

Clinical and functional outcomes following total joint arthroplasty of the CMCJ using TOUCH implants

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Introduction

Osteoarthritis (OA) of the first carpometacarpal joint (CMCJ) is a common disorder and the number of patients with CMCJ OA is expected to increase because of the aging population¹. These individuals typically report significant pain, reduced strength, and often report limitations in activities of daily living². When conservative treatment fails to reduce pain and functional limitations, joint replacement may be considered.³ Many implants are available for OA of the 1st CMCJ and the reported outcomes are very variable: for some there are good long-term outcomes beyond 10 years, for others there are unacceptably high early rates of failure⁴. The purpose of this study was to evaluate the early outcomes following total arthroplasty of the thumb CMCJ using TOUCH implants.

Methods

An investigation was carried out of all patients who underwent CMCJ replacement using TOUCH prosthesis between September 2018–March 2019 in our clinic. Six patients had undergone the surgical procedure and the medical records of these patients were manually reviewed to extract the required data. Patient characteristics can be found in Table 1.

A long thumb spica orthosis was fabricated post-operatively and worn intermittently for 3 weeks. Thumb was positioned in slight opposition, slight MCPJ flexion and IP free. Therapy consisted of range of motion exercises, pain and oedema control for the first 2 weeks post-operatively; scar management was initiated once the wound had healed. Strengthening was initiated at 4 weeks with light putty exercises and from there therapy progressed according to patients individual deficits.

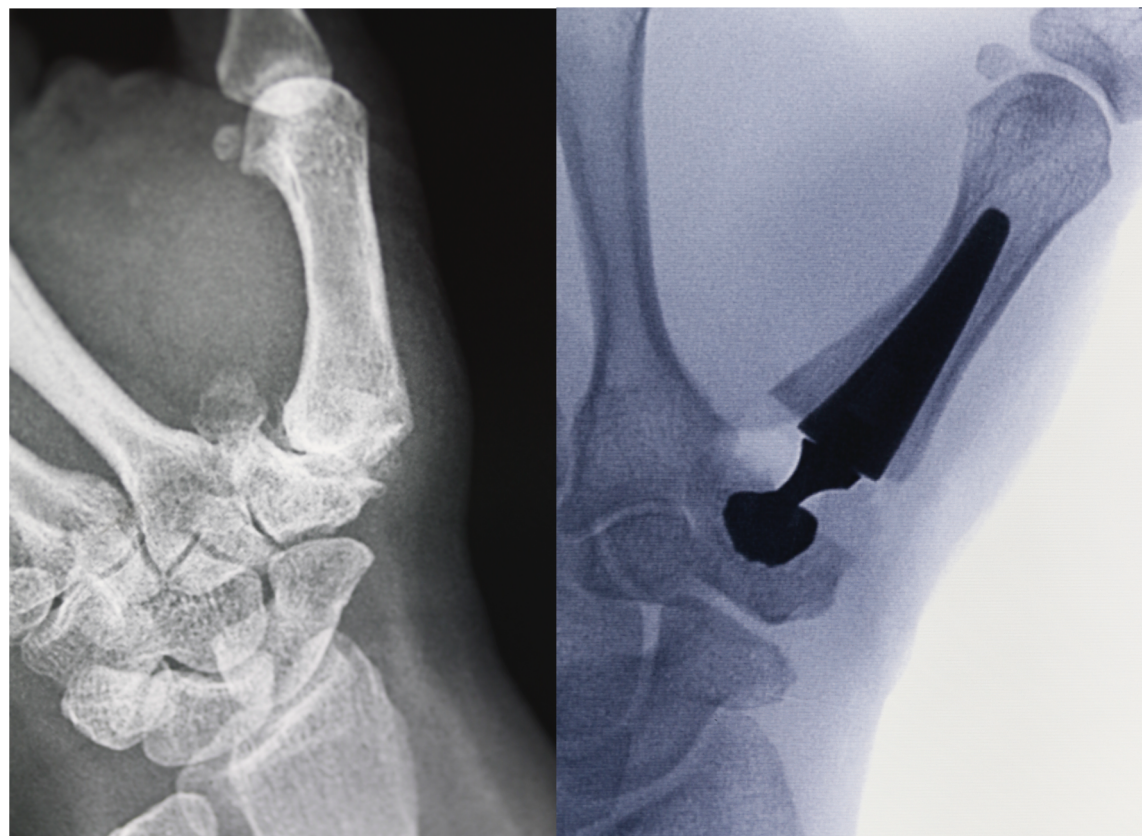
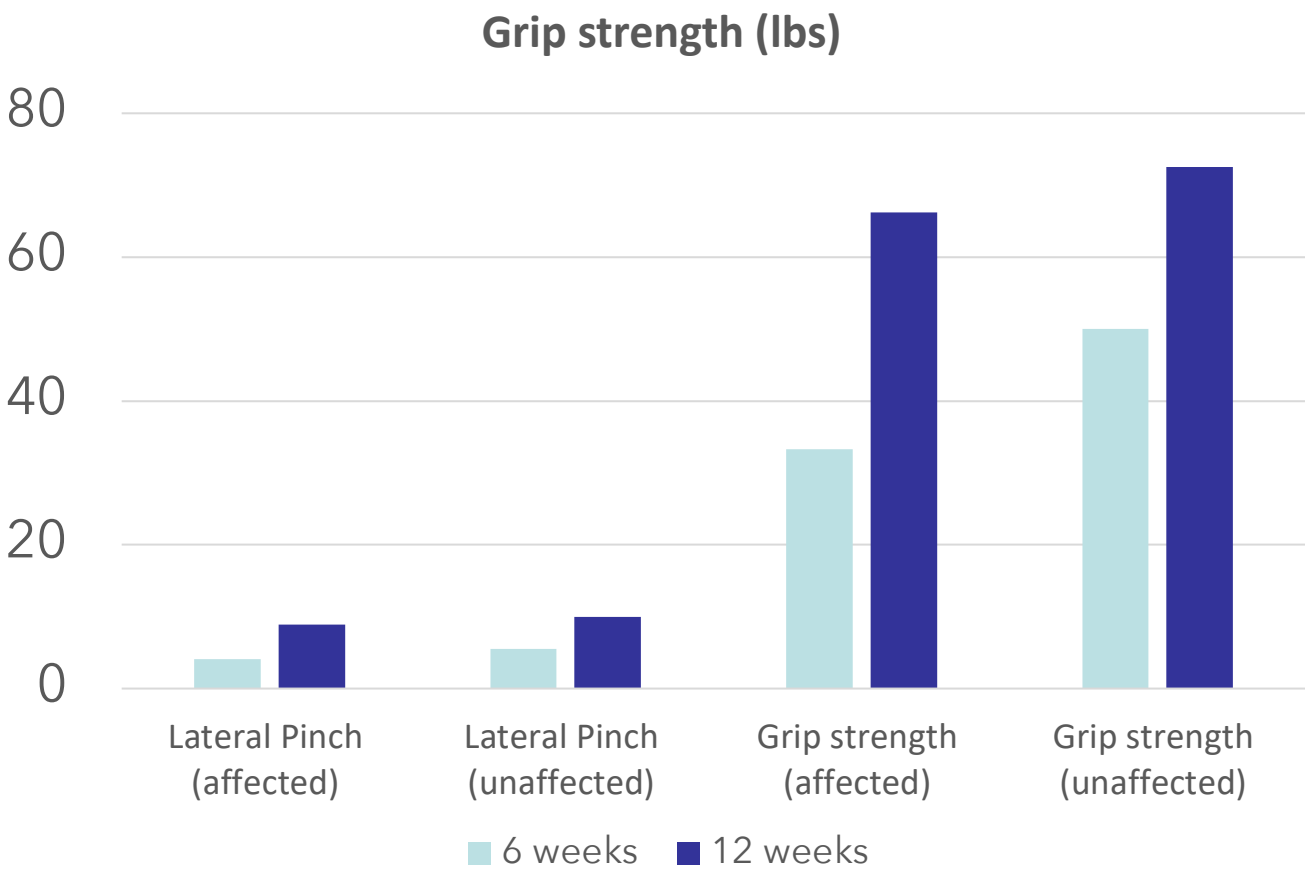


Figure 1. Pre and post-operative Xray

Table 1. Patient Characteristics	Total
Number of patients	6
Age (y)	
Mean	53
Min/Maximum	45/60
Hand dominance (R:L)	5:1
Hand affected (R:L)	3:3
Gender (M:F)	3:3
Number of hand therapy sessions	
Mean	6
Min/ Max	1/12



Results

QuickDASH: The mean pre-operative score was 35.4 showing a limitation in activities of daily living. The mean QuickDASH score on discharge was 3.7. A lower score indicates a lower level of disability.

Grip and pinch strength: At 12 weeks post-op, the mean lateral pinch was 5.5lbs and grip strength increased to 66lbs (Chart 1). Grip strength remained lower than the unaffected hand at 12 weeks, despite 3 patients undergoing surgery on their dominant hand.

Range of Motion and pain: All patients regained full range of motion when compared with the non-operated hand. Kapanji score of thumb opposition was 3/8 post-operatively; upon discharge all patients achieved 8/8. Pain was assessed using the VAS, with patients reporting mean of 7.5 pre-operatively and 0.4 upon discharge at 12 weeks.

Discussion and Conclusions

Early rehabilitation is crucial to enable patients to regain their hand function for activities of daily living and work. No complications were found despite early initiation of strengthening. Some studies have initiated strengthening at 4 weeks, and a recent meta-analysis did not find more complications or worse outcomes in studies that initiated ROM or strengthening exercises at ≤4 weeks compared with studies that initiated ROM or strengthening exercises at ≥4 weeks².

Advantages of total joint replacement with prosthetic implant are reduced postoperative pain, faster functional recovery, and improved grip and pinch strength. Pain was reduced in all patients and strength was improved which are considered good outcomes following CMCJ replacement. Further large scale research is required with longer follow-up to determine sustained functional outcomes and/or complications. CHARMS is the first organisation in Singapore and Asia to be certified for use of the TOUCH prosthesis in the treatment of arthritis of the first CMCJ.

References

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