43. LONG-TERM OUTCOMES FOLLOWING FREE VASCULARIZED FIBULA PHYSEAL TRANSFER FOR PROXIMAL HUMERUS ONCOLOGIC RECONSTRUCTION IN CHILDREN: AN INTERNATIONAL MULTI-INSTITUTIONAL STUDY

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PURPOSE: Vascularized fibula epiphyseal flap was first described in 1998 for proximal humeral reconstruction in children/infants. The authors aim to review their international, multi-institutional long-term outcomes.

METHODS: An international, multi-institutional review (2004-2020) was conducted of patients <18 years of age undergoing free vascularized fibula epiphyseal transfer for proximal humeral reconstruction. Donor/recipient site complications, shoulder motion, pain, and final ambulatory status were reviewed. Growth of the transferred bone was assessed under the guidance of a pediatric musculoskeletal radiologist.

RESULTS: Twenty-seven patients were included with a median age of 7 years (range 2-13 years). Average follow-up was 120 ± 87.4 months. There were two flap failures (7.4%). Recipient site complications included fracture (n=11, 40.7%), avascular necrosis of the fibula head (n=1, 3.7%), fibular head avulsion (n=1, 3.7%), infection (n=1, 3.7%), hardware failure (n=1, 3.7%). Operative fixation was necessary in one patient with a fracture. The case of infection necessitated fibula explantation 2 years post-operatively, and ultimately prosthetic reconstruction. Sixteen patients suffered peroneal nerve palsy (59.3%): thirteen of these cases resolved within a year (81% recovery), and 3 were permanent. One patient (3.7%) complained of upper extremity pain. Longitudinal growth was confirmed in all but 3 cases (n=24, 88.9%) at an average rate of 0.83 ± 0.25 cm/year.

CONCLUSION: The vascularized fibula epiphysis for proximal humerus reconstruction in children preserves the potential for future growth and an articular surface for motion. Peroneal nerve palsy is common following harvest, although this is often transient. Future efforts should be geared towards reducing post-operative morbidity.

44. ASSOCIATION BETWEEN VENOUS THROMBOEMBOLISM RATES AND DIFFERENT PROPHYLACTIC ANTICOAGULATION REGIMENS IN PATIENTS UNDERGOING FREE FLAP RECONSTRUCTION OF THE HEAD AND NECK REGION

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PURPOSE: Venous thromboembolism (VTE) is a life-threatening complication seen in 1.4% to 5.8% of patients after free tissue transfer to the head and neck (H&N) region. There is no conesus on the optimal chemoprophylaxis regimen. Enoxaparin 30 mg twice daily (BID) and heparin 5000 units three times daily (TID) are among the most common. The aim of this study was to compare the 30-day VTE and bleeding rate after surgery among these two different prophylaxis regimens.

METHODS: The population included in this retrospective cohort study are patients who underwent H&N reconstruction with free tissue transfer. Patients received either enoxaparin 30 mg BID (group A) or heparin 5000 units TID (group B) for venous thromboembolism prophylaxis. VTE and hematoma that required surgical intervention within 30 days of surgery were retrospectively recorded. Statistical analysis was performed using chi-square and T-tests.

RESULTS: 737 patients were included. The mean Caprini score was 6.45±1.65. VTE and hematoma evacuation rates

among all patients were 4.5% and 5.6%, respectively. The mean Caprini score between groups A (n=664) and B (n=73) was not statistically significant (6.47±1.68 vs. 6.32±1.34, p=0.457). VTE rates in group A were significantly lower than B (3.9% vs. 9.6%, p= 0.026). The difference in hematoma rates between the two groups failed to reach statistical significance (5.6 vs. 5.5, p= 0.974).

CONCLUSION: Enoxaparin 30mg BID achieved significantly lower VTE rates compared to heparin 5000 units TID, while maintaining similar postoperative bleeding rates.

45. UNVEILING THE MYSTERIES OF THE CHIMERA FLAP AFTER ALMOST A SEMICENTENNIAL

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PURPOSE: The term "Chimera Flap" was "coined" by this presenter long ago. Only now has it become accepted as an unique entity. The personal impact of this concept over the past decades has never before been tabulated, so this review now would be appropriate to ascertain its true validity.

METHODS: A chart review of all local muscle and fasciocutaneous/perforator flaps and all free flaps utilized within this private practice from 1982-2021 was undertaken to reveal the actual frequency of selection of a Chimera flap, its composition, and intent.

RESULTS: In this practice, a chimera flap was used in 11 of 1685 local flaps (0.7%) and 55 of 1108 free flaps (4.9%), or (2.4%) of all flaps. Of these 66 flaps, a muscle-skin combination was used in 30(45.5%), muscle-muscle 24(33.6%), skin-bone 7(10.6%), and skin-skin 5(7.6%). The predominant recipient region was the lower extremity [36(54.50%)]. Overall, most permitted surface area augmentation [26(39.4%)] or independent component insetting such as "fill" [25(37.9%)], followed by 3-dimensional reconstructions in 12(18.2%).

CONCLUSION: Since the advent of the "true" perforator flap, indigenous muscle-skin combinations have become more common since readily available. Most commonly these were employed as microsurgical tissue transfers where an added advantage was that only a single recipient site was needed to service multiple flaps relying on but a single donor site. Chimera flaps are exceptional for enhancing coverage capabilities as well as simultaneous independent 3-dimensional insetting. However, most routine problems can be more simply solved, as the Chimera flap has only infrequently been required.

46. MICROSURGICAL BREAST RECONSTRUCTION CLINICAL OUTCOMES IN THE COVID-19 ERA

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PURPOSE: COVID-19 has led to major disruptions in plastic surgery care. Microsurgical breast reconstruction has arguably been affected the most as the procedure is subject to COVID-19 elective surgery bans and often competes for limited intensive care unit beds and nursing staff. Additionally, hypercoagulopathy and vasculitis are known manifestations of COVID-19, which can increase risk for microsurgical vessel anastomosis failure. This study seeks to determine if the COVID-19 pandemic has led to poorer clinical outcomes in microsurgical breast reconstruction due to limited healthcare resources or complications of COVID-19 infection.

METHODS: A retrospective, multi-institutional study was conducted using the TriNetX research database, which includes de-identified patient records from 55 healthcare organizations across the United States. Clinical outcomes from microsurgical breast reconstruction patients who had any history of COVID-19 infection and underwent surgery from 3/11/2020-7/31/2021 were compared with a historical control of microsurgical breast reconstruction patients who underwent surgery from 3/11/2018-7/31/2019.

RESULTS: 1309 patients had a history of COVID-19 infection and underwent microsurgical breast reconstruction; 2195 patients were included in the historical control. COVID-19 breast reconstruction patients were found to have a higher risk of re-operation within 30 days (OR1.57, p<0.01), vascular complications/flap failure (OR1.52, p=0.02), need for additional vascular procedures (OR1.74, p=0.02), wound dehiscence (OR1.34, p=0.01), and need for revision wound closures (OR2.22, p<0.01). No significant differences were found in venous thromboembolism/pulmonary embolism, infection, and hematoma/seroma between the two groups.