

Long-Term Outcomes of Wilson Osteotomy for Thumb Carpometacarpal Arthritis

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Introduction

- An abduction wedge osteotomy at the base of the thumb metacarpal, as described by Wilson, can be an effective treatment option, especially for younger patients with early carpometacarpal (CMC) arthritis, who fail to respond to conservative management.
- Purpose: evaluate the long-term survival and outcomes in patients who had previously undergone a metacarpal osteotomy for CMC arthritis of the thumb.

Methods

- Retrospective Case series
- A single surgeon (JDL) performed all procedures.
- Exclusion criteria: pregnancy, surgeries performed on the thumb outside of the primary surgeon's practice, post-traumatic arthritis, osteotomy for web space contracture and patients who had the osteotomy performed less than 10 years prior to the study date.
- A 5mm dorsal closing wedge osteotomy was made approximately 1cm from the CMC joint and fixed with 2 parallel kirschner wires, left outside the skin, removed in 5-8 weeks.
- Rehab: removable wrist splint and progressive range of motion, following wire removal.
- Patients invited to return for follow up: 3 view x-rays of the hand, grip and pinch strength testing and asked to complete PRHWE and Quick-DASH questionnaires.
- 22/48 patients had undergone thumb metacarpal osteotomy at least 10 years prior to initiating the study and met the inclusion criteria.

Results

- Mean age at surgery: 41.5 years, (range, 19-54), n=22 patients, 24 cases.
- 8 males and 14 females.
- Preoperative Eaton-Littler Classification: 7 cases stage I; 15 cases stage II; 2 cases stage III
- 2 patients (3 cases- 2 stage II, 1 stage III) subsequently underwent basal joint arthroplasty (BJA) within 2 years.
- **6/22 patients (27%) with perioperative complications**
 - 5 pin site infections
 - 1 patient osteomyelitis.
 - 1 patient had fibrous nonunion
- Mean time since surgery for patients that have not undergone additional CMC-related surgery : 12 years, (range, 10.5-13.3), n=20.
- All 20 patients contacted by telephone
 - 3 patients agreed to return for evaluation and were reevaluated
 - 7 patients agreed to return but have not yet been re-evaluated
 - 10 patients are currently lost to follow-up & efforts to locate patients are ongoing
- 3 patients were available for complete follow-up and demonstrated a mean PRWHE score of 34.8, QuickDASH score of 28.8, 89% pinch and 93% grip of the contralateral side respectively. One patient progressed from Eaton Stage II to Eaton Stage IV, while two remained at Stage II.



12.6 year radiographic follow-up in a currently 66 year-old female reveals no progression of Eaton-Littler stage II CMC arthritis



12.0 year radiographic follow-up in a currently 67 year-old male reveals progression of Eaton-Littler stage from II to stage IV CMC arthritis



Conclusions & Discussion

- Trapezium preservation is desirable for maintaining length of the thumb and may maintain strength in pinch and grasp, although this is controversial.
- Wilson Osteotomy is a durable procedure for early CMC arthritis in younger patients and does not limit future basal joint arthroplasty, if required. The majority of patients have not required any additional surgery for over 10 years.
- A relatively high complication rate is reported in this series, primarily due to pin site infection. Most infections resolved with a short course of oral antibiotics. One infection did progress to osteomyelitis.
- An adjustment in technique (burying the wires under skin) could potentially decrease this complication.
- Three patients went on to require BJA for persistent symptoms. All occurred within 2 years- 1 patient had stage III arthritis and in retrospect, a BJA could have been the definitive treatment.
- Limitations include the incomplete data and loss to follow up. Efforts are ongoing to recall patients.

References

Wilson JN, Bossley CJ. Osteotomy in the treatment of osteoarthritis of the first carpometacarpal joint. J Bone Joint Surg Br. 1983 Mar;65(2):179-81.