FIELD ORTHOPAEDICS

CASE REPORT

Use of Griplasty™ in the surgical management of carpometacarpal thumb arthritis.

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- Special interest in hand, wrist, elbow, and shoulder trauma, degenerative conditions and instability

OVERVIEW

This case report details the surgical management of carpometacarpal (CMC) thumb arthritis in a 56-year-old right-hand dominant female line inspector. The patient presented with a six-year history of progressive thumb base pain, initially managed conservatively with splinting. After non-operative treatments became ineffective, she underwent a thumb CMC arthroplasty using the Griplasty™ device.

The surgical approach involved a Wagner incision, trapezium excision, and a Griplasty™ implantation.

At the six-week follow-up, the patient demonstrated good functional recovery with minimal flexion loss, radiographic confirmation of successful suspension, and clearance to return to full use of her hand. The case highlights the potential of the Griplasty™ procedure as an effective surgical intervention for advanced CMC thumb arthritis.

CASE INTRODUCTION

The patient is a female 56-year-old right hand dominant line inspector who presented to Dr Umansky with a six-year history of pain in the right thumb base. The patient reported the pain is activity dependent, troubling at night, and denied a traumatic onset.

CASE PRESENTATION

Initial radiographs from six years prior showed mild (Eaton Grade I) changes consistent with with mild laxity of the volar oblique ligament.

Treatment was initiated with a custom molded hand based thumb spica splint, as well as a neoprene thumb spica splint for interval use. She was instructed to use either splint as needed for pain.

After two months the pain was relieved somewhat to her and she continued nonoperative management for 5 years. She then presented with progressive pain at the base of the thumb that was no longer controlled with splint management. Clinical exam at that time consisted of positive crepitus with CMC grind testing reproducing her symptoms, no clinical metacarpophalangeal (MP) hyperextension, and satisfactory range of motion. Radiographs confirmed progression of joint space narrowing in the trapeziometacarpal joint.

Below: Pre-Operative Imaging

She had lost her splint in the interim, and her work changed to involve less manual labor and a new splint was fabricated for her.

She had no relief this time with splint management and had modified her activities to decrease the stress on the basal joint without relief.

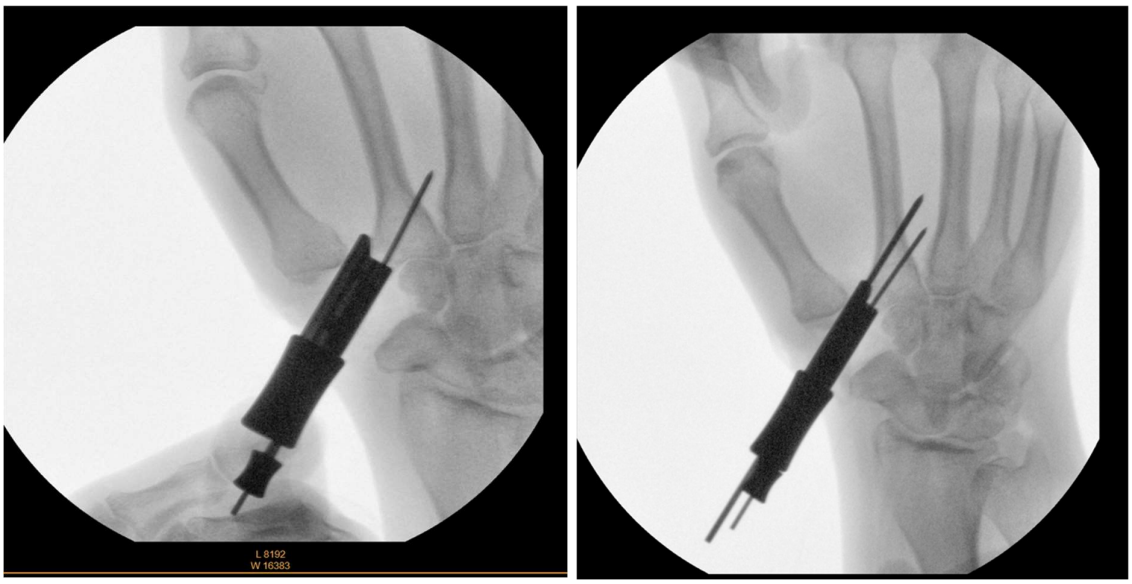
Options such as injection and hand therapy modalities were discussed and she requested a definitive procedure. Thumb CMC arthroplasty with the Griplasty™ implant was recommended at this time.

SURGICAL APPROACH

The procedure was performed using a Wagner incision, the FCR tendon was exposed, trapezium was exposed and periosteum and capsule were elevated circumfentially around the bone to allow it to be excised whole. Small remaining fragments were removed with a rongeur.

The Trajectory K-wire was placed in the trapezial articulation of the index metacarpal and oriented at approximately a 45-degree angle to and through the far cortex, which was confirmed radiographically.

The Guide K-wire was placed through the Parallel Guide Assembly and confirmed radiographically.



The cannulated drill was used to enlarge the Trajectory K-wire path.

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Next, the Index anchor was placed in the index metacarpal using the Guide K-wire as a guide and advanced through the far cortex.

The anchor was tested, the Guide K-wire removed, and the anchor inserter T-Handle was set aside.

The Trajectory K-wire was then placed near the abductor pollicis longus insertion at the base of the thumb metacarpal and passed across the far cortex.

The anchor insertion steps were repeated and the thumb anchor was deployed. After testing, the Guide K-wire was removed and the thumb was placed into traction.

When the thumb was in anatomic position the suture was tied.

Next, the second suture was placed through the APL insertion and tied as well making a V shaped suspension for the thumb metacarpal base.

The flexor carpi radialis was found to have no fraying or degenerative change and thus was left in situ, relying on the Griplasty™ for metacarpal suspension.

Postoperative protocol

A light dressing was applied, and she was discharged in satisfactory condition with plans to begin hand therapy for gentle range of motion 5 days postoperatively.

In therapy a hand based thumb spica splint was fabricated for moderate discomfort with therapy and use.

Follow Up

Two week review

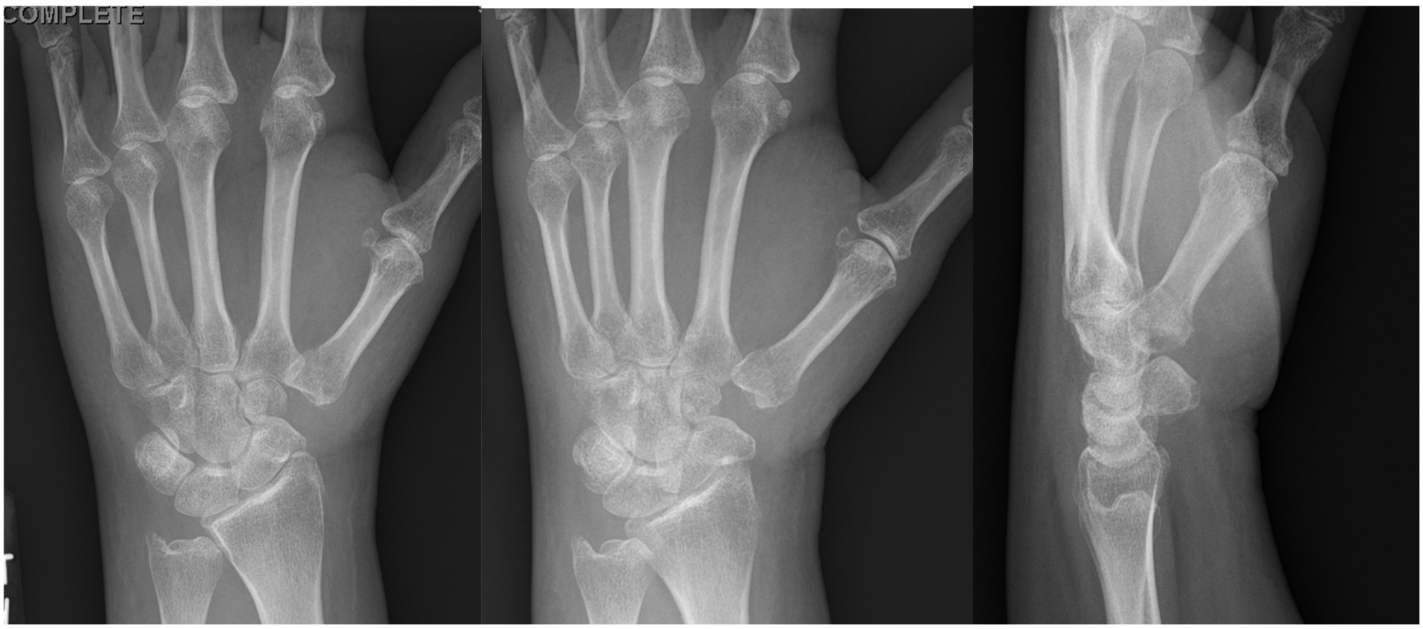
At two weeks postoperatively radiographs confirmed satisfactory suspension.

Below: Two week review imaging

Six week review

At the 6 week point postoperatively she reported good function, radiographs confirmed maintenance of the suspension, and she was released to begin strengthening and return to full use. The patient was deemed to have completed a near full clinical recovery with approximately 10-degree loss of both active and passive flexion.

Below: Six week review imaging



Conclusion

This case illustrates the effectiveness of Griplasty™ in treating advanced CMC thumb arthritis. For a 56-year-old patient with six-year progressive thumb pain, the surgical intervention successfully restored hand function.

The procedure provided:

- Sufficient metacarpal stabilization
- Minimal flexion loss
- Near full hand use recovery at six weeks

Product Resources

Field Orthopaedics. (2024). Griplasty™ Surgical Technique. Brisbane, Australia: Field Orthopaedics.