial-thickness scald injuries. The cost, LOS, HAIs, and ICU days for the Xenografting cohort fell in-between the Non-Op and Autografting cohorts, as would be expected. While non-operative management may be appropriate for small/superficial burns, and Autografting may be required for large/deep burns, xenografting provides rapid wound closure. Xenografting also permits earlier hospital discharge, reduces need for reconstruction, and should strongly be considered as first line therapy for intermediate-depth pediatric scald injuries.

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Panniculectomy with Simultaneous Ventral Hernia Repair: A Retrospective Analysis of Surgical Outcomes

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BACKGROUND: Panniculectomy (PAN) and ventral hernia repair (VHR) are major procedures that carry significant risk. In cases where both surgeries are indicated, there is limited evidence that addresses the safety of performing the two simultaneously. In this study, we investigated clinical outcomes associated with PAN and PAN with concomitant VHR over an eight-year period at a single institution.

METHODS: We used CPT codes to retrieve charts for patients who underwent panniculectomy from 2007–2014. Charts were reviewed for patient characteristics, hospital course, post-operative complications, and hospital readmissions. Chi-squared tests were used to compare unadjusted marginal differences for categorical variables, and Wilcoxon rank sum tests were used to compare continuous variables.

RESULTS: 58 patients underwent PAN alone and 41 underwent PAN+VHR. Cohorts were similar with a mean age of 46 and a mean BMI of 33.0. 13% of patients endorsed a current smoking history, and 52% had prior bariatric surgery. Mean length of follow-up was 7 and 15 months, respectively (p=0.23). PAN+VHR patients had an increased risk of cellulitis compared to PAN alone patients (29.3% vs. 10.2%; p=0.02), although risk of overall wound-related events was not increased (p=0.22). There was no significant difference in the risk of infection (p=0.56), dehiscence (p=0.13), seroma (p=1.00), or skin necrosis (p=0.16). PAN+VHR patients had an increased risk of related emergency room (ER) visit within 1 year of discharge (p=0.03), but risk of readmission within the same time frame was not increased (p=0.25). Among patients who underwent PAN+VHR, hernia size ≥16cm² was associated with an increased risk of 1-year ER visit (p=0.01) and hospital readmission (p=0.02). Additionally, PAN+VHR patients who underwent mesh repair had an increased risk of post-operative complication (p=0.02) and readmission (p=0.04).

CONCLUSIONS: In our study, patients who underwent PAN+VHR had an increased risk of cellulitis and related ER visit compared to patients who underwent PAN alone. While this discrepancy in outcomes certainly warrants consideration when evaluating patients for surgical candidacy, one must note that the magnitude of risk imparted by simultaneous VHR depends on individual comorbidities as well as hernia-specific characteristics such as size and complexity. Further investigations to include outcomes following VHR alone are indicated to evaluate the extent to which our findings might be attributed to VHR alone.

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Flaps and Lower Extremity Trauma: Differences in Flap Rates Across the United States

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INTRODUCTION: Open fractures with large soft tissue defects represent a challenging reconstructive problem.