Proximal Row Carpectomy
SLAC Wrist

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Disclosure
• NONE
• No Shiny Metal Objects Utilized

Watson Classification
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

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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 Gauvin, MD, PhD, Muturi Muriuki, PhD, Jamie H. Pfaeffle, MD, PhD, Joseph E. Imbriglia, MD, Robert J. Goitz, MD

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. Goitz, 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

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

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, Werthel JD, Elhassan BT, Moran SL.

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
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.
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 for 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.

Osteochondral Autograft Transplantation
Articular Defects in the Hand and Wrist

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Capitate involvement

Hemi Wrist

Limited Experience
Lunate facet involvement

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.