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?**

Adam S. Levy, MD; Jarrod T. Bogue, MD; Kerry A. Morrison, BA; Michael D. Lieberman, MD; Alfons Pomp, MD; Jason A. Spector, MD

**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.
Prior Radiotherapy Does Not Affect Abdominal Wall Reconstruction Outcomes: A Propensity Score Analysis

Salvatore Giordano, MD, PhD; Patrick B. Garvey, MD, FACS; Donald P. Baumann, MD, FACS; Jun Liu, PhD; Charles E. Butler, MD, FACS

INTRODUCTION: Radiotherapy (XRT) adversely affects wound healing, but data are limited on how prior XRT may affect abdominal wall reconstruction (AWR) outcomes. We hypothesized that prior abdominal wall XRT is associated with worse outcomes following AWR for hernia or oncologic resection.

MATERIALS AND METHODS: This was a retrospective study that included consecutive patients who underwent complex AWR using acellular dermal matrix (ADM) at a single center. We performed propensity score analysis for risk adjustment in multivariable analysis and for one-to-one matching.

RESULTS: We included 511 patients who underwent AWR with ADM for repair of a complex hernia and/or oncologic resection from 2005 to 2015. One hundred thirty (25%) patients underwent XRT prior to AWR and 381 (75%) patients did not undergo XRT. With a mean follow-up of 30.0 months, a greater percentage of XRT AWR patients underwent flap reconstruction (14.6% vs 5.0%, p<0.001), whereas fewer underwent component separation (61.5% vs 71.4%, p=0.036) compared with non-XRT AWR patients. Both groups had similar rates of hernia recurrence (8.5% vs 9.4%) and surgical site occurrence (25.4% vs 23.4%).

CONCLUSION: Contrary to our hypothesis, the only difference detected between XRT AWR and non-XRT AWR patients was a shorter time to hernia recurrence seen in the XRT AWR group. Surgeons should be aware of the higher likelihood of needing a flap for skin replacement when performing AWR in the setting of XRT.

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HAND SESSION 2

Kienböck’s Disease; a Retrospective Review of 100 Surgical Cases

Ali Izadpanah, MD, CM, MSc; Chung-Chen Hsu, MD; Jan Szatkowski, MD; Sean Cantwell, BSc; Steven Moran, MD

BACKGROUND: Treatment of Kienböck disease remains controversial. The purpose of this study was to retrospectively review and compare outcomes of our surgical treatment modalities in management of different stages of Kienböck disease.

METHODS: A retrospective review of 147 patients with average age of 35.9 years (13–75 years) and average follow-up of 42.5 months (12 months-29 years) undergoing surgical interventions for management of Kienböck disease between 1976 and 2001 was performed. All patients with less than 12 months follow up were excluded. Patients’ demographics, duration of symptoms, outcome measures, range of motion, grip and pinch strengths were recorded and compared in different stages of the disease with attention to the surgical intervention. Radiological assessments including carpal height and Stahl’s indices were recorded.

RESULTS: Out of 147 patients, 115 met the inclusion criteria. One-hundred patients had accessible preoperative and follow up radiographs. There were a total of two patients in stage I, 23 stage II, 42 stage IIA, 29 stage IIB, and 4 in stage IV. In early stages of Kienböck disease (stages I and II), there was no benefit noted between different surgical methods for range-of-motion, DASH, or PRWE scores. Patients in stage IIIA and IIIB had stable or slight improvement in wrist motion after vascularized bone graft compared to a decrease in flexion-extension and radio-ulnar deviation arcs after radial shortening, and scaphocapitate arthrodesis. Thirteen patients (13.7%) underwent revision procedures. There were no significant differences noted in revision rates, DASH, and PRWE scores between any of the procedures at any stage.

CONCLUSIONS: In conclusion, pedicled vascularized bone graft could be a superior option for preservation of range-of-motion and improving grip strength with adequate pain relief for stages II, IIA, and IIB. Proximal row carpectomy led to a loss of motion and decreased grip strength in stage IIB and IV patients. Hence, in a young patient this should only be performed in selected cases.

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