

INTRODUCTION

- Revision Total Elbow Replacement (TER) is a challenging procedure due to the loss of soft tissue support and bone loss following retrieval of the primary implant.
- It is not known how the results of revision of the Soutar-Strathclyde prosthesis (SSP) with a Coonrad-Morrey prosthesis (CMP) compare with primary CMP in terms of functional outcome.

AIM

The AIM of this study was to analyse the mid-term outcomes of revision of the Soutar-Strathclyde to the Coonrad-Morrey prosthesis.

METHODS & MATERIALS

STUDY DESIGN

- Retrospective review
- Collection of data from clinical case records and radiographs
- Statistical analysis using SPSS® 17.0 software

DATA COLLECTION

- Demographic
- Operative details
- Radiological
- Functional outcome

RESULTS

- 11 elbows in 10 patients
- Mean age: 57.09 ± 12.45 (44 to 79 years)
- Male : Female = 5 : 5
- Left : Right = 3 : 8 elbows
- Dominant : Non-dominant = 8 : 3 elbows
- Operative time (minutes) = 133 ± 22.32 (95 to 183)
- Primary diagnosis and indications for revision surgery are shown in Figures 2 and 3
- ROM
 - Flexion: $129.29 \pm 7.35^\circ$
 - Extension deficit: $18.64 \pm 8.97^\circ$
 - Flexion-extension Total Active Motion (TAM): $110.45 \pm 14.57^\circ$
 - Pronation: $87.27 \pm 4.67^\circ$
 - Supination: $83.64 \pm 10.26^\circ$
 - Pronation-supination Total Active Motion (TAM): $170.91 \pm 14.46^\circ$

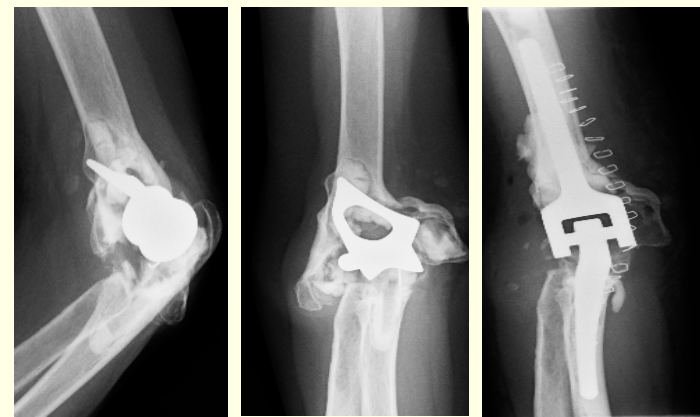


Figure 1. SSP to CMP

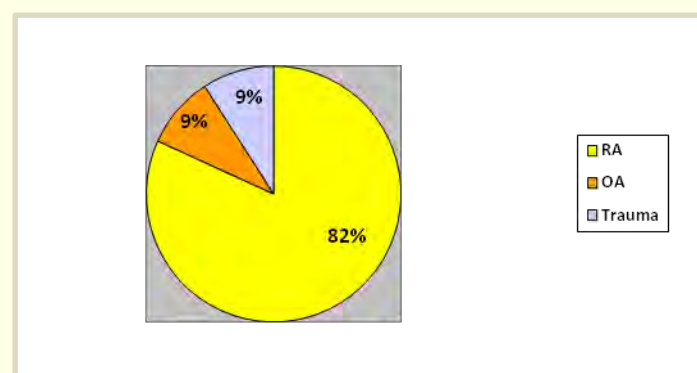


Figure 2. Primary diagnosis

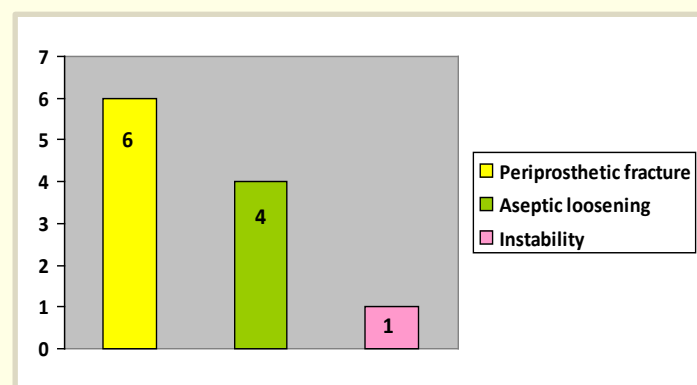


Figure 3. Indication for revision surgery



Figure 4. Olecranon fracture and ulnar component protrusion

- Pain
 - Pre-op = Nil : 0, Mild : 5, Mod : 3, Severe : 3
 - Post-op = Nil : 9, Mild : 2, Mod : 0, Severe : 0
- Complications
 - Nerve palsy = Ulnar : 1, Radial : 1 (18.2%)
 - Superficial Infection = 1 (9.1%)
 - Ulnar component protrusion : 1
 - Olecranon fracture : 1 (Figure 4)
- Mean period of follow up = 4.46 ± 2.39 years
- Indication for second revision
 - Aseptic loosening after fracture : 1 at 0.75 years
 - Isolated bushing revision : 1 at 7.08 years

- The results were good in 8 elbows, fair in 2 elbows and poor in 1 elbow according to the classification of Morrey *et al*¹
- 5 year survivorship : 90.1%

DISCUSSION

- The most important finding in our study was that the revision of SSP to CMP produced a functionally useful flexion-extension TAM of 100° and provided significant pain relief similar to a primary CMP.
- The CMP provided immediate stability despite significant bone loss seen after removal of SSP.
- Most common complication - Transient nerve palsy as in primary TER : incidence in literature 0-26%².
- Incidence of deep infection in primary TER 0 - 9%², we had one superficial infection which settled with antibiotics.
- The occurrence of ulnar component protrusion and olecranon fracture emphasize the difficulty in insertion of implants during revision surgery and the poor quality of the bone encountered during revision, in the presence of soft tissues that are affected by immune system dysfunction as in rheumatoid arthritis with long standing contractures.
- The 5 year survivorship was comparable to that of primary TER in literature which ranged from 68% to 100%². This implies that the survivorship of SSP revised to CMP is as good as primary implants.

CONCLUSION

The functional results of revision of SSP to CMP mirror that of primary CMP. The procedure provides a functionally useful range of movement and significantly reduces the disability of the patient. The long stem and the semi-constrained articulation provide stability and good survivorship.

REFERENCES

- Morrey BF, Brayn RS, Dobyns JH, Linscheid RL (1981). Total elbow Arthroplasty. A five year experience at Mayo clinic. J Bone Joint Surg (Am);63(7): 1050-1063.
- Shi LL, Zurakowski D, Jones DG, Koris MJ, Thornhill TS. Semi-constrained primary and revision total elbow arthroplasty with use of the Coonrad-Morrey prosthesis. J Bone Joint Surg (Am) 2007; 89: 1467-1475.