CONCLUSION: This small, retrospective series of complex open CST in patients after liver or kidney transplantation shows an acceptable long-term hernia recurrence rate and overall healing rate. By using a multidisciplinary approach and plastic surgery techniques for abdominal wall reconstruction, we believe that open CST with biologic mesh is a safe and effective technique in the transplant population with abdominal hernias.

Soft Tissue Reconstruction after Concomitant Vertebrectomy and Chest Wall Resection for Spinal Tumors

Presenter: Alexander Francis Mericli, MD

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PURPOSE: Oncologic resections involving both the spine and chest wall commonly require immediate soft tissue reconstruction to obliterate dead space, protect hardware, and separate the intrapleural space and exposed spinal cord with well-vascularized tissue. Considering the increased magnitude of defects involving both the thoracic spine and chest wall, we hypothesized that these patients would have an increased complication rate compared to patients with defects of the thoracic spine alone. Additionally, we hypothesized that among the patients with spine and chest wall defects, those with muscle flap separation of the intrapleural space and spinal cord would have fewer complications.

METHODS: We performed a retrospective review of prospectively-maintained data at a single center, identifying patients who underwent immediate reconstruction of thoracic spine wounds between 2006 and 2016. Patients were separated into two cohorts for comparison: resections limited to the thoracic spine (TS) and those also involving the chest wall (TS+CW). Surgical complications included wound infection, seroma, hematoma, skin edge separation, cerebrospinal fluid leak, hardware exposure/loss, and flap loss. Medical complications included pneumonia, venous thromboembolism, cardiac event, and neurologic event.

We performed both univariate and multivariate logistic regression analyses to identify patient and surgical factors that were predictive or protective of postoperative complications.

RESULTS: One-hundred patients were identified, 53 in the TS group and 47 in the TS+CW group. Mean follow up was 35 months and was equivalent between the two cohorts (38.5 months for TS+CW vs. 28.8 months for TS; p=0.35). Preoperative comorbidities were similar in both groups. Metastatic disease was more common for TS versus TS+CW patients (88.7% versus 38.3%;p=0.001). TS+CW patients were younger (48.7 vs. 58.2 years;p=0.001) and more frequently required: removal of two or more adjacent vertebra (70.2% vs. 17%;p=0.001), instrumentation of greater than 6 vertebral levels (76.6% vs. 26.4%;p=0.001), pleural space entry (87.2% vs. 3.8%;p=0.001), use of more than 3 flaps (74.5% vs. 43.3%;p=0.002), and postoperative mechanical ventilation (55.3% vs. 17%;p=0.001). Univariate and multivariate logistic regression analyses showed no difference between the two cohorts in surgical complications, complication requiring reoperation, or medical complications. However, mean 3-year survival was greater in the TS+CW group: 41.2% versus 23%. Subset analysis of the TS+CW group demonstrated that TS+CW patients that received muscle flap separation of the spinal cord from the intrapleural space developed fewer seromas (4.2% vs. 26.1%;p=0.04) and fewer overall complications (50% vs. 82.6%;p=0.03).

CONCLUSION: Despite the added morbidity of the resection and reconstruction of TS+CW defects, there is no increase in complications compared to TS patients. For TS+CW reconstructions, we advocate for separation of the intrapleural space and the spinal cord with a muscle flap, as this resulted in significantly fewer seromas and overall complications.

BREAST SESSION 3

Are 30 Day Outcomes Enough? Late Infectious Readmissions Following Prosthetic-Based Breast Reconstruction

Presenter: Melody Scheefer, MD

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**PURPOSE:** Surgical-site infection is a major concern in prosthetic-based breast reconstruction. Some infections are mild, resolving with outpatient antibiotic treatment, and others are more severe, requiring hospital readmission for treatment with IV antibiotics. Explant of the tissue expander or implant is one of the most feared complications. Thirty-day postoperative readmission rates are a common quality metric, but little is known about readmission rates for later infection after prosthetic-based breast reconstruction. We used the Nationwide Readmissions Database (NRD) to determine the rates and predictors of early and late hospital readmissions associated with infection and explantation after prosthetic-based breast reconstruction.

**METHODS:** Using the 2013–2014 NRD, we identified breast cancer patients undergoing prosthetic-based breast reconstruction (implants and tissue expanders) who had an infectious readmission within 90 days following their procedure using ICD-9 diagnosis and procedure codes. We used univariate and multivariate logistic regression models to identify patient demographics, comorbidities, and hospital predictors of infectious readmission and explantation within the early (0–30 day) and late (31–90 day) postoperative time-periods.

**EXPERIENCE:** In a weighted sample of the NRD, we identified 18,339 patients who underwent prosthetic-based breast reconstruction from 2013–2014. We identified patients who had an infectious readmission within 0–90 days of their index procedure.

**RESULTS:** The overall infectious readmission rate for this group was 4.1% (n=759 patients). Only 49.3% of such readmissions occurred within the initial 30 days after surgery, and 50.7% occurred 31 - 90 days after surgery. Of those admitted for infection, 39.5% (n=300 patients) had their implant or tissue expander explanted. Most explantations occurred during late readmissions (55.1%). Median annual household income <$40,000 (OR 1.44, p=0.030), diabetes (OR 1.52, p=0.040), obesity (OR 1.70, p=0.004), and length of stay during the index procedure (OR 1.07, p=0.045) were independent predictors of overall infectious readmissions. No statistically significant predictors for implant or tissue expander explantation were identified.

**CONCLUSION:** Late hospital readmissions for infections in the setting of prosthetic-based breast reconstruction are common. Traditional thirty-day readmission rates may not be an adequate quality metric for breast reconstruction given the number of late postoperative readmissions, many of which lead to explantation. Early and late infectious readmissions have different predictors, and further work finding interventions that target these predictors may decrease the number of readmissions, saving cost while improving quality for both the patient and the healthcare system.

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**Animation Deformity in Breast Reconstruction Patients: A Quantitative Analysis of Nipple Displacement and Patient Reported Outcomes**

**Presenter:** Cecil S. Qiu, BA

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**PURPOSE:** Animation deformity, characterized by suprolateral displacement of the implant with contraction of the pectoralis major muscle, is a complication of reconstructive breast surgery with submuscular implants. Severe cases may warrant corrective surgery. While subjective classification systems have been proposed, there is a paucity of quantitative approaches for assessing animation deformity. We endeavored to develop a reproducible, clinically relevant, quantitative model for grading animation deformity.

**METHODS:** Patients of the senior author presenting for prosthetic breast reconstruction follow-up between April 2017 and February 2018 were recruited for this study. Patient videos and still images were taken at rest and with pectoralis contraction, and nipple position and skin puckering were quantitatively assessed using ImageJ. The degree of nipple displacement and skin puckering for each patient