Introduction

Classically end stage wrist arthritis was treated by total wrist fusion until the advent of motion sparing procedures. Proximal row carpectomy (PRC) was the first of these, described by Stamm in 1944. Subsequently the four corner fusion with scaphoid excision (SLAC procedure) was described by Watson and Ballet in 1984. Each of these presented a motion preserving option for the arthritic wrist considering fusion. Even more recently total wrist arthroplasty (TWA) and wrist hemiarthroplasty have emerged as options. Wrist hemiarthroplasty is technically easy to perform with advantages of limited bone resection as compared to PRC, and no risk of nonunion seen in wrist fusion and SLAC procedure. It also allows for conversion to TWA or wrist fusion as a salvage in the case of failure. Given the relative infancy of wrist hemiarthroplasty in clinical practice there is limited data on patient outcomes especially with significant follow up.

Materials and Methods

- 11 patients treated with wrist reconstructive hemiarthroplasty (BIOMET Maestro)
- Indications included SNAC (1), SLAC (9), and capitulunate arthritis (1)
- Average age was 63 years, average follow up was 4 years
- Objective parameters included DASH, grip strength, ROM
- Implant failure defined by necessity of revision procedure

Results

- DASH scores initially improved postoperatively (55.7 vs. 58.3) but declined with increasing failure rate
- Grip strength was 60% of contralateral side
- ROM improved postoperatively
- 36% failure rate: Complications included failure with conversion to TWA (2) or wrist fusion (2) secondary to development of ulnar sided wrist pain first seen 2 years post operatively

Discussion

Despite promising early results, wrist hemiarthroplasty in our series had a significant failure rate. In each case of failure the patient developed ulnar sided wrist pain. It is believed that this is due to increased forces on the lunate facet caused by articulation with the metal implant. This likely represents a combination of inappropriate material and poor geometric fit. Future developments may include adjusting implant geometry to be more similar to the native lunate or possibly the capitate given the success of PRC. Also, alternative biomaterials (ie pyrocarbon) may be investigated for use. In the presence of more reliable procedures, wrist hemiarthroplasty is not indicated in its current incarnation.

References