METHODS: We performed a retrospective analysis of clinical and cost data from ReSurge International, a non-profit organization providing plastic and reconstructive surgical care in LMICs. Using both the clinical and cost data, we conducted a (1) cost-effectiveness and (2) cost-benefit analysis to examine the economic sustainability of the interventions. We used WHO-CHOICE thresholds to evaluate the cost-effectiveness of the interventions. We assigned a disability weight for each surgical case to calculate disability-adjusted life years (DALYs). The cost-effectiveness was reported as cost per DALY-averted. This represents the cost to avert a particular amount of disability. Additionally, we stratified cost-effectiveness by procedure type. We adopted a value of a statistical life year approach to cost-benefit analyses to calculate the economic benefit.

RESULTS: We examined data from 22 mission trips performed between 2015 and 2017. We analyzed a total of 778 surgical cases performed in eight different countries. Procedures performed included orofacial cleft repair (28%), burn contracture release (25%), eye ptosis repair (12%), excision for abnormal soft-tissue masses (13%), and other reconstructive surgeries (22%). The cost per DALY-averted for each trip ranged from USD$57-$11,364 and was less than three times the GDP per capita in the host country. Thus, according to WHO-CHOICE thresholds, all of these interventions are considered cost-effective or very cost-effective. When separating the procedures, orofacial cleft repair was the most cost-effective (cost per DALY-averted: USD$31). The net economic benefit ranged from USD$66,740 to $16,046,027 for each trip. The total net economic benefit of plastic surgical outreach trips was USD$118,778,585.

CONCLUSION: Plastic surgery is economically sustainable in a resource-limited setting. These results indicate a substantial economic benefit of mission trips, indicating a return on investment for surgical procedures performed in LMICs. Furthermore, this study highlights the importance of adherence to a standardized checklist to collect data on mission trips performed in LMIC to provide a comprehensive framework to assess the health and economic impact of surgical mission trips in the future.

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The Utility of Open Component Separation with Biologic Mesh in the Transplant Population with Complex Abdominal Hernias

Presenter: Cara Black, BA

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BACKGROUND: Incisional hernia is a common complication following visceral organ transplantation. Transplant patients are at increased risk of primary and recurrent hernias due to chronic immune suppression. Repair of these hernias is further complicated by multiple previous laparotomies. In addition, hernias from transplants occur in non-midline incisions such as large Mercedes, subcostal incisions or the pelvic “Gibson” incision used for kidney transplants. We conducted a retrospective review of transplant patients who underwent recurrent hernia repair to analyze outcomes and hernia recurrence.

METHODS: This is a single center, retrospective, review of patients presenting to MedStar Georgetown University hospital from 2010–2017. All patients had received either kidney or liver transplantation prior to presenting with an incisional hernia. All hernias were repaired with open component separation (CST) with biologic mesh underlay technique.

RESULTS: The mean age of patients was 60 yrs old (±8.3), with a mean BMI of 28 (±5.9), 13 males (81%), and 3 females (19%). There were 9 liver transplant patients and 6 kidney transplant patients. Hypertension was the most common comorbidity (12 patients, 75%), followed by diabetes (8 patients, 50%), and hyperlipidemia (6 patients, 38%). Mean prior surgeries were 1.6 per patient, including 5 patients with prior incisional hernia repairs. All patients underwent open CST with biologic mesh underlay and primary fascial approximation. Complications were experienced by 4 patients (25%) including 1 hematoma, 1 seroma, and 2 hernia recurrences (12.5%) at long term follow up. There were no infections. All patients ultimately healed at a mean time of 28 days.
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.

**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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