A) No Reconstruction, B) Skin-Only, C) Fat-Only, D) Immediate-Skin, Delayed-Fat, or E) Immediate-Fat, Delayed-Skin. Treatment pigs with Group E wounds then received either 1) Empty Microspheres or Dexamethasone as follows 2) Continuous/Sustained, 3) Immediate-Pulsed, 4) Delayed-Pulsed, or 5) Bimodal-Pulsed. At 8 weeks post-engraftment animals were sacrificed and all wounds were collected for photography, ultrasound, histology and serum studies.

RESULTS: Fat-first reconstruction minimizes adhesions soft-tissue deficits, however, is limited by rapid early contracture which was mitigated by the skin-first approach. Early dexamethasone blocks contracture, however, sustained dosing limited skin graft take. Pulsed-dosing was permissive of skin grafts in the drug elution nadir. Combination fat-first with pulsed-dexamethasone resulted in significant reduction in adhesion, soft-tissue deficit, and contracture vs. skin-first approaches.

CONCLUSION: Here we demonstrate augmentation of a fat-first approach by timed-release dexamethasone to safely mitigate contracture, adhesion, and soft-tissue deficits vs. current reconstructive standards for complex burn wounds.

PC23. PEDIATRIC OMPHALOCOELE REPAIR: A 26-YEAR SINGLE SURGEON CONSECUTIVE CASE SERIES

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PURPOSE: The purpose of this study was to analyze long-term outcomes following pediatric omphalocele repair.

METHODS: A retrospective review was performed of all consecutive subjects undergoing pediatric omphalocele repair between 1994 and 2019. The standardized treatment plan involved neonatal mesh repair for smaller defects (<5 cm) and staged reconstruction with tissue expansion and mesh reinforced fascial repair for larger defects (>5 cm).

RESULTS: Forty-one subjects were included. Nearly half (46.3%) presented with cardiac anomalies. Fascial defect size was >5 cm in 73.3% of subjects with a median defect area of 114.5 cm² (interquartile range: 60, 200). Median age at expander placement was 4.1 years [0.7, 7.5] with median time from placement to fascial repair of 249 days [149, 3,902]. An average of 2 expanders were utilized with total fill volume of 305 mL [250, 500]. Anterior component separation was utilized in 27.8% of subjects while 83.8% underwent primary fascial closure. Length of ICU and hospital stay averaged 3 days [0, 9.5] and 19 days [12, 40], respectively. Median follow-up was 3.6 years (range: 0.1, 17.9). There were 5 subjects who developed expander-related complications including infection/extrusion. Complications following fascial repair included cardiac arrest (n=1), abdominal compartment syndrome (n=2), delayed healing (n=2), mesh exposure (n=2), and mortality (n=1). The recurrence and re-operative rates were 4.9% (n=2) and 12.8%, respectively.

CONCLUSION: Reconstruction of large omphalocele defects using tissue expansion and mesh implantation offers a durable solution, with low recurrence. Although rare, families should be counseled regarding potential devastating complications in this high-risk group.

PC24. COMPARISON OF BILATERAL GLUTEAL ARTERY PERFORATOR FLAPS TO VERTICAL RECTUS ABDOMINIS MUSCULOCUTANEOUS FLAPS IN RECONSTRUCTION OF PERINEAL WOUNDS

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PURPOSE: Achieving a healed perineal wound following chemoradiotherapy and abdominoperineal resection (APR) is challenging for surgeons and patients. Prior studies have shown trunk-based flaps; including vertical rectus abdominis myocutaneous flaps (VRAM), are superior to both primary closure and thigh-based flaps, however there has been no direct comparison to gluteal fasciocutaneous flaps. This study evaluates postoperative complications after various methods of perineal flap closure of APR and pelvic exenteration defects.

METHODS: Retrospective review of patients who underwent APR or pelvic exenteration from April 2008-September
2020 was analyzed for postoperative complications. Flap closure techniques including VRAM, unilateral (IGAP), and bilateral (BIGAP) inferior gluteal artery perforator fasciocutaneous flaps were compared.

RESULTS: 116 patients were included, majority underwent fasciocutaneous (BIGAP/IGAP) flap reconstruction (n=69, 59.6%), followed by VRAM (n=47, 40.5%). There were no significant differences between group patient demographics, comorbidities, BMI, or cancer stage. There were no significant differences between BIGAP/IGAP and VRAM groups in minor complications (57% versus 49%, p=0.426) or major complications (45% versus 36%, p=0.351) including major/minor perineal wounds. BIGAP/IGAP group had shorter length of stay compared to VRAM group, this did not reach significance (10.81 versus 16.89 days, p=.120).

CONCLUSION: Prior studies have shown flap closure is superior to primary perineal closure after neoadjuvant radiation, but lack consensus on which flap offers superior post-operative morbidity. This study comparing outcomes of perineal flap closure showed no significant difference in post-operative complication rates. Fasciocutaneous flaps are an excellent choice for perineal reconstruction due to their ease of elevation and low donor site morbidity.

PC25. BIOLOGIC VERSUS SYNTHETIC MESH FOR CHEST WALL RECONSTRUCTION: A SYSTEMATIC LITERATURE REVIEW

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PURPOSE: There is no consensus on mesh selection for chest wall reconstruction between rigid synthetic materials designed to maintain pulmonary function versus elastic biologic meshes with a favorable surgical healing profile. Few adequately-powered studies have directly compared these materials in chest wall reconstruction prompting a systematic comparison of pulmonary and surgical site healing outcomes between the two groups.

METHODS: A systematic review protocol submitted to Prospero investigating chest wall reconstruction articles using either synthetic or biologic mesh for the reconstruction of chest wall defects was performed and patients with both surgical wound healing and pulmonary outcomes data were analyzed for the coverage period 1995-2020. Patient demographics, surgical descriptive information, and post-operative outcomes were analyzed.

RESULTS: Thirty-seven studies were included, with 287 patients with biologic mesh placement and 551 patients with synthetic mesh. The biologic group exhibited lower rates of surgical site seroma (2.4% vs. 5.0%; p=0.041), reoperation (3.1% vs. 7.8%; p=0.011) explantation (0.7% vs. 5.4%; p=0.001) and overall surgical site complications (13.6% vs. 20.3%; p=0.031). Of the pulmonary outcomes evaluated, the biologic mesh group had less paradoxical chest wall movement (0% vs. 2.4%; p=0.009), and atelectasis (0% vs. 2.2%; p=0.013) with no difference in overall respiratory complication rate. Total respiratory and surgical complication rate (18.9% vs. 28.4%; p=0.009) was significantly lower for the biologic group.

CONCLUSION: A review of published clinical chest wall reconstruction outcomes shows lower overall surgical site complication rate, re-operation and mesh explantation with biologic mesh compared to synthetic mesh usage without compromising pulmonary outcomes.

PC26. PEDIATRIC DOG BITE INJURIES: A 5-YEAR NATIONWIDE STUDY OF OVER 56,000 PATIENTS

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PURPOSE: Dog bites encompass a high percentage of pediatric ED visits, with little epidemiological data reported. This study aims to explore nationwide incidence of pediatric dog bites and assess risk factors for specific injury patterns.

METHODS: A retrospective cohort study was conducted of pediatric dog bite injuries in the United States from 2015-2020 referencing the Pediatric Health Information System database. Patient characteristics, anatomic distributions, and intervention rates were analyzed.

RESULTS: 56,106 patients were included, majority male (55.1%) with a median age 6.8 years. Incidence cycled seasonally, with peaks in July (median=1,217) and nadirs in February (median=760). A significant increase was seen per overall