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Shoulder and Elbow Free Papers
16:50 – 18:00
Hall 11

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THE BALLOON SPACER IMPROVES OUTCOMES IN ONLY THE MINORITY OF PATIENTS WITH AN IRREPARABLE ROTATOR CUFF TEAR - A PROSPECTIVE REVIEW OF 22 PATIENTS
E. Oderuth, D. Morris, P. Manning, J. Geoghegan, B. Gooding, M. Scott, M. Wijeratna
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We report our medium-term outcomes of the balloon spacer in treating irreparable massive rotator cuff tears (MRCT). The balloon spacer requires an intact subscapularis tendon attachment and the absence of significant arthritis.

Twenty-two patients (17 male, 5 female; mean age 68 years, range 57 - 81 years) had a balloon spacer arthroscopically inserted between September 2013 and May 2017 after failing non-surgical management or rotator cuff repair. Oxford Shoulder Scores (OSS) were collected prospectively at baseline, prior to reverse total shoulder replacement (rTSR) and in October 2017 and December 2018 for those with the balloon spacer still in-situ.

Twenty-seven percent (6/22) of patients (mean age 74 years, 69 - 77 years) converted to rTSR at a mean time of 11 months (5 - 24 months) post balloon insertion. This cohort had a mean deterioration in OSS of 1.1 (pre-balloon 18.4 vs pre-rTSR 17.3; mean age 74 years, 69 - 77). Mean Hamada staging was 1.5 (1-2) pre-balloon insertion. In October 2017, the 16 patients (15 male, one female) with the balloon still in-situ (mean age 66 years, 57 - 81 years) demonstrated a mean OSS improvement of 8.4 (25.2 vs 33.6, $p< 0.01$. Mean follow-up 27 months, six - 49 months). However, seven of these patients demonstrated either a deterioration or an OSS improvement of less than six points. In December 2018 at second review, 14 patients (two lost to follow-up) demonstrated no significant change in mean OSS compared with October 2017 (33.6 vs 32.9, $p = 0.67$; Mean follow-up 42 months, 20 - 63 months).

The balloon spacer has a medium-term failure rate of 59% (13/22 patients) with conversion to rTSR or OSS deterioration or improvement below the minimal clinically important difference. The remainder of patients' outcomes were favourable and maintained at a second review. Patient expectations should be managed accordingly before insertion of the balloon spacer for MRCTs.

Disclosure: Nothing to disclose.

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DISTAL BICEPS TENDON REPAIR: SINGLE VERSUS DOUBLE INCISION TECHNIQUE
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Background: The aim of this study was to evaluate acute distal biceps tendon repair by comparing clinical outcome scores and the complication profiles of the two approaches being performed in our unit against the published literature.

Methods: Acute distal biceps repairs (< 3 weeks from injury) since 2010 were reviewed and complications, re-operations and re-ruptures were recorded. Oxford Elbow Score and Quick DASH questionnaires were sent out to patients with a minimum one-year follow-up.

Results: Ninety-nine patients underwent acute surgical repair of ruptured distal biceps tendon between January 2010 and June 2017. Sixty-nine through a single incision (SI), with the tendon through a bone tunnel held with an endobutton, and 30 via a double mini-incision (DI) approach, with the tendon wrapped around and held at the tuberosity with bone anchors. All patients were male with an age range 25-66 years (mean 43.1). There were no re-ruptures in either series. The most commonly reported complication was neuropraxia of lateral cutaneous nerve of the forearm; 8.7% (6/69) of SI and 3.3% (1/30) of DI. Heterotopic ossification (HO) was seen in 1/69 of SI patients and 3/30 of DI patients; one of which required surgical excision. Two SI patients had fracture through the tunnel that healed with non-operative management. One SI patient had re-operation for evacuation of wound haematoma. The Oxford Elbow Scores were SI 41/48 vs DI 45/48 and Quick DASH scores were SI 15/100 vs DI 6/100 at one to seven-year follow-up.

Conclusions: Overall the SI approach resulted in a higher proportion of neuropraxias and fractures but a lower rate of HO than the DI group. Clinical outcome scores were equivalent. Compared to published studies this is a large series. The results and complications compare to similar literature and surgeons need be aware of the limitations of each approach.

Disclosure: Nothing to disclose.

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ARE SHORT STEM SHOULDER IMPLANTS RELIABLE IN RHEUMATOID PATIENTS - A COMPARATIVE CASE SERIES?

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Background: Although shoulder pain is a common presentation in rheumatoid patients, limited evidence is available to guide choice of shoulder arthroplasty. Stemless implants provide numerous advantages but reports in rheumatoid patients are currently lacking. This study aims to evaluate the clinical and radiological results of a stemless shoulder prosthesis in these patients.

Methods: Consecutive stemless shoulder arthroplasties performed in RA patients and a matched control group were retrospectively identified between February 2012 and 2018. For inclusion patients must have had a minimum of 12 months radiographic follow up. Patients were evaluated pre-operatively and then at yearly intervals dependent on individual surgeon practice. The Oxford Shoulder Score (OSS) and requirement for revision surgery were recorded. Radiographs were evaluated for the presence of radiolucent lines and bone loss around humeral and glenoid implants.

Results: Thirty-five patients were included in both groups and patient demographics were comparable. The mean OSS significantly improved in both groups from pre-operatively until five years; 15.4 to 38.1 in the RA group and 17.6 to 40.8 in the control group ($p < 0.00001$). During the study period two patients underwent revision in each group (5.7%). In the RA group 11.4% were found to have full thickness cortical bone loss around the humeral implant and 29% had radiolucent lines around at least one glenoid zone. In the control group no full thickness cortical changes were noted around the humeral implant and 33% of patients had radiolucent lines around at least one glenoid zone.

Conclusions: Stemless shoulder implants can provide significant improvement in functional scores in RA patients in the short-term. However, the presence of peri-implant humeral bone loss in only the RA group raises concerns over the long-term outcomes of the implant in this population.

Implications: Short stem implants should be used with caution in rheumatoid patients.

Disclosure: R. Jordan is undertaking a fellowship funded by Mathys Ltd. C. Kelly is a Consultant for Mathys Ltd.

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PRIMARY ARTHROSCOPIC STABILISATION VERSUS ARTHROSCOPIC WASHOUT FOR FIRST-TIME ANTERIOR DISLOCATION OF THE SHOULDER - LONG-TERM FOLLOW-UP OF A RANDOMISED DOUBLE-BLIND TRIAL

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Background: Primary arthroscopic repair can have treatment benefits following first-time anterior shoulder dislocation in high-risk individuals. However, the long-term outcome of the procedure remains unclear. The aim of this study was to evaluate the long-term efficacy of primary arthroscopic Bankart repair (ABR).

Methods: Eighty-eight patients aged under 35 years who had sustained a primary anterior gleno-humeral dislocation were originally enrolled in a single-centre, double-blind clinical trial. Subjects were randomised to receive either an arthroscopic washout or ABR. Participants were re-assessed after 10 years post-operation. Data related to recurrent instability, revision surgery, patient satisfaction and functional outcome (Disabilities of Arm, Shoulder and Hand (DASH) score and Western Ontario Shoulder Instability (WOSI) scores) were collected. This data was then analysed and compared with each patient's previous outcome scores.

Results: Sixty-five patients (73.8%; 32 Washout vs 33 ABR) were included in this long-term study, with an average follow-up of 14.2 years. The rate of recurrent dislocation (47% vs. 12.1%, $p = 0.003$) or any self-reported instability (72% vs 33%, $p = 0.002$) was significantly higher in the Washout group than the ABR group. WOSI scores were significantly better and patient satisfaction was higher in the ABR group ($p = 0.02$). The presence of recurrent instability was associated with significantly poorer WOSI scores in each treatment arm ($p < 0.0001$). However, there were no significant differences in the final DASH score between groups ($p = 0.09$).

Conclusions: This study demonstrates a significant long-term benefit in overall shoulder stability in high-risk patients who have undergone primary arthroscopic Bankart repair for first-time anterior shoulder dislocation. In addition, our findings identify that the improvement in instability-specific functional scores are maintained in the long-term following primary stabilisation.

Implications: The treatment benefits of primary arthroscopic Bankart repair, when compared with arthroscopic Washout, are maintained in the long-term.

Disclosure: LZY: Nothing to disclose. JAN: Nothing to disclose. CMR: Acumed. LLC: Paid consultant; Paid presenter or speaker.

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2 TO 6 YEAR FOLLOW UP.OUTCOME OF SHORT STEM ANATOMIC TOTAL SHOULDER REPLACEMENT FROM A LARGE SINGLE SURGEON SERIES

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Introduction: Anatomic total shoulder replacement has been routinely performed for degenerative arthritis of the shoulder. There have been various advances in the design of the implant to overcome the problems of humeral component offset and Glenoid component loosening. The Affinis short stem total shoulder replacement (SS TSR) has been designed to overcome the above problems. The aim of this study is to report the outcome of the largest single surgeon series of Affinis (SS TSR).

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Methods: All patients who underwent the Affinis SS TSR, between January 2011 and July 2015, were identified from a database. All patients underwent the procedure by the senior author or a trainee under direct supervision of the senior author. The patients were followed up at two weeks, six weeks and then yearly thereafter. Oxford Shoulder Score (OSS) was completed pre-operatively, at six weeks and yearly thereafter. If a patient had not completed the OSS within the last year, a postal OSS was completed.

Results: Ninety-four Affinis SS TSRs were performed in 88 patients between January 2011 and July 2015. Six patients died from causes not related to the surgery. There were no cases of loosening of either the glenoid or humeral component in our series. The Oxford Shoulder Score improved by 19 points at the latest post-operative follow-up. Two of the SS TSRs were revised to an Inverse total shoulder replacement due to failure of the rotator cuff.

Conclusions: Affinis Short Stem TSR is has a good mid-term outcome in our single surgeon series. There have been no evidence of failure of the glenoid or humeral component in our mid-term follow up. Our series report good restoration of shoulder function and an improvement in shoulder scores.

Disclosure: Nothing to disclose.

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RADIOGRAPHIC AND CT CHARACTERISTICS OF CORONOID FRACTURES AND INTER-OBSERVER RELIABILITY OF CORONOID FRACTURE CLASSIFICATION

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Background: To compare x-ray measurement of coronoid fracture size and morphology with CT scans and to determine the inter-observer reliability of the Regan-Morrey and O'Driscoll classification systems.

Methods: Seventy-two fracture dislocations of the elbow with the presence of a coronoid fracture were included. The coronoid fragment size was measured using plain radiographs and as a percentage of the intact coronoid. Paired CT scans on the same patients were used to perform the same measurements. Fractures were classified on x-ray using the Regan-Morrey system and on CT using the O'Driscoll classification. Measurements were taken independently by two researchers and compared using Cohen's Kappa method.

Results: The mean x-ray coronoid fragment height was 5.5mm (0.7 - 12.6), compared to 6.6mm (1.8 - 14.7) on CT. According to the Regan-Morrey classification, there were 37 Type 1, 31 type 2 and four type 3 fractures. For the O'Driscoll classification, there were 11 Type 1-2; 5 type 2-1 (isolated anteromedial), 54 type 2-2 and two type 2-3 fractures.

Ninety-one percent of O'Driscoll type 1 fractures were < 5mm in size on x-ray measurement. The majority of fractures assessed (85%), involved the anteromedial facet of the coronoid. Fracture size >5mm on x-ray had a sensitivity of 0.59 and specificity of 0.91 for involvement of the anteromedial coronoid.

X-rays underestimated the fragment size by a mean of 17% when compared to CT. Inter-observer reliability was moderate (k = 0.42) for Regan Morrey; and fair (k = 0.27) for the O'Driscoll system.

Conclusions: Coronoid fracture size and morphology is underappreciated on plain x-rays. Fractures > 5mm are likely to involve the anteromedial part of the coronoid. Based on these findings, CT scans are recommended for all coronoid fractures. A simplified classification system with improved inter-observer reliability is desirable.

Disclosure: Nothing to disclose.

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REVISION TOTAL ELBOW ARTHROPLASTY; IS IT SAFE TO PERFORM A SINGLE-STAGE REVISION FOR PRESUMED ASEPTIC LOOSENING BASED ON CLINICAL ASSESSMENT, NORMAL INFLAMMATORY MARKERS AND A NEGATIVE ASPIRATION?

M. Gandhi, A. Eyre-Brook, S. Booker, D. Thyagarajan, D. Stanley, A. Ali
Sheffield Teaching Hospital NHS Foundation Trust, Sheffield, United Kingdom

Background: Revision total elbow arthroplasty (TEA) is a challenging procedure that is becoming increasingly common. In our unit the cause of TEA loosening is based on history, examination, radiographs, inflammatory markers and joint aspiration. Open biopsies are not routinely performed. Our aim was to ascertain whether it is safe to perform a single-stage revision for presumed aseptic loosening on this basis. We also investigated whether there was any difference between single- and dual-component revisions in this group.

Methods: We conducted a retrospective review of consecutive revision TEAs performed in our unit over a 10-year period. Case notes, radiographs, blood results, aspiration results and microbiology of intraoperative tissue samples were reviewed. Single-stage Revisions performed for presumed aseptic loosening were identified.

Results: A total of 123 revision elbow arthroplasty cases were performed in this period. Fifty-eight cases revised for preoperatively proven infection, instability or implant failure were excluded from this study. In 65 cases aseptic loosening was diagnosed based on history, clinical examination, blood markers and aspiration. There were 22 dual-component and 43 single-component revisions. In the dual-component revision group, two cases (nine percent) had positive results on 14-day culture from tissue samples taken at time of revision surgery. In the single-component revision group, positive culture samples were present in three cases (seven percent). Chi-squared analysis showed no significant difference between single- and dual-component revisions ($p = 0.76$). No cases with positive culture samples from either group have required subsequent revision surgery.

Conclusions: Given the results of this study we conclude that it is safe to perform single-stage revision arthroplasty for implant loosening based on history, examination, normal inflammatory markers and negative aspiration results without the need for open biopsies. There is no difference if dealing with single- or dual-component loosening.

Disclosure: Nothing to disclose.

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REVISION TOTAL ELBOW ARTHROPLASTY; IS IT SAFE TO PERFORM A SINGLE-STAGE REVISION FOR PRESUMED ASEPTIC LOOSENING BASED ON CLINICAL ASSESSMENT, NORMAL INFLAMMATORY MARKERS AND A NEGATIVE ASPIRATION?

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Disclosure: Nothing to disclose.

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RECONSTRUCTION OF IRREPARABLE ROTATOR CUFF TEAR WITH ACELLULAR DERMAL MATRIX IN PATIENTS AGED OVER 68 YEARS WITHOUT JOINT ARTHRITIS

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Introduction: Reverse shoulder arthroplasty (RSA) is the mainstay of treatment in irreparable rotator cuff tear without arthritis in patients aged over 68 years.

Aims: To evaluate the short-term outcome of reconstruction of irreparable rotator cuff tear with acellular dermal matrix in patients (> 68 years), without established joint arthritis.

Methods: We prospectively evaluated outcome of reconstruction of massive irreparable rotator cuff tear in patients aged over 68 years whose radiographs did not reveal arthritic changes. Human dermal acellular matrix graft was used for reconstruction as a bridging graft. All patients had preoperative pain and had failed trial of conservative management. This was highly selected group of patients who were carefully evaluated and counselled for the procedure. Oxford Shoulder Score (OSS) was used as the outcome measure.

Results: Between January 2007 and August 2017, 192 patients had rotator cuff bridging reconstruction with acellular dermal matrix for irreparable tears performed by the senior author (AM). Of these 20 patients were aged over 68 years and these cohort were included in the study. Two patients were excluded as they had previous arthroplasty. Mean age at surgery was 70 (range 68 - 77) years. Mean preoperative OSS was 21 (range seven to 29). Minimum tear size in one patient was 4.5×3 cm, rest of patients had size >5cm. Average remnant defect size preoperatively after mobilisation and margin conversion of cuff was 4×3 cm. Two or more tendons were involved in all patients. Minimum follow-up was six (six to 48) months. Mean postoperative OSS was 44 (range 34 -47). Significant improvement was also noted in range of motion.

Conclusions: There is significant improvement in OSS in short-term follow-up in this series in patients above 68 years with irreparable rotator cuff repair and without arthritis, who underwent reconstruction with acellular dermal matrix graft. This study provides viable option of treatment comparison to RSA for these difficult cases.

Disclosure: Senior Author is a Consultant for Wright Medical Authors for this study but received no funding.

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