RESULTS: The rate of SSO was 25.1%. There were 31 (16.2%) hernia recurrences overall, 13% developing by 3 years and 16.7% developing by 5 years. The most frequently used ADM was porcine (Strattice, 56.5%), followed by bovine (Surgimend, 31.1%) and human cadaveric (AlloDerm, 10.9%). Significant predictors of hernia recurrence included bridged repair (HR=10.1, p<0.001), the use of human cadaveric ADM (HR=2.52, p=0.044), and elevated body mass index (HR=1.9, p=0.09). Subset analysis excluding bridged repairs and human cadaveric ADM cases demonstrated hernia recurrence rates of 8.2% by 3 years and 10.7% by 5 years follow-up.

CONCLUSION: The use of ADM for AWR is associated with low hernia recurrence rates with long-term follow-up. Optimal durability can be achieved by avoiding bridged repairs and human cadaveric ADM.

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Wound Contamination Does Not Affect Outcomes with Acellular Dermal Matrix in Abdominal Wall Reconstruction: Evidence from Propensity Score Analysis

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INTRODUCTION: Abdominal wall reconstruction (AWR) can be a challenging procedure, especially in the case of contaminated wounds. Prior studies have shown wound contamination to be associated with a higher risk of complications in AWR. However, no study [of wound contamination and complication risk?] has adequately controlled for differences in patient characteristics.

MATERIALS AND METHODS: In this retrospective study, we investigated the efficacy and safety of AWR using acellular dermal matrix (ADM) in contaminated and non-contaminated wounds. We classified reconstructions according to the Centers for Disease Control Wound Classification. Propensity score analysis was used for risk adjustment of baseline characteristics in multivariate analysis and for one-to-one matching to control for differences between the groups.

RESULTS: Between March 2005 and October 2015, we included 519 AWR patients: 420 patients with class I or II wounds (clean/clean contaminated) were compared to 99 patients with class III or IV wounds (contaminated/dirty-infected). Patients with contaminated wounds had longer operative times (464 vs 354 minutes, p<0.001), longer hospital stays (15.1 vs 9.5 days, p=0.008), and higher rates of surgical site occurrences (33.3% vs 21.4%, p=0.012), wound dehiscence (22.2% vs 14.0%, p=0.044), anastomosis leakage (6.1% vs 0.7%, p<0.001), and re-operations (15.2% vs 7.4%, p=0.014). Despite these differences in immediate complications, no differences were observed in hernia recurrence and mesh removal rates between the two groups. When the wound groups were adjusted for propensity score (in addition to the propensity score matched pairs), we no longer observed any differences in complications.

CONCLUSION: When the baseline characteristics were controlled, complex abdominal wall reconstructions using ADM demonstrated similar rates of complications in patients with contaminated/dirty wounds compared with those with clean/clean contaminated wounds. Wound contamination does not affect short-term or long-term outcomes in complex AWR when ADM is used.

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Management of Acute and Chronic Loss of Abdominal Domain Using Early Peritoneal Cavity Expansion with the Wittmann Patch as an Adjunct in Abdominal Wall Reconstruction

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INTRODUCTION: The large, refractory ventral hernia presents a distinct challenge to the reconstructive surgeon.
While a plethora of techniques are available for ventral hernia repair (VHR), these may fall short in the face of chronic near-total loss of abdominal domain. The Wittmann patch (Star Surgical, Burlington, WI) has been described in the literature as an acute method of maintaining abdominal wall integrity with planned re-laparotomy. However, we demonstrate that it is also an effective adjunct to traditional methods of abdominal wall reconstruction (AWR) in the management of chronic loss of abdominal domain.

METHODS: All patients at the senior authors’ institutions who underwent Wittmann patch placement with subsequent AWR were retrospectively reviewed. Data collected included patient demographics, co-morbidities, prior abdominal surgeries including previous AWRs, operative reports, and post-operative follow-up. Descriptive statistics were used as appropriate for data analysis.

RESULTS: Seven patients underwent AWR with Wittmann patch placement by the senior authors. For patients with available data, the average number of prior abdominal operations was 4.33 and the average number of previous failed AWRs was 2.67. The average greatest dimension of the hernia defect was 17.5 centimeters. The time from Wittmann patch placement to removal and definitive AWR was 16.2 days. For patients with available data, average hospital stay after placement of the Wittmann patch was 24.3 days and patients were discharged home an average of 5 days after definitive VHR. Average follow-up for six patients was 12.1 months. After placement of the Wittmann patch, there were no instances of abdominal compartment syndrome (ACS). There have been no recurrent hernias, 1 wound infection managed with oral antibiotics, 1 seroma, and 2 post-operative deep venous thromboses (DVT). There have been no instances of enterocutaneous (EC) fistulae.

CONCLUSIONS: The Wittmann patch, or a similar device, is an effective adjunctive technique in acute loss of abdominal domain that may safely be added to the surgeon’s armamentarium for the management of chronic ventral hernias with near-total loss of abdominal domain.

P4HB: The Ideal Mesh for Complex Abdominal Wall Reconstruction?

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PURPOSE: Use of mesh during repair of ventral hernia reduces recurrence rates compared to suture repair alone, but has been associated with increased rates of infection and seroma. As such, no ideal mesh material for complex abdominal wall reconstruction (CAWR) has yet been identified. Poly-4-hydroxybutyric acid (P4HB, Phasix®) is a degradable biosynthetic polymer, which maintains its tensile strength for at least 6 months and can be woven into a mesh for use in soft tissue reinforcement. We reviewed our experience using a P4HB mesh in CAWR.

METHODS: All patients (n=52) undergoing CAWR by the senior author (JAS) between June 2014 and January 2016 were followed prospectively for post-operative outcomes. Surgical repair included components separation with primary repair of the fascial edges in all cases. P4HB mesh onlay was secured to the lateral edge of the released external oblique fascia. Patient demographics and outcomes were followed for up to 18 months following repair.

RESULTS: 52 patients (27 male, 25 female; mean age 57 years, range 22–82) underwent complex abdominal wall reconstruction. Mean BMI was 28 (range 16–43); 20 patients had prior attempted hernia repair and most had medical co-morbidities. Sixteen cases (30%) were either contaminated or infected prior to repair. Indications for surgery included open abdominal wound (2), enterocutaneous fistula (7), open abdomen with exposed viscera (2), mesh infection (1), or stoma reversal (5). Average follow up was 7.4 months (range 1–18). One patient with multiple prior hernia repairs developed a recurrence at 7 months and required re-operation with placement of a new P4HB mesh. Five (9.6%) patients developed localized superficial infection treated with antibiotics and wound care. No patient developed a mesh infection or required mesh explantation. Eight (11.5%) patients had superficial wound breakdown; 7 were treated with local wound care alone. One morbidly obese patient required operative excision of a chronic non-healing abdominal wound after 12 months. Three (5.7%) patients developed seromas requiring aspiration.

CONCLUSIONS: These data demonstrate very low rates of hernia recurrence, seroma and other common complications of CAWR. Importantly, no patients developed mesh infection or required explantation, even when placed into a contaminated or infected surgical field. Although follow up length is limited, P4HB appears to be an extremely promising adjunct for soft tissue reinforcement in the setting of CAWR.