

Early 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 considered³. 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.

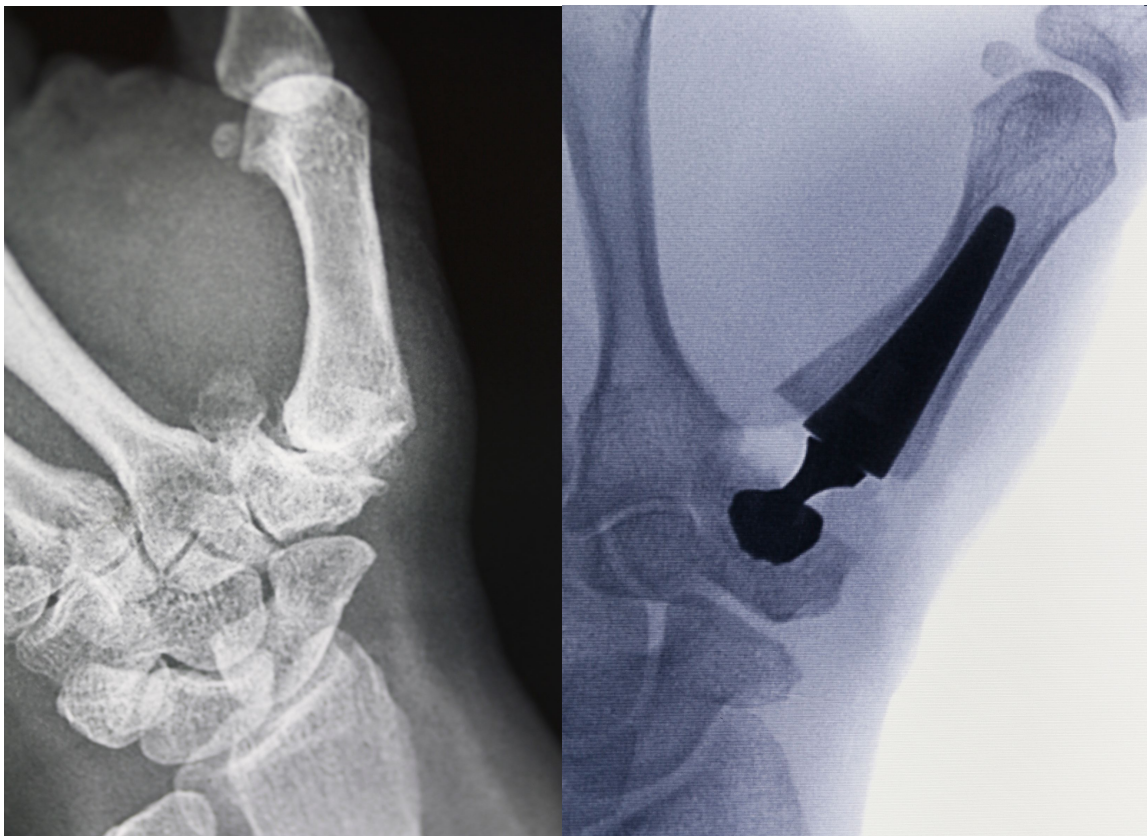


Figure 1. Pre and post-operative Xray

Methods

An investigation was carried out of all patients who underwent CMCJ replacement using TOUCH prosthesis between September 2018–July 2020 in our clinic. Twenty three 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 two 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.

Results

QuickDASH:

The mean QuickDASH pre-operative score was 41 showing a severe difficulty in performing activities of daily living. On discharge the mean QuickDASH score was 11 reflects a good functional outcome with mild or near no disability in performing daily tasks. A lower score indicates a lower level of disability.

Pinch and grip strength:

Mean lateral pinch strength of affected hand was 6kgf pre-operatively. At 4 weeks post-operatively, the mean lateral pinch increased 93percent to 5.6kgf.
Mean grip strength of affected hand was 24.9kgf pre-operatively. At 4 weeks post-operatively, the mean grip strength increased 83percent to 20.9kgf.

Range of Motion and pain:

All patients regained full range of motion when compared with the non-operated hand. Patients achieved full kapandji score of 8/8 within an average of 24days.
Pain was assessed using the VAS. A mean score of 7/10 was recorded pre-operatively with a significant drop to 4/10 post operatively. On average patient attained a pain-free thumb on 31days post-operatively.

Table 1. Patient Characteristics

	Total
Number of patients	23
Number of thumbs	25
Age (y)	
Mean	55
Min/Maximum	43/67
Hand operated (R:L)	12:13
Hand dominance operated (R:L)	8:1
Hand dominance operated/total thumbs	9:25
Gender (M:F)	12:11

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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