Outcomes Of Radial Head Arthroplasty. A Multicenter Analysis of 405 Cases

Abstract ID# 21294

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Summary:
A review of 405 radial head arthroplasty found excellent survival and direct correlation of revision with increasing size of radial head diameter.

Data:
Introduction: Radial head arthroplasty (RHA) is a commonly performed procedure for the treatment of comminuted radial head fractures. Indications as well as implant types continue to evolve. RHA has had good outcomes with respect to pain relief, range of motion, elbow stability, and mid-term longevity. The current literature is limited to small case series with varying implant types and short-term outcomes. We present a large series of patients from a single institution who underwent RHA and report on complications, revisions, and outcomes. Methods: After IRB approval, a retrospective analysis of RHA cases performed by 75 surgeons at 14 medical centers in an integrated healthcare system between 2006 and 2017 was completed. Patient demographics, comorbidities, implant type, implant head size, and indications were recorded. Patients were contacted via telephone at a minimum of 2 years to obtain QuickDash and Oxford scores. Results: Our study found that revision rate was positively correlated with increasing radial head size. A 26 mm head had 7.7 odds of revision compared to a size 18 mm head (95% CI 1.2 to 150.1). Over 95% of revision cases were performed within the first 36 months of the index procedure. There was a significantly higher overall re-operation rate for terrible triad (18.4%) versus isolated injuries (10.4%), p=0.04. There was no difference between Aclumed Anatomic and Wright Medical Evolve radial head implants in overall re-operation, implant revision, post-operative range of motion, or patient-reported outcomes for either isolated or terrible triad injuries. There was no difference in QuickDash or Oxford scores between controls and smokers, diabetics, or those with a psychiatric diagnosis. Obese patients had a significantly lower mean post-operative Oxford score (35.5) compared to controls (38.3), p=0.02, but no significant difference in QuickDash (22.1 vs 19.1, p=0.067). Conclusions: This is the first paper in the literature to demonstrate that the risk of revision is directly correlated with implanted radial head size. There were no differences in outcomes and complications between the two main implants used. Individuals who did not undergo a revision by 3 years’ time tend to retain the implant. Terrible triad injuries had a higher all-cause re-operation rate than isolated radial head fractures, but no difference in the rate of RHA revision. These data reinforce the practice of downsizing radial head implants when deciding on a radial head implant intra-operatively.

Does Prehabilitation Prior to Ulnar Collateral Ligament Surgery Affect Return to Sport Rate or Time in Baseball Pitchers with Partial UCL Tears?

Abstract ID# 22602

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Summary:
Baseball players who attempt rehabilitation prior to UCL surgery have similar post-operative outcomes compared to baseball players who do not attempt rehabilitation prior to surgery.

Data:
Background: The benefits of prehabilitation have been studied and implemented for ACL surgery, but have not been evaluated for UCL surgery. Therefore, the purpose of this study was to determine whether baseball players with partial UCL tears who completed at least 4 weeks of prehabilitation prior to surgery (Prehab) had better post-operative outcomes and quicker return to sport (RTS) time than players who attempted 0-3 weeks of physical therapy prior to UCL surgery (No Prehab). Methods: Baseball players of all competitive levels who underwent primary UCL reconstruction (UCLR) or UCL repair for partial-thickness UCLR tears from 2010-2019 were included. Physician chart notes and operative notes were screened to identify whether preoperative conservative treatment was attempted. Patients were contacted via RedCap to collect postoperative outcomes (reoperation, revision, complications) and patient-reported outcomes (RTS, Kerlan-Jobe Orthopaedic Clinic [KJOC] score, Andrews-Timmermann score, satisfaction). Results: Overall, 105 baseball pitchers were included (50 Prehab vs. 55 No Prehab) followed up at 3.4 ± 2.5 years postoperatively. Six pitchers underwent UCL repair, and 99 pitchers underwent UCLR. All demographics were similar between groups except the Prehab group more frequently received a gracilis graft (77% vs. 51%, p=0.038). RTP rate (Prehab: 88.1% vs. No Prehab: 93.8%, p=0.465) and RTP duration (12.8 ± 5.2 months vs. 14.0 ± 4.1 months, p=0.307) were similar between groups. All other postoperative outcomes were also similar between groups, including revision rates and patient-reported outcomes. Conclusions: Baseball players who attempt rehabilitation prior to UCL surgery have similar post-operative outcomes compared to baseball players who do not attempt rehabilitation prior to surgery. Purposeful prehabilitation may not be necessary in baseball players undergoing operative UCLR/UCL repair; however, rehabilitation still plays an important role in players who may succeed without surgery.

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Twenty-nine players (mean age, 14 [range, 11-16] years) underwent arthroscopic debridement: 5 were pitchers, 6 were catchers, 13 were infielders, and 5 were outfielders. Mean follow-up duration was 26 (range, 24-66) months. Timmerman-Andrews score at the latest follow-up was 188 (range, 165-200) points. Mean defect size was 44.6±9% (range, 22.60%-68.21%). Mean superior angle was 91.82 (range, 69.80-110.90) degrees, mean inferior angle was 22.41 (range, -32.53-55.33) degrees, and mean defect angle was 69.41 (range, 47.40-135.04) degrees. Timmerman-Andrews score was positively correlated with the inferior angle (r = 0.494, p < 0.01) and negatively correlated with the defect angle (r = -0.431, p = 0.020). For each sub-score considered, pain and sagittal arc of motion were positively correlated with the inferior angle (r = 0.467, p = 0.011, r = 0.387, p = 0.038), and flexion contracture was negatively correlated with the defect angle (r = -0.398, p = 0.033). Conclusion: Posterior or large osteochondral defects of the humeral capitellum on preoperative reconstructed CT sagittal images were positively correlated with the inferior angle (r = -0.398, p = 0.033). And Clinical Efficiency Of Tennis Elbow Treatment Six Months After Injection

Abstract ID# 22009
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Summary:
Evaluation of the relationship between cellular content, growth factors, inflammatory cytokines in autologous platelet-rich plasma and clinical efficacy 6 months after its injection into the lateral epicondyle region of patients with Tennis Elbow.

Data:
Background Tennis Elbow (TE) is a commonly used term to describe tendinopathy of proximal attachment of extensor muscles to the lateral humeral epicondyle. In cases where severe pain limits daily functioning for a longer period, patients desperately seek for effective solutions. Many treatments have been developed, the effectiveness of which is highly controversial. One of such methods is the injection of autologous platelet-rich plasma (PRP). Its action is based on the local administration of high concentrations of platelet-derived growth factors, which are supposed to stimulate healing and regeneration of tissues. The aim of the study was to assess the relationship between the cellular composition and cytokine content in PRP and the clinical effectiveness of injection therapy in patients with TE. Material and Methods Thirty patients diagnosed with TE were recruited for the study and received one injection of 2 ml of leukocyte-rich PRP to the lateral epicondyle region. All PRP samples were analyzed for cellular content and the content of several inflammatory cytokines and selected growth factors including Transforming growth factor-ß, Epidermal growth factor (EGF), Fibroblast growth factor-basic, Vascular endothelial growth factor, Hepatocyte growth factor, Platelet-derived growth factor. The clinical efficacy of the treatment, before the injection and after 6 months was assessed in terms of the mean daily pain intensity measured by Visual Analog Scale (VAS), pain intensity during provocation tests, the pressure pain threshold (PPT), Subjective Elbow Value (SEV), strength of the grip and the muscle groups during wrist extension and supination, and by the Disability of Arm, Shoulder and Hand (DASH) questionnaire. A statistical analysis of the correlations between biologically active components in PRP and the size of improvement in each parameter, was performed. Results After six months all measured outcomes significantly improved. Twenty-five (83%) patients reached a minimal clinically important difference in decrease in pain intensity, and 23 (76%) in functional improvement measured by DASH. At the final end point symptoms completely disappeared in 10 patients. One patient resigned from the study after 3 months, due to dissatisfaction with the results of the treatment. The positive low significant Pearson’s correlation was found between PLT concentration in PRP and the size of improvement measured by SEV (r = 0.40). Significant low positive Spearman’s correlation between EGF concentration and pain decrease (r = -0.42) was found. Significant low negative Spearman’s correlations between functional improvement measured by DASH and several inflammatory cytokines were found: Interferon-a2 (r = -0.39), Interferon-ß (r = -0.46), Monocyte Chemoattractant Protein-1 (r = -0.39), Interleukin-17A (r = -0.46), and Interleukin-33 (r = -0.43). Conclusion The study showed significant correlations between the content of biologically active components in PRP and the clinical outcomes of TE treatment after 6 months. The obtained results suggest the need for further research aimed at reducing the content of inflammatory cytokines and increasing the growth factors in PRP.

Category: Elbow/Wrist/Hand

Visualization of the Dorsolateral Ulnohumeral Joint Space Is Reliable to Indicate Overlengthening in Radial Head Arthroplasty

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Summary:
Overlengthening in radial head arthroplasty can reliably be avoided by...