



Proximal Row Carpectomy SLAC Wrist

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Disclosure

- NONE
- No Shiny Metal Objects Utilized



Watson Classification

Stage 1	Stage 2	Stage 3
		
Degenerative changes occurring at the most radial portion of the radioscaphoid	Degenerative changes progress along entire radioscaphoid joint	Degenerative changes progress to the capitolunate joint (the radiolunate remains unaffected)






POINTS

- Description
- Biomechanics
- Surgical technique
- Post-operative care
- Biomechanics
- Outcomes
- What IF??







History of Proximal Row Carpectomy

- First performed by T. T. Stamm in 1939 in London for painful wrist arthritis.
- In 1944 Dr. Stamm reported a five year follow up of his results stating patient range of motion 50-70% of normal.
- Grip close to normal post operatively.
- Procedure was indicated for weak and painful wrists following non-union scaphoid fractures and avascular necrosis of the lunate.




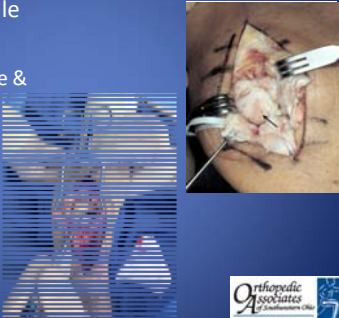
Surgical Technique

- Regional Anesthetic
- Tourniquet
- Dorsal Longitudinal incision
- 3rd compartment entrance
- PIN resection





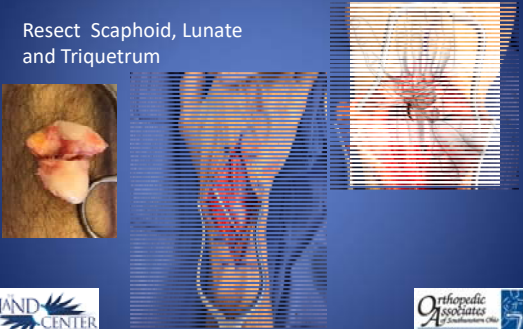
Surgical Technique

- T incision capsule
- Assess
 - Head of capitate & Lunate fossa





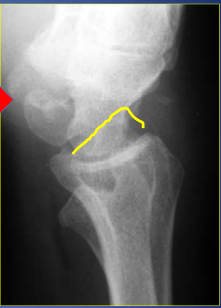
Surgical Technique

Resect Scaphoid, Lunate and Triquetrum



Surgical Technique

- Intra operative X-Ray
 - Complete Proximal Row Resection
 - Stability Radiocapitate joint
 - Styloid impingement
- Capsular closure
- Dressing and Splint , Drain
 - Wrist 20deg extension
 - MCP free



Post Operative Care

- Therapy
 - Wrist immobilized 4 weeks
 - Finger & Thumb ROM ASAP
 - AROM 4 weeks
 - Strengthening 6 weeks

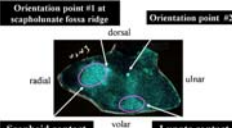





Comparison of the "Contact Biomechanics" of the Intact and Proximal Row Carpectomy Wrist

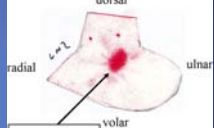
Peter Tang, MD, Jean Gavetti, MD, PhD, Muturi Murluki, PhD, Janice H. Pfaeffle, MD, PhD, Joseph E. Imbriglia, MD, Robert J. Goltz, MD

Orientation point #1 at scapholunate fossa ridge

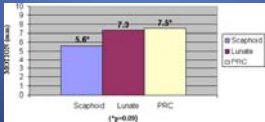


Scaphoid contact



Orientation point #2



Capitate contact



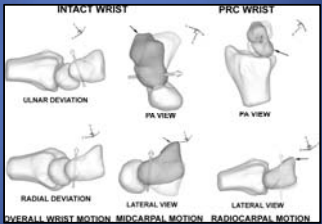
Condition	Contact Area (mm ²)
Scaphoid	5.6
Lunate	7.0
PRC	7.4






Biomechanics

Carpal Kinematics After Proximal Row Carpectomy



Brad D. Blankenhorn, MS, H. James Pfaeffle, MD, PhD, Peter Tang, MD, Doug Robertson, MD, PhD, Joseph Imbriglia, MD, Robert J. Goltz, MD JHS 2007





Outcome

- 60 - 70% ROM vs contralateral side
- 75% grip strength vs contralateral side
- **NONUNION 0%**
- **Pin tract infection 0%**
- **Hardware Failure 0%**



Relative Contraindications

- Age < 35yo??
- Loss of Cartilage Head of Capitate
- Loss of Cartilage Lunate Fossa
- Inflammatory Arthritis





OUTCOME

Prior to 2010 – NO POOR results reported

Long-term outcomes of proximal row carpectomy: a minimum of 15-year follow-up.
[Hand \(N.Y.\), 2012 Mar;7\(1\):72-8.](#)
[Ali MH¹, Rizzo M, Shin AY, Moran SL.](#)

Surgical failure rates with conversion to wrist fusion occurred early within the post-operative follow-up. Many patients continued to complain of pain requiring daily medication and were unable to return to manual labor type jobs. The results of this study suggest that long-term patient **satisfaction following PRC can be poor** and the surgeon may wish to consider alternative treatment options for younger patients and those with high-demand jobs.



OUTCOME

J Hand Surg Am, 2013
Aug;38(8):1498-1504
Proximal row carpectomy:
minimum 20-year follow-up.
[Wall LB](#), [Didonna ML](#), [Kiefhaber TR](#), [Stern PJ](#)

PRC provides satisfaction at a minimum of 20 years with a survival rate of 65%. Whereas we recommend a minimum age for PRC between 35 and 40 years, **young patients should not be excluded as PRC candidates; these patients should undergo appropriate preoperative counseling** of their increased failure risk secondary to their young age.



OUTCOME

J Hand Surg Am, 2017 Jun;42(6):428-435.
Proximal Row Carpectomy and 4-Corner Arthrodesis in Patients Younger Than Age 45 Years.
[Wagner ER](#)¹, [Werthel JD](#)¹, [Elhassan BT](#)¹, [Moran SL](#)².

Both PRC and 4CA represent a good surgical option for young patients with wrist arthritis, with similar complication rates, postoperative pain levels, wrist function, and long-term outcomes free of arthrodesis. **Proximal row carpectomy has improved motion and fewer complications**

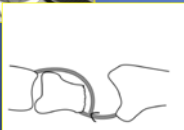


Capitate involvement



Proximal row carpectomy with capsular interposition arthroplasty for advanced arthritis of the wrist

J Bone Joint Surg [Br]
2009;91-B:1601-6.
21 January 2009;



Notwithstanding these reservations, we conclude that proximal row carpectomy with capsular interposition arthroplasty is a reasonable option for the treatment of advanced arthritis of the wrist.




Osteochondral Autograft Transplantation Articular Defects in the Hand and Wrist


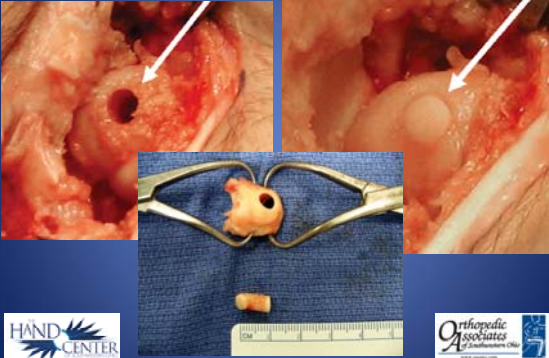
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CONCLUSIONS

- The OATS procedure represents an appropriate treatment option for the treatment of hand and wrist injuries in young, active patients who have failed conservative management.
- The OATS procedure is technically demanding, but is a reasonable treatment option of focal osteochondral defects in high demand individuals as it incorporates hyaline cartilage into the defect site.
- One can expect a successful outcome after a congruent articular surface is achieved and a motivated patient is able to complete an appropriate course of occupational hand therapy



Capitate involvement




Hemi Wrist




Limited Experience



Lunate facet involvement



NO EXPERIENCE



Complications

- Disruption of the Radioscaphocapitate ligament.
- Extensive Capitate cartilage damage.
- Failure of PRC and conversion to arthrodesis.
- No pain relief following surgery.
- Radiocarpal impingement.
- Infection.



PRC Advantages

- Improved pain relief and ROM.
- Early return to work.
- Satisfactory results.
- Good restoration of function in comparison to contralateral side.
 - Grip strength average 69%.
 - Wrist range of motion average 74 degrees.
 - No SHINEY METAL OBJECTS.
 - Preserves wrist arthrodesis if PRC fails.

