

**Journal club:** 28 November 2012

**Attendees:** Mr M. Bransby-Zachary, Mr A. Arthur, Mr D. Macdonald, Mr A.S. Brydone, Mr D.F. Russell, Miss E.J. Baird, Miss N. Sciberras, Miss H. Betts, Mr F. Welsh, Mr C. Elias-Jones, Mr J. Gillespie, Mr J. Fraser-Moodie, Mr N. Natsioulis  
West of Scotland Journal Club, Western Infirmary, Glasgow

**Theme:** Shoulder Surgery

1. **Robinson CM, Jenkins PJ, White TO, Ker A, Will E.** Primary arthroscopic stabilization for a first-time anterior dislocation of the shoulder. A randomized, double-blind trial. *J Bone Joint Surg [Am]* 2008;90-A:708-21.
2. **McKee RC, Whelan DB, Schemitsch EH, McKee MD.** Operative versus nonoperative care of displaced midshaft clavicular fractures: a meta-analysis of randomized clinical trials. *J Bone Joint Surg [Am]* 2012;94-A:675-84.
3. **Naveed MA, Kitson J, Bunker TD.** The Delta III reverse shoulder replacement for cuff tear arthropathy: a single-centre study of 50 consecutive procedures. *J Bone Joint Surg [Br]* 2011; 93-B:57-61.

**Robinson CM, Jenkins PJ, White TO, Ker A, Will E.** Primary arthroscopic stabilization for a first-time anterior dislocation of the shoulder. A randomized, double-blind trial. *J Bone Joint Surg [Am]* 2008;90-A:708-21.

**Reviewer:** Mr J. Gillespie

## Summary

### 1. Purpose

The authors aimed to compare 2 groups of patients who had suffered a first-time acute shoulder dislocation. One group had an arthroscopic lavage and the other had lavage and Bankart repair. They aimed to quantify the rate of recurrent instability, functional outcome, range of movement, levels of patient satisfaction and financial costs.

### 2. Methods

Over the period from Sept 2001 to Jan 2005, the authors randomised males and females aged 15-35 with a radiographic first-time traumatic anterior shoulder dislocation to one of the 2 groups. The groups' demographics were matched. Sample size was estimated from a pilot study. 42 patients in each group reached final 2 year follow-up. The senior author performed the surgery, which was blinded to patient and observer. The outcomes were recurrent instability, functional scores, clinical examination and costs. Student's t test was used for continuous data and chi-

squared / Fisher's exact tests for categorical data. Multivariate logistic and linear regression was used.

Males >27 and females >16 were considered lower risk based on a previous study.

### **3. Results**

Although range of motion was similar, the relative risk of a second dislocation was 0.25 in the Bankart repair group. This was statistically significant due to the large benefit in the high risk group (relative risk 0.2). Low risk patients had insignificant benefit. The number needed to treat (NNT) was 3.5 to prevent one re-dislocation and 2.6 to prevent one instability in high risk patients. These values were 4.7 and 3.2 respectively in the combined analysis. 2 year DASH and WOSI scores improved with Bankart repair due to reduced instability, and they were more likely to continue contact sports. When unstable patients were removed from the analysis, no significant difference was noted.

### **4. Conclusion**

The authors demonstrated a statistically robust benefit to instability / re-dislocation risk in favour of Bankart repair in the younger, higher risk subgroup. This however came with a rather high number needed to treat.

### **5. Critique**

#### **Strengths**

This Level 1 Evidence study has several good attributes. Previous studies had been particularly prone to bias and the randomisation and blinding minimise this. The methodology was good, including the 2 year follow-up. The single surgeon creates consistency in the study, however this could also be considered a weakness in some ways. The 2 treatment arms were well matched for demographics and the study aims were met.

#### **Methodological Concerns**

This single surgeon's expertise may not be replicable by other surgeons and this will have to be considered when applying the study findings to one's practice.

**McKee RC, Whelan DB, Schemitsch EH, McKee MD.** Operative versus nonoperative care of displaced midshaft clavicular fractures: a meta-analysis of randomized clinical trials. *J Bone Joint Surg [Am]* 2012;94-A:675-84.

**Reviewer: Mr J. Fraser-Moodie**

### **Summary**

#### **1. Purpose**

Review current literature on outcomes operative and nonoperative management of displaced midshaft clavicular fractures, primarily with reference to union and malunion, complications and functional scores.

#### **2. Methods**

Six randomised clinical studies analysed, four from literature, one accepted for publication and one abstract with data available. Three involved plate fixation and three intramedullary fixation.

### 3. Results

The non-union rate was 1% in the operative group (3 / 212), 15% in the non-operative group (29 / 200). The number needed to treat to avoid 1 non-union was 7.6. In addition to the 29 non-unions there were 17 mal-unions in the non-operative group. The absolute risk reduction based on non- and mal-union was 22% in favour of operative treatment with a number needed to treat of 4.6. The absolute risk reduction for symptomatic mal-union was 9%, number needed to treat 11.7. There were 62 complications in the 212 operatively treated patients (29%) and 84 complications in 200 non-operatively treated patients (42%). There was a trend towards earlier return to function in the operative group with improved DASH/Constant scores at 6 weeks and 3 months and a greater proportion returning to sport earlier. At one year, however, the DASH and Constant scores were not significantly different between the two groups.

### 4. Conclusions

The trend of the results was in favour of operative treatment, but the results not compelling. The primary findings were a modest risk reduction of non- and mal-union, but with a high number needed to treat and frequent complications in both operative and non-operative groups. No long term functional differences were found.

### 5. Critique

#### Strengths

Comprehensive meta-analysis of available randomised clinical studies in literature  
Provides combined figures on outcomes to add to decision making process

#### Methodological Concerns

Mixture of operative techniques combined  
One study provided limited data (short term follow-up)

**Naveed MA, Kitson J, Bunker TD.** The Delta III reverse shoulder replacement for cuff tear arthropathy: a single-centre study of 50 consecutive procedures. *J Bone Joint Surg [Br]* 2011; 93-B:57-61.

#### Reviewer Mr N. Natsioulas

#### Summary

##### 1. Purpose

To evaluate the mid-term clinical and radiological results of the Delta III reverse shoulder replacement in patients with a painful pseudo-paralysis due to an irreparable cuff tear and destructive arthritis.

##### 2. Methods

Between December 1999 and January 2006, 50 shoulders in 43 patients with rotator cuff arthropathy were replaced by the senior author (TDB) using the Delta III reverse polarity shoulder replacement. All the patients were assessed before operation using the American Shoulder and Elbow Surgeons (ASES) score, and Oxford Shoulder Score (OSS). Post-operatively they were

evaluated by clinical examination, the ASES score, the OSS, the Short-form 36 (SF-36) and with a radiological review, by a research surgeon, who had not been involved with their surgery.

### **3. Results**

The mean ASES score was 19 (95% CI 14 to 23) pre-operatively and 65 (95% CI 48 to 82) ( $p < 0.001$ , paired  $t$ -test) at final follow-up. The mean OSS was 44 (95% CI 40 to 51) pre-operatively and 23 (95% CI 18 to 28) ( $p < 0.001$ ) at final follow-up. Pain improved from 100% with severe pain before surgery to 84% with little or no pain afterwards. Activities of daily living improved from severe limitation in all patients before surgery to 87% reporting little or no limitation afterwards. The mean shoulder elevation improved from pseudo-paralysis pre-operatively in all patients to 105° after surgery. No patient lost movement. In 70 % of the replacements there was radiological evidence of scapular notching. There were seven complications during the whole series, although only four patients required further surgery.

### **4. Conclusions**

The authors concluded that the Delta III prosthesis for patients with pseudo-paralysis caused by arthritis, and with a massive cuff tear, has encouraging results in the short to medium term with regards to the patient satisfaction, freedom from pain, improvement in activities of daily living and functional independence. Complications and scapular notching remain a concern. Concern regarding the long-term survival of these prostheses remains as well and the authors suggest that the prosthesis should be used with caution in patients under 70 years of age.

### **5. Critique**

#### **Strengths**

A well designed study

Homogeneous cohort regarding the pathology (only patients with rotator cuff arthropathy were included)

Surgical technique well explained

Single surgeon

98% follow up was achieved

Clinical assessment with the ASES and OSS scores (patient derived assessment) radiological

Evaluation using specific score

#### **Methodological Concerns**

A retrospective study, therefore prone to selection and information bias.

Unbalanced male/female ratio

Different surgical approach in 12 patients

Wide range of final follow-up 8 to 81 months

Single-centre study

Relatively small cohort

Follow-up not undertaken by independent person