Of all patients, 17.7% were on chronic anticoagulation, 94% had neoadjuvant radiation therapy, 3.4% had adjuvant radiation therapy, 80.2% had neoadjuvant chemotherapy, and 27.2% had adjuvant chemotherapy. Mean intraoperative radiation dose was 12.1 Gy (SD 2.3). Median hospital length-of-stay was 7 days (Q1–3: 5–13); median follow-up length was 16.4 months (Q1–3: 4.5–42.2). Primary tumor included colorectal (52.9%), reproductive system (15.6%), and extremity (17.2%). In total, 91.8% of patients had one flap reconstruction and 8.9% had two flaps. Flap types included omental flaps (n = 112), vertical rectus abdominis muscle flaps (n = 61), rotational or advancement flaps (n = 16), pedicled gracilis flaps (n = 8), pedicle gastrocnemius flaps (n = 9), and free flaps (n = 7).

Even though several perioperative complications were reported, 91.4% of reconstructions were successful. Various infectious problems accounted for a total of 60.6% of patients. Complications included abscess (26.6%), wound infection requiring debridement (22.5%), seroma (12.3%), necrosis (12.7%), cellulitis (11.5%), hematoma (7.4%), and full-thickness wound dehiscence (7.8%). Of all patients, 4.3% had intraoperative bleeding that required blood transfusion, 19% had postoperative bleeding, and 9% had thromboembolic events. Of all flaps, 27.2% required unplanned surgical re-intervention and 7.3% required postoperative hyperbaric oxygen therapy. When comparing extremity with abdominal flap reconstructions, extremity reconstructions were associated with higher odds of developing cellulitis (OR 1.4 (1.4–140.9), \( P = 0.003 \)). Multiple variables analysis showed that obesity was associated with an increased risk of developing wound infection that required debridement (OR 1.93 (1.02–3.64), \( P = 0.04 \)).

CONCLUSIONS: Flap reconstruction is safe and effective for coverage of oncological defects in patients receiving intraoperative radiotherapy. Postoperative antibiotics beyond the usual 24-hour period should be considered. Careful selection of patients is critical to achieve the best outcomes possible.

Prophylactic Lymphovenous Anastomosis Performed during Complete Lymphadenectomy Does Not Increase Risk of Distant Metastasis

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**BACKGROUND:** Lymphovenous bypass (LVB) is the preferred surgical treatment for extremity lymphedema after complete lymph node dissection (CLND). Prophylactic LVB is most frequently performed after CLND for malignancies including breast, gynecologic, and skin cancers. A serious concern with LVB is facilitation of cancer metastasis.

**PURPOSE:** The purpose of this study was to compare rates of distant-metastasis free survival (DMFS) and relapse-free survival (RFS) between patients who underwent LVB during CLND for grossly metastatic disease and patients who underwent CLND only. To our knowledge, this is the first prospective study to evaluate the impact of prophylactic LVB on DMFS and RFS in cancer.

**METHODS:** This is a prospective review of skin cancer patients who underwent axillary/inguinal CLND with or without LVB, between 2014 and 2020. To reduce inter-surgeon differences, all cases were performed by a single, high-volume surgeon at a tertiary hospital. Patients were excluded if they had non-melanoma cancers, stage IV disease before CLND, or follow-up time <180 days. Each LVB patient matched with a control patient based on follow-up times and cancer stage. Collected data include patient demographics, recurrence rate, immunotherapy status, and follow-up time.

**RESULTS:** A total of 79 patients were reviewed. Fifty-two patients had various skin cancers and underwent prophylactic LVB after CLND (LVB group). Among all LVB patients, 42 had melanomas, and among them, 27 met inclusion criteria. Likewise, 27 patients who underwent CLND only (control group) were also included in this study. The two groups were similar in age, sex, follow-up time, and total nodes removed during CLND. Follow-up times were on average 16.24 ± 6.92 and 18.14 ± 9.41 months for the LVB and control groups, respectively (\( P = 0.21 \)). Average number of lymph nodes removed during CLND were 16.41 ± 9.57 and 17.46 ± 15.43 in the LVB and control groups, respectively (\( P = 0.71 \)). The LVB group had larger metastatic tumors in lymph nodes at 36.05 ± 40.91 mm compared with the control group at 4.40 ± 7.22 mm (\( P = 0.0021 \)). The LVB group had lower rates of lymphedema at 41% compared with the control group at 85% (\( P = 0.0007 \)).

There were no differences in DMFS (\( P = 0.26 \)) and RFS (\( P = 0.21 \)) between the LVB and control groups based on Kaplan-Meier curves of survival outcomes within 1.5 years (547 days) of treatment. Melanoma recurrence rates were 48% in the LVB group and 37% in the control group.
Immunotherapy usage was more common in the LVB group at 92.59% compared with the control group at 59.26% ($P = 0.0042$). Rates of failed immunotherapy (ie, melanoma progression or recurrence during treatment) were 56% and 50% for the LVB and control groups, respectively ($P = 0.71$). Patients who failed immunotherapy had higher rates of melanoma recurrence at 86.36% than patients who did not at 26.32% ($P < 0.0001$).

**CONCLUSIONS:** Prophylactic LVB during CLND does not impact DMFS and RFS in melanoma, which is potentially applicable to all cancers considering the extremely aggressive nature of melanoma. LVB is highly efficacious in treating lymphedema, especially given that the LVB group had considerably larger tumors in affected lymph nodes.

**Predicting Microvascular Thrombotic Complications with Thromboelastography and Platelet Mapping: A Preliminary Investigation**

**Presenter:** Jiaxi Chen, MD

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**PURPOSE:** Recent technical refinements in free-tissue transfer (FTT) have significantly decreased the incidence of complications, yet thrombosis persists as the leading cause of flap failure. Thromboelastography (TEG) analyzes the viscoelastic properties of blood and the addition of platelet mapping provides a comprehensive analysis of a patient’s coagulation potential and postoperative aspirin efficacy. Because aspirin is the most ubiquitous choice for postoperative anticoagulation, evaluating for potential factor contribution to persistent hypercoagulability is paramount. This prospective pilot study utilizes TEG to evaluate perioperative anticoagulation efficacy in patients undergoing FTT as well as predictive parameters for patients with thrombotic complications.

**METHODS:** 27 consecutive patients with FTT underwent TEG analysis pre- and postoperatively at standardized time points. All patients received postoperative subcutaneous heparin and oral aspirin, and patients with thrombosis additionally received a heparin bolus followed by non-nomogram IV heparin. Two-sample $t$-tests were conducted for all parameters. Primary assessment included (1) adequate antiplatelet efficacy with aspirin postoperatively and (2) inadequately treated factor contribution in thrombotic versus nonthrombotic patients to assess significance in TEG’s predictive value.

**RESULTS:** Twenty-seven patients underwent FTT (19 DIEP/ms-TRAM, 3 RFFF, 3 FFF, 1 ALT, 1 LD) from February 2020 to October 2020. Mean age was 56.1 years, mean BMI was 25.1 kg per m$^2$, 19 patients were women, 18 patients identified as non-Hispanic White, and 20 patients had private health insurance. Four patients developed intraoperative anastomotic thrombosis with one patient requiring an additional operative return on postoperative day 2. Compared with control cohort of patients who did not develop thrombosis, the thrombotic patients had statistically significant preoperative TEG values: (1) decreased SP time ($P < 0.04$), (2) decreased R time ($P < 0.04$), (3) decreased K value ($P < 0.05$), and (4) decreased LY30 ($P < 0.001$). Please refer to Table 1 for comparison in detail. In the patient who required additional operative intervention, the postoperative TEG revealed platelet inhibition of 79.1%, revealing inadequate aspirin effects despite prophylactic dosing.

**CONCLUSIONS:** TEG represents a breakthrough innovation that could provide treatment-specific, predictive information regarding the hypercoagulability of patients receiving FTT. Our series demonstrates that patients with thrombotic complications exhibited derangements in their blood’s coagulation detectable by TEG. Preoperative presence of factor or platelet hyperactivity accurately predicted thrombotic complications. Although these patients all received post-thrombotic heparin, prospective analysis reliably predicted the need for anticoagulation and antiplatelet therapy as well. Further, the postoperative TEG analysis can evaluate efficacy of antiplatelet therapy. Overall, this study underscores the value of TEG analysis in providing a patient-specific approach to pharmacologic anticoagulation to reduce thrombotic complications.

**Cryopreserved Allogeneic Adipose Improves Neo-dermal and Epidermal Thickness after Burns**

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