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

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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

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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 IIIA, 29 stage IIIB, 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 relieve for stages II, IIIA, and IIIB. Proximal row carpectomy led to a loss of motion and decreased grip strength in stage IIIB and IV patients. Hence, in a young patient this should only be performed in selected cases.

FINANCIAL DISCLOSURE: None
Functional Outcomes of Treatments for Preiser’s Disease

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INTRODUCTION: The purpose of this retrospective study was to evaluate the functional outcomes after surgical reconstructions as treatment of Preiser’s disease.

MATERIALS AND METHODS: From 1982 to 2009, a series of 32 patients were diagnosed with Preiser’s disease with the criteria that avascular necrosis of the scaphoid was not associated with an obvious fracture. Conservative treatment only was applied in 9 patients; surgical reconstructions were applied in the other 23. The primary indication for surgery was pain at all times, or at occupational and recreational activities. The surgical procedures included vascularized bone grafting in 15 patients, proximal row carpectomy in 3, four-corner fusion in 3, and proximal pole carpectomy in 2. The average age of the patients at surgery was 37.3 years. The mean follow-up time was 28 months.

The clinical assessment included assessment of the active range of motion (ROM), grip strength, pain, patient-rated wrist examination (PR WE), and the disability of arm, shoulder, and hand score (DASH).

RESULTS: Wrist flexion-extension ROM decreased by 16° (in average) after surgery. Postoperative radial-ulnar deviation ROM decreased by 7°. However, there was a slight improvement in grip strength from 24.6 kg to 26.0 kg. No significant difference was noted in ROM or grip power between the preoperative and final follow-up values. Fifteen patients in the surgical group joined subjective outcome measurements. Decreased pain was reported at any time after surgery by 11 patients (73.3%). The average PRWE score was 23 and the average DASH score was 19 in 11 effective questionnaire samples. However, 9 patients (60.0%) were unsatisfied with the functional outcome of the surgery. Two patients (9.5%) needed further surgery owing to failed treatment.

CONCLUSION: The various surgical options were effective in providing pain relief. Compared with the preoperative value, a better grip power and worse active ROM of the wrist was noted. Even though a high number of patients was not satisfied with the outcome of the surgery, the results of the subjective functional assessment were still acceptable.

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Carpal Translocation Following Dorsal Bridge Plate Fixation of Distal Radius Fractures: A Cadaveric Study

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INTRODUCTION: Dorsal bridge plate fixation is a technique increasingly utilized to establish and maintain anatomic reduction of the distal radius in the setting of complex fracture patterns involving significant comminution, a large zone of injury, or osteopenic bone. This study investigates carpal translocation resulting from bridge plate distal fixation to the second vs. third metacarpal bone.

MATERIALS AND METHODS: Three paired (left-right) cadaveric upper extremities with no history of trauma were imaged in 3-views by fluoroscopy (Group A). Each specimen served as an internal control. A 1-cm osteotomy distal radius fracture model was created via volar Henry approach. Following incision and dissection, dorsal bridge plates were inserted from distal to proximal under the extensor retinaculum (Group B). Distal fixation to the second or third metacarpal was randomly assigned to the right or left hand of each specimen. Cortical locking screws were used to secure the plate to the metacarpal and radial diaphyses. 3-view wrist fluoroscopic images were repeated and measured for ulnar translocation, ulnar variance, radial inclination, radial height, and radiocarpal angle. Carpal translocation was calculated using Taleisnick’s Classification, Chamay’s, and McMurtry’s translation indices.

RESULTS: Randomly, distal fixation to the 2nd metacarpal occurred on the right hand and fixation to the 3rd metacarpal in the left hand in all three cadavers. Ulnar variance, radial inclination, radial height, and radiocarpal angle were not statistically different between Group A and Group B (p > 0.25); similarly, there was no difference between Group A and Group B when evaluating distal fixation to the 2nd vs. 3rd metacarpal bone (p > 0.96). Taleisnick Type 1 ulnar translocation was calculated using radial styloid-scaphoid distance and radiolunate/proximal lunate linear articular surface distance. Several wrists demonstrated ulnar translation in Group B based on Taleisnick classification, Chamay’s, and McMurtry’s translocation indices, however, the results were not statistically significant.