

Long-Term Outcomes of Partial Trapeziectomy With Capsular Interposition Arthroplasty for Treating Osteoarthritis of the Thumb Basal Joint

INTRODUCTION

- We describe the long-term outcomes of partial trapeziectomy with capsular interposition (PTCI) arthroplasty for treating patients with osteoarthritis(OA) of the basal joint of the thumb
- PTCI arthroplasty has been described as an alternative surgical technique for basal joint OA that may avoid problems with tendon harvest at times seen with alternative options

Hypothesis

- Limited excision of the base of the first metacarpal and partial trapeziectomy, using the joint capsule as interposition, may provide a viable alternative to more extensive surgical procedures and result in a stable thumb

METHODS

- Performed prospective case series of 27 patients
20 women, 7 men; 32 thumbs
Mean age = 61 years (r, 47-74)
Mean postoperative follow-up = 64.3 months (r, 28-112)

Evaluation

- Tests for grip strength and pinch strength
- Range of motion of MCP joint
- Measurement of first web space
- DASH scores and VAS measures,
- Radiographic hand examination

Statistical Analysis (P<.05)

- Paired two-tailed t-test of pre- and postoperative values

Surgical technique

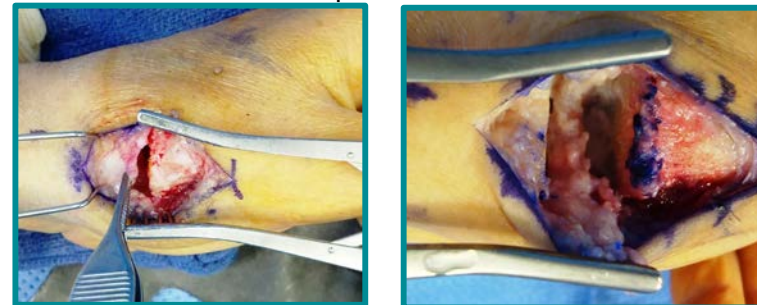
- Expose thumb basal joint using dorsal approach between extensor pollicis brevis and abductor pollicis longus
- Elevate periosteal sleeve, insertion abductor pollicis longus
- Excise 2 mm base of first metacarpal and distal trapezium

METHODS

Surgical technique (continued)

- Suture proximally based capsular tissue to volar capsule
- Reef elevated periosteal flaps (enhance dorsal ligaments)

Figures showing capsular interposition after excision of the distal 2 mm of the trapezium.



Postoperative rehabilitation and initial follow-up

- Thumb-spica splint, 4 weeks
- After, begin occupational therapy
- C-bar splint, 2-3 weeks to maintain first web space
- Progress to therapy for thumb stabilization
- Thumb strengthening at 8 weeks
- Clinic visit at 8 weeks; final evaluation at 4 to 6 months

Figures showing progression of trapezium space ratio (left) and subluxation (right) of thumb after PTCI arthroplasty.



RESULTS

- Significant increase in grip strength (P=.01)
- Significant decrease of thumb metacarpal subluxation (13%; P=.01); no complications

Table showing pre- and postoperative results of PTCI in 27 patients

Variable	N	Mean±SD, Preop	Mean±SD, Postop	P
Grip strength, kg	25	22.64±8.54	28.89±9.28	.005
MCP extension, °	16	2.19±6.57	22.41±10.04	<.0001
MCP flexion, °	15	42.33±18.11	36.67±12.40	.53
TSR, mm/mm	32	0.44±0.04	0.45±0.07	.65
Metacarpal sublux, mm	32	0.53±0.11	0.46±0.15	.01
DASH score	27	-	5.06±6.73	-
VAS score	27	-	0.32±0.67	-

SD, standard deviation; TSR, trapezium space ratio.

CONCLUSION

PTCI arthroplasty may result in improved thumb stability and grip strength; minimal subsidence of the thumb metacarpal and reduced subluxation

REFERENCE

Moneim MS, Morrell NT, Mercer DM. Tech Hand Up Extrem Surg. 2014. Sep;18(3):116-120.

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