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All offered training in masculinizing and feminizing chest reconstruction. Five provided training in both masculinizing and feminizing genital reconstruction (83%), whereas one fellowship provided training in neither. Strikingly, significantly more fellowships offered facial feminization training than facial masculinization (83% vs 33%, $p < 0.001$).

CONCLUSION: The creation of transgender surgery fellowships in plastic surgery reflects the growing demand for gender-affirming surgical training and provision. Although there is universal fellowship training in chest reconstruction, there are fewer learning opportunities for genital reconstruction and facial masculinization surgery.

TRACK: RESEARCH/TECHNOLOGY PAPER

Biomechanical Characterization of Human Normal Auricular and Microtia Cartilage

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PURPOSE: Advances in microtia reconstruction, including ear scaffolding and prosthesis, have a high failure rate due to the avascular nature of cartilage, loss of structure, and immunogenic reaction to foreign material.¹ Improvements in bioengineered materials and scaffolding have started to tackle these issues, but there is a noticeable gap in the microtia and auricular cartilage literature. Little testing has been performed on the biomechanical characteristics of microtia cartilage and how it compares to phenotypically normal auricular cartilage.²⁻⁴ Thus, we characterized the biomechanical properties of distinct sections of microtia cartilage relative to anatomical regions of normal adult auricular cartilage. We hypothesized that the biomechanical properties of microtia cartilage would be uniform throughout and not different from the healthy adult auricular cartilage.

METHOD: Healthy adult and juvenile microtia ear cartilage, initially stored at -80°C , were thawed at 4°C overnight and dissected at room temperature. For the adult normal cartilage, 3mm punch biopsies were taken from the concha, helix, anti-helix, tragus, anti-tragus, and scapha. For the microtia ears, 4mm punch biopsies were taken from the superior, middle, and inferior regions as topographical regions could be not appreciated. Creep indentation testing was performed to determine the compressive stiffness of the specimens. Using an automated system, an indenter tip (0.5mm for adult, 1mm for microtia) was applied to samples under various appropriate weights to achieve 10 - 15% strain within the tissue. A semi-analytical, semi-numerical, linear biphasic model and finite element analysis were used to obtain the aggregate modulus and shear modulus from the experimental data. Tensile properties were also measured. After samples were trimmed to form a dog-bone shape, they underwent uniaxial tensile strain at 1% gauge length per second until sample failure. Force data were normalized to sample cross-sectional area to generate a stress-strain curve from which tensile Young's modulus and ultimate tensile strength were obtained. The data was analyzed by using one-way ANOVA.

RESULTS: Our study found that the tensile and compression properties of the superior, middle, inferior regions of microtia tissue were not statistically different from each other ($p > 0.05$ for all measures). When comparing the tensile Young's modulus (5.26 MPa vs. 5.81 MPa), ultimate tensile strength (3.99 MPa vs. 3.46 MPa), aggregate modulus (154.2 kPa vs. 172.0 kPa), and shear modulus (80.6 kPa vs. 85.5 kPa) of the microtia ear to those of the adult ear, respectively, the upper portion of a healthy adult ear, including the helix and concha, was not significantly different than the microtia tissue. In contrast, the permeability of the microtia tissue (7.8 vs. 36.1 $10^{15} \text{m}^4/\text{N}\cdot\text{s}$) was significantly different than all regions of a healthy adult ear ($p < 0.05$).

CONCLUSION: These results have added to our understanding of microtia tissue and elucidated a possible relationship with specific regions of the healthy adult ear. We plan to combine biomechanical data with biochemical and histological data to form a more complete understanding of microtia tissue and normal auricular cartilage.

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TRACK: PRACTICE MANAGEMENT

Review of Outpatient Aesthetic Surgery Complications

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PURPOSE: In recent years, the demand for aesthetic surgery has increased with procedures like gluteal enhancement gaining popularity.¹ Knowledge of adverse effects that may occur following these surgical interventions is critical in evaluating their associated risks and overall safety.² Many patients undergo these procedures in outpatient settings and are later admitted on an emergent basis to the hospital with a variety of potentially life-threatening complications. This is often the result of inadequate postoperative monitoring or care.³ The goal of this study is to review the data on complications related to outpatient aesthetic surgical procedures in order to characterize the scope of the issue and generate recommendations for improved postoperative monitoring and care.

METHOD: A retrospective chart review from June 2021 to February 2022 of patients presenting to the emergency department following complications from outpatient aesthetic procedures. Variables collected include procedure type, time elapsed since surgical procedure, hospital length of stay,

ICU length of stay, number of ventilator days, number of blood transfusions, number of operative interventions, mortality, diagnosis, complications, and discharge disposition.

RESULTS: A total of 37 patients met inclusion criteria. The age range of the patient population was 23 to 55 (average age 35). All patients were female. The average number of days since surgery was 4.5, (range: 0 to 35 days) and the average hospital length of stay was 4.7 (range: 0 to 9 days). Six patients were admitted to the ICU for an average of 2.17 days and no reported ventilator days. Nineteen patients received blood transfusions, averaging 1.89 units of blood. Three patients underwent operative interventions. Thirty-five patients were discharged home, of which one required home health services and one left against medical advice. Two patients were discharged to a rehabilitation center or acute care hospital. Liposuction and gluteal augmentation 'Brazilian Butt Lift' (BBL) had the highest rate of complications, accounting for 37.94% of procedures. This was followed by combined liposuction, abdominoplasty, and BBL (16.22%), liposuction (10.82%), abdominoplasty (8.12%), and combined liposuction, abdominoplasty, and breast augmentation (5.41%). Overall, the most common complication was anemia due to postoperative acute blood loss, occurring in 72.98% of patients as well as in all cosmetic procedures involving gluteal augmentation (BBL). This was followed by acute post-surgical pain (56.75%), syncope/near syncope episodes (35.14%), hypovolemia (35.14%), sepsis (18.92%), wound drainage (18.92%), infection (16.22%), cellulitis (13.51%), and wound dehiscence (10.81%). Less common complications include but are not limited to dyspnea, abnormal liver function, acute respiratory failure, and surgical site hematoma, each occurring in 5.41% of patients. Systemic complications were more common in procedures involving liposuction with and without combined BBL procedure.

CONCLUSION: These results bring into focus the potentially life-threatening complications that outpatient aesthetic surgery patients incur, with the highest rates of complications occurring in liposuction and BBL procedures. Examining common complications following these procedures can provide insight for healthcare providers and lead to the reduction of adverse outcomes. These findings also underscore the need for appropriate and necessary post-operative patient monitoring and follow-up care after ambulatory aesthetic surgery.

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