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 REFERENCES:
1. Cobb, W. S., et al. (2015). “Open retromuscular mesh repair of complex incisional hernia: predictors of wound events and recurrence.” J Am Coll Surg 220 (4): 606–613.
2. Novitsky, Y. W., et al. (2012). “Transversus abdominis muscle release: a novel approach to posterior component separation during complex abdominal wall reconstruction.” Am J Surg 204 (5): 709–716.
3. Krpata, D. M., et al. (2013). “Evaluation of high-risk, comorbid patients undergoing open ventral hernia repair with synthetic mesh.” Surgery 153(1): 120–125.
4. Amtmann, D., et al. (2010). “Development of a PROMIS item bank to measure pain interference.” Pain 150 (1): 173–182.

The Use of Lightweight, Large-Pore Polypropylene Mesh Onlay in the Repair of Contaminated Abdominal Wall Defects: A Single Center Experience

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BACKGROUND: Most surgeons are reluctant to place synthetic mesh in contaminated abdominal wall repairs for fear of mesh infection. Biologic meshes are often used in this setting; however, these meshes lack long-term durability. In comparison to medium- and heavy-weight polypropylene mesh, the newer lightweight, large-pore polypropylene (LP-PP) meshes may provide the long-lasting, high-tensile strength of a permanent synthetic prosthesis with an improved resistance to developing infection. The authors present a single-center case series illustrating the safety and efficacy of using LP-PP mesh onlay in the repair of contaminated abdominal wall defects.

METHODS: A retrospective review of patients who underwent abdominal wall reconstruction with lightweight, large-pore polypropylene mesh at a single institution between March 2009 and June 2015 was performed. Patient demographics, complications, and hernia recurrence rates were reported.

RESULTS: Twenty patients were identified who underwent abdominal wall reconstruction with lightweight, large-pore polypropylene mesh in conjunction with a clean-contaminated (n=8), contaminated (n=10), or grossly infected (n=2) abdominal surgery. All meshes were placed overlaying the anterior rectus sheath following fascial closure with either a unilateral or bilateral component separation. Thirteen patients had at least one risk factor for poor wound healing. Sixteen patients had uncomplicated post-operative courses. Of the four reported complications, two had seromas that resolved after needle-aspiration, and two had superficial infections that resolved after a course of intravenous and oral antibiotics. Of note, the two patients categorized as infected cases maintained an uncomplicated course. There were no mesh infections, readmissions, mesh removals, or hernia recurrences.

CONCLUSIONS AND SIGNIFICANCE: In contaminated surgical fields, abdominal wall repair with LP-PP in the onlay position may be performed with minimal wound-related morbidity and successful reestablishment of abdominal wall integrity. We believe that using PROLENE LP-PP as the mesh of choice for abdominal wall repairs in contaminated fields as an onlay results in successful closure of the abdominal wound, reestablishment of abdominal wall integrity, and minimal morbidity to the patient. This, in turn, will lead to a decreased number of readmissions with fewer returns to the operating room for recurrences and/or complications, and, ultimately, superior long-term outcomes. We aim to add to the growing body of literature that asserts the safe and reliable use of permanent synthetic LP-PP in the repair of abdominal wall defects in a contaminated field.

Primary Fascial Closure with Mesh Reinforcement Results in Lower Complication and Recurrence Rates Than Bridged Mesh Repair for Abdominal Wall Reconstruction: A Propensity Score Analysis

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INTRODUCTION: Previous studies suggest that bridged mesh repair for abdominal wall reconstruction (AWR) may result in worse outcomes than mesh-reinforced primary
fascial closure, but many surgeons still use bridged repairs. We compared our outcomes of bridged versus mesh-reinforced repair in AWR procedures.

**MATERIALS AND METHODS:** This retrospective study included 535 consecutive patients who underwent AWR with underlay mesh. Four hundred eighty-four (90.47%) patients underwent mesh-reinforced AWR and 51 (9.53%) underwent bridged repair AWR. We compared outcomes between these two groups using propensity score analysis for risk adjustment in multivariate analysis and for one-to-one matching.

**RESULTS:** Bridged repairs had a higher hernia recurrence rate (33.3% vs 6.2%, p<0.001), higher overall complication rate (58.8% vs 30.0%, p=0.001), and worse freedom from hernia recurrence (log-rank <0.001) than reinforced repairs. Bridged repairs also had higher wound dehiscence (25.5% vs 14.3%, p=0.034) and mesh exposure (9.8% vs 1.4%, p=0.003) rates than mesh-reinforced AWR.

When the treatment method was adjusted for propensity score in the propensity-score-matched pairs (n=100), we found that the hernia recurrence (32.0% vs 6.0%, p=0.002), overall complication (32.0% vs 6.0%, p=0.002), and freedom from hernia recurrence (68.2% vs 31.8%, p=0.001) rates were worse after bridged repair. We did not observe differences in wound healing and mesh complications between the two groups.

**CONCLUSION:** Bridged repair for AWR is associated with worse outcomes than mesh-reinforced AWR. Reinforced repairs should be used for AWR whenever possible.

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**Surgeon and Hospital Factors in Open Ventral Hernia Repair**

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**INTRODUCTION:** Open ventral hernia repair (OVHR) is performed by surgeons of differing training and with supplemental techniques such as mesh or components separation. Although general surgeons perform most OVHRs, plastic surgeons also participate in ventral hernia repair. The impact of specialty training upon OVHR practices is not well understood. Moreover, there has been significant cross-pollination of repair techniques across specialties. We hypothesized that surgeon specialty, surgeon volume, and hospital volume would be predictors of surgical complications, mortality, extended hospital stay, and total charge.

**METHODS:** Retrospective analysis was performed using data from the National Inpatient Sample (NIS) from 2001 to 2009. Patients undergoing open ventral hernia repair (OVHR) were identified using ICD-9 codes. Physician identifiers in the database were used to quantify surgeon OVHR case volume. Surgeon specialty was identified utilizing specialty specific case examples. Plastic surgeons (PS) and General Surgeons (GS) were selected. Non-elective cases or those involving the repair of an inguinal, umbilical, femoral, or diaphragmatic hernia or any type of GI resection were also excluded.

Multivariate regression modeling was used to characterize the association between patient, hospital, and surgeon factors with surgical complications, total charge, length of hospital stay, and in-hospital mortality. Surgical complications were defined using previously described surrogates. Patient age, gender, obesity status, Charlson comorbidity score, payment type, admission source, location, hospital teaching status and region, and total number of concurrent diagnosis and procedure codes were included as covariates in the multivariate models. All tests were two-sided and significance was set at p<0.05.

**RESULTS:** A total of 77,572 open ventral hernia repairs were included in the analysis. 7.1% (n=5,494) of cases were performed by PS and 92.9% (n=72,078) were performed by GS. PS was associated with decreased odds of extended length of stay (OR=0.72, p<0.001), surgical complications (OR=0.71, p<0.01), and death (OR=0.40, p<0.05). PS was also a significant predictor of lower total hospital charge (Beta=-3151.3, p<0.001). High volume hospitals were associated with greater total charge (Beta=1709.7, p<0.001) and increased odds of extended LOS (OR=1.09, p<0.01), but lower risk for complications (OR=0.90, p<0.001).

**CONCLUSIONS:** In this analysis, we found that PS patients had shorter hospital stays, fewer surgical complications or deaths, and lower total charge, despite the fact that GS performs the vast majority of OVHR cases. High volume surgeons and hospitals were both associated with reduced risk for complications of surgery. We identified PS as a predictive factor in the quality and efficiency of OVHR.