for assessment. Future directions of this work include longitudinal analyses of patient outcomes after FFS.

Impact of Obesity on Outcomes of Panniculectomy and Abdominoplasty: An ACS-NSQIP Analysis

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**INTRODUCTION:** Obesity is a modifiable risk factor for complications after panniculectomy and abdominoplasty. The purpose of this study was to evaluate the association of body mass index (BMI) with complications after abdominal reconstructive surgery, using the National Surgical Quality Improvement Program (NSQIP) database.

**METHODS:** In a retrospective review of the NSQIP from 2013 to 2019, adult patients who underwent panniculectomy with or without abdominoplasty were included. In total, 78 patients with missing BMI were excluded. Procedures were categorized to panniculectomy alone or combined. Obesity was considered as BMI ≥ 30 kg per m². We made composite variables for 30-day any complication, wound complications (surgical site infections, wound disruption, and bleeding), and major complications (all complications except urinary tract infection and superficial wound infection). Regression analysis was used to identify the independent effect of obesity on the outcome, which was reported as odds ratio (OR).

**RESULTS:** An estimated 14,313 patients were studied (mean age 46.3 ± 12, 89.2% women). In total, 5457 patients (38.1%) had both panniculectomy and abdominoplasty were included. In total, 78 patients with missing BMI were excluded. Procedures were categorized to panniculectomy alone or combined. Obesity was considered as BMI ≥ 30 kg/m². We made composite variables for 30-day any complication, wound complications (surgical site infections, wound disruption, and bleeding), and major complications (all complications except urinary tract infection and superficial wound infection). Regression analysis was used to identify the independent effect of obesity on the outcome, which was reported as odds ratio (OR).

**CONCLUSIONS:** Obesity is an independent predictor of complications after abdominal reconstructive surgery. Complications including wound complications are more in the obese patients. Weight loss strategies should be considered in obese patients (BMI ≥ 30 kg/m²) who consider abdominal reconstruction.

Surgical and Nonsurgical Factors Associated with Salvaging Exposed VEPTR Hardware

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**BACKGROUND:** Vertical expandable prosthetic titanium rib (VEPTR) devices were designed to treat childhood scoliosis and thoracic insufficiency syndrome, but present a profound subcutaneous hardware burden. It remains unknown whether certain wound locations or systemic risk factors affect navigation of the reconstructive ladder in these children. The purpose of this study was to examine surgical and nonsurgical factors associated with soft tissue reconstruction to allow devices to remain implanted and enable continued rod expansions and promote ongoing chest wall growth.

**METHODS:** Between 2014 and 2020, a prospective institutional database was queried for patients with VEPTR hardware complications who required soft tissue reconstruction. Hardware salvage was considered successful if reconstruction allowed hardware to be retained until the next VEPTR expansion.

**RESULTS:** Fifty-eight patients required VEPTR hardware salvage. Patients required VEPTR hardware salvage due to wound complications at median age 8.4 years (95% CI 7.0–10.5), which was 4.6 years (95% CI 3.1–5.9) and 8.0 expansions (95% CI 4.0–11.0) after initial VEPTR hardware placement.
Neuromuscular scoliosis was significantly associated with VEPTR hardware salvage failure ($P = 0.041; \text{OR} = 3.1$). Conversely, congenital scoliosis was significantly protective in achieving VEPTR hardware salvage ($P = 0.012; \text{OR} = 4.2$) and preventing need for immediate hardware removal ($P = 0.049; \text{OR} = 4.7$). Indications for flap coverage were threatened exposure (37.9%) and exposed hardware (62.1%). Exposed hardware was significantly more likely to require immediate removal ($P = 0.045; \text{OR} = 7.0$) and resulted in unsuccessful hardware salvage ($P = 0.015; \text{OR} = 4.5$).

The majority of patients were malnourished and underweight (65.8%) with BMI of $17.8 \text{kg/m}^2$ (95%CI 17.4–18.5). A substantial number of patients were incontinent (79.3%), nonambulatory (48.3%), or ventilator-dependent (46.6%). Nonambulatory status ($P = 0.018$) was significantly implicated in salvage failure.

Hardware complications were successfully salvaged in 62.1% of patients. Latissimus and paraspinous muscle flaps were similarly effective overall ($P = 0.489$) at achieving hardware salvage. Upper back ($P = 0.640$), middle back ($P = 0.086$), and lower back ($P = 0.490$) wound salvage did not significantly differ based on whether latissimus or paraspinous muscle flaps were utilized; however, latissimus flaps were significantly ($P = 0.046$) more likely to achieve hardware salvage than paraspinous muscles at the lower back in the setting of infection.

Hardware salvage with only rib to rib fixation ($P = 0.018$) was significantly likely to lead to hardware salvage (76.7%). Rib to rib fixation had a significantly lower risk of infection ($P = 0.019; 30.0\%$) than those with other fixation modalities deployed (60.7%). Locations of wounds were significantly implicated in requiring hardware removal ($P = 0.037$), such that patients with upper back wounds were more likely to need immediate removal (36.0%) than those with middle back wounds (8.8%) and lower back hardware complications (20.0%).

CONCLUSIONS: Local and regional muscle flaps were able to prevent VEPTR hardware removal in the majority of patients, even in the setting of infection, immobility, incontinence, and multiple systemic comorbidities. Patients with neuromuscular scoliosis and nonambulatory status were at increased risk for failure, while those with incontinence and low BMI trended toward increased risk of failure. Threatened exposure was associated with higher rates of salvage than exposed hardware, and thus earlier referral to plastic surgeons for soft tissue salvage may be advised.