

Acute S-L Injury:

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70 year old actively practicing OB-GYN

- Pedestrian knocked down by a car on 4/23/12
- Right wrist pain
- Seen by a colleague
- Tender over dorsal wrist and scaphoid



[H]



Given a splint and told to come back in two weeks

- Returns a month later (5/23/12)
- Motion 90% normal
- X-rays negative for scaphoid fx



Dr...

[H]



R
VT



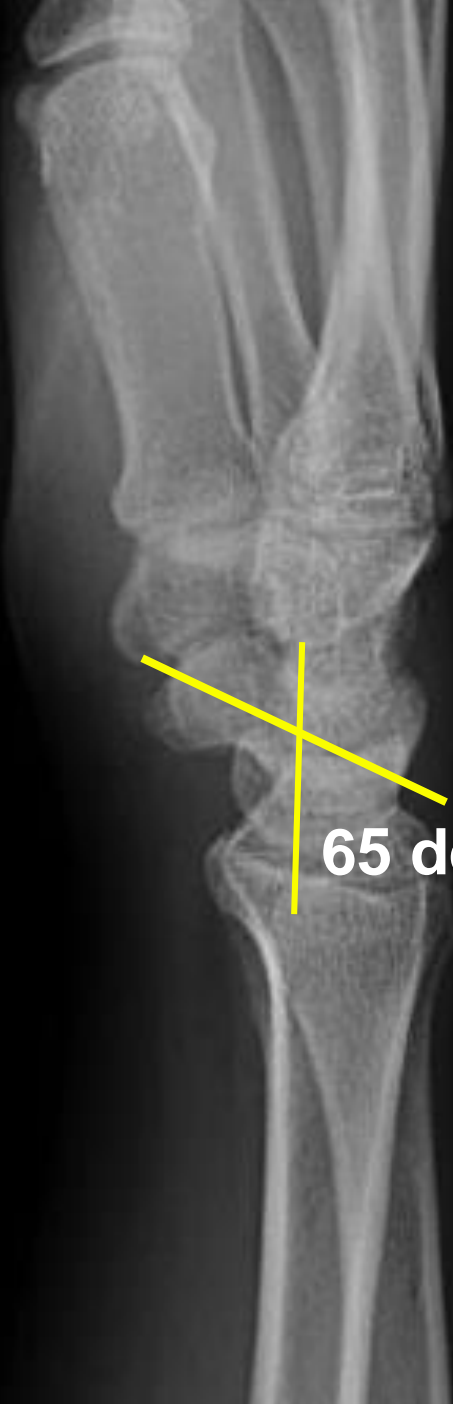


R
VT



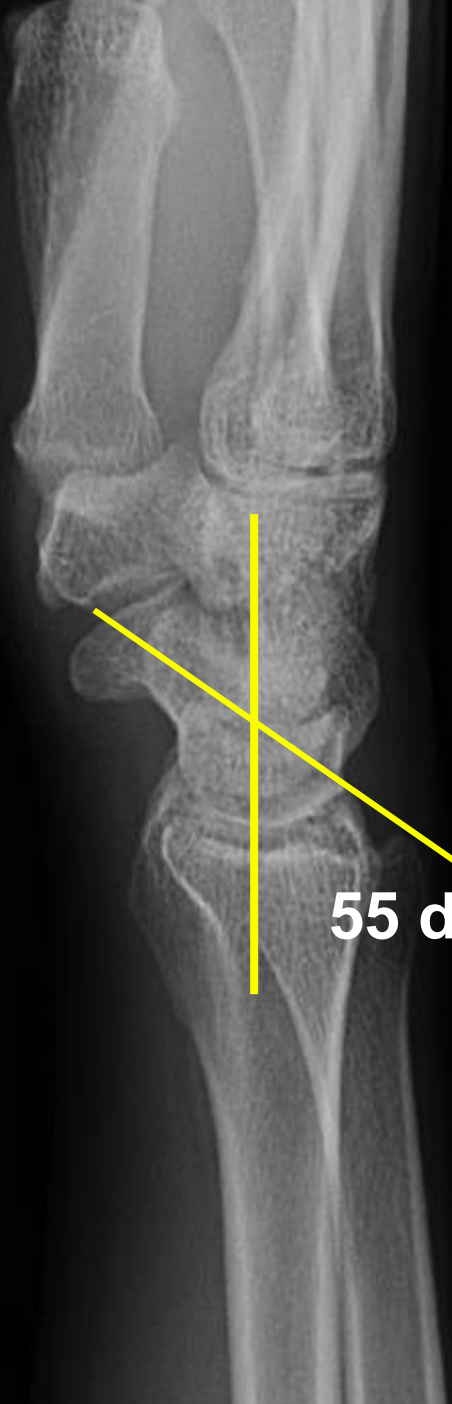
L
RC

**What is your diagnosis
based on x-rays?**



65 degrees

R
VT



55 degrees

L
RC

The significance of conventional radiographic parameters in the diagnosis of scapholunate ligament lesions

Kai Megerle · S. Pöhlmann · O. Kloeters ·
G. Germann · M. Sauerbier

Abstract

Objective Although in widespread clinical use, evidence of the diagnostic accuracy of radiographic parameters for the diagnosis of scapholunate ligament injuries is scarce. The objective of this study was to evaluate the scapholunate (SL) angle, radiolunate (RL) angle and SL gap as diagnostic parameters for these lesions.

Methods Eight hundred forty nine patients, who underwent wrist arthroscopy at our institution because of wrist pain were included in a retrospective analysis. In all patients the SL angle, RL angle and SL gap were measured on preoperative radiographs. These parameters were correlated with the actual finding of the SL ligament during arthroscopy. Optimal test thresholds were calculated as well as sensitivity, specificity and the likelihood ratios of each parameter.

Results All three parameters proved useful in statistical analysis. The optimal cut-off points for diagnosing lesions

of the SL ligament were calculated as 62.5° for the SL angle, 12.5° for the RL angle and 2.5 mm for the SL gap. SL angles had the greatest specificity (0.93).

Conclusions We were able to validate plain radiographs as a reliable tool in the work-up of patients with suspected SL ligament injuries. However, wrist arthroscopy remains the gold standard in diagnosing and treating these lesions.

Keywords Diagnostic x-ray · Wrist · Scapholunate · Ligaments · Trauma

Introduction

Carpal stability is maintained by a combination of intrinsic and extrinsic ligaments. It has been shown that injuries of the scapholunate (SL) ligament may lead to severe

Megerle: 2011

- SL gap > 2.5 mm most sensitive for SL injury
- SL angle > 65 degrees most specific for SL injury with odds of intact ligament being less than 5%

He felt better and went back to work delivering babies

- 6/25/12—has severe right wrist pain trying to extricate a baby doing a c-section
- His right hand was supinated and extended and he felt a pop in the right wrist



Diagnosis?

- **Blown out SL ligament**
- **Secondary stabilizers also injured**
- **Acute on chronic?**

Could this have been detected earlier?

- Maybe with grip view or MRI
- There was felt to be no need to obtain MRI initially and patient was improving clinically and RTW

What to do?

- Any more testing or nonop rx needed?
- Surgery—timing?
- What type of surgery?

Do acute repairs do better than chronic repairs?

- Idea is that ligament might have better chance to heal if you fix it earlier

Scapholunate Interosseous Ligament Injuries: A Retrospective Review of Treatment and Outcomes in 82 Wrists

Eric M. Rohman, MD, Julie Agel, MA, Matthew D. Putnam, MD, Julie E. Adams, MD

Conclusions For chronic injuries, ligament reconstruction produced better radiographic outcomes than repair with or without capsulodesis. Acute intervention (within 6 wk) was preferable to chronic intervention for scapholunate interosseous ligament injuries, and a substantial number of isolated injuries failed to receive treatment in the acute period. (*J Hand Surg Am.* 2014;39(10):2020–2026. Copyright © 2014 by the American Society for Surgery of the Hand. All rights reserved.)

What to do surgically?

- **Repair ligament and K-wire or screw it?**
- **Add something else?**
- **What should that be?**

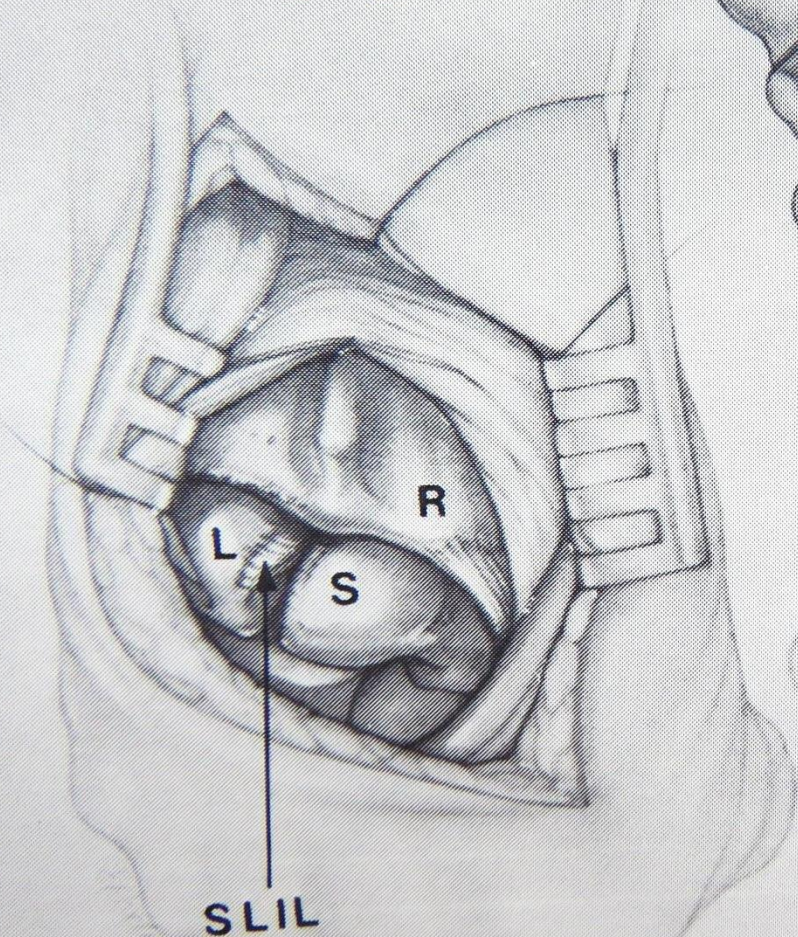
Results of ligament repair and capsulodesis:

Treatment of scapholunate dissociation by ligamentous repair and capsulodesis

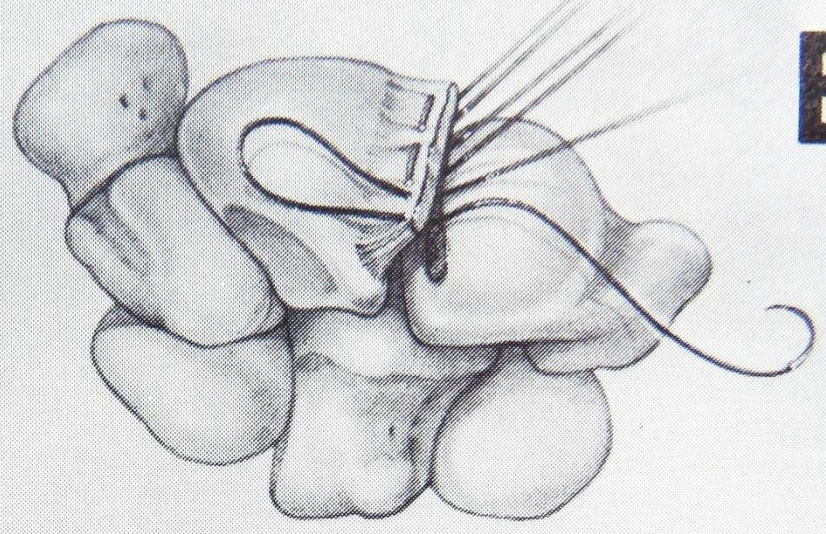
We believe that direct scapholunate ligamentous repair, supported by a dorsal radioscaphoid capsulodesis, should be considered for the treatment of most scapholunate dissociations when there is no osteoarthritis, regardless of the time that has elapsed since injury. We treated 24 patients by this technique between 1972 and 1988. The records of 21 were available for study. Average time from injury to surgical treatment was 17 months (range, 1 to 84 months). Results were evaluated clinically and by means of patient questionnaire and x-ray films. The significant change in range of motion was a loss of palmar flexion, which averaged 11.5 degrees. Grip strength, pain, and x-ray appearance improved in all cases. Only one patient had to change occupations after surgery because of wrist symptoms. Three had minimal x-ray degenerative changes, which did not result in increased pain or in loss of motion and grip strength. There were no complications. (J HAND SURG 1992;17A:354-9.)

Carlos J. Lavernia, MD, Mark S. Cohen, MD, *San Diego, Calif.*, and
Julio Taleisnik, MD, *Orange, Calif.*

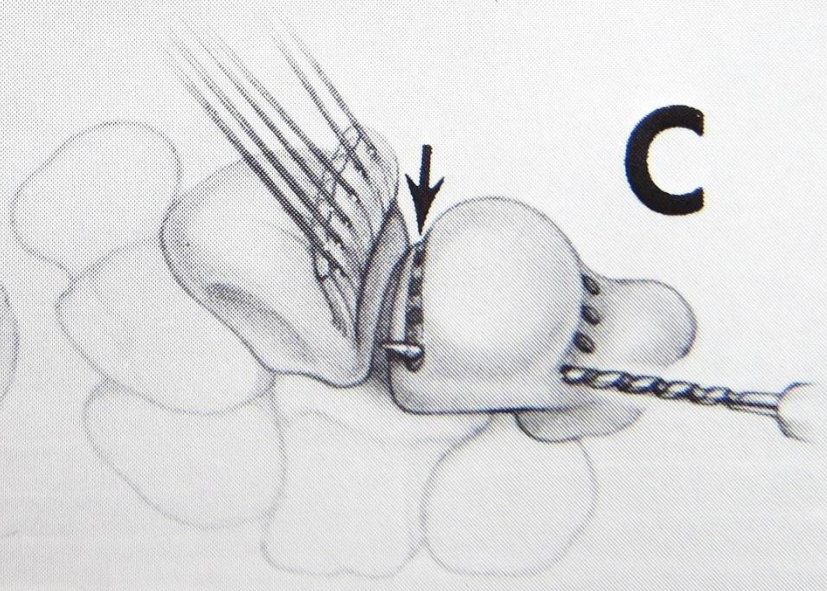
A



B



C



Taleisnik

Contrarian view:

Outcome After Repair of the Scapholunate Interosseous Ligament and Dorsal Capsulodesis for Dynamic Scapholunate Instability Due to Trauma

Jay Pomerance, MD

From Arlington Heights, IL.

JHS 2006

Pomerance: 2005

Conclusions: Prior reports evaluating patients for SL ligament repair appeared to be favorable in short-term (1- to 2-y) follow-up periods. In the present report, for patients followed up for an average of 66 months after surgery, the results, clinically and radiographically, appear to deteriorate in those who place high demands on the wrists on a daily basis. Although the numbers in the present study are small, they indicate that SL ligament repair with dorsal capsulodesis may have a place for patients who have normal preoperative static unloaded x-rays and sufficient ligament for repair and who do not place high demands on the wrists on a daily basis. The ideal procedure for this difficult problem continues to remain elusive. (J Hand Surg 2006;31A:1380–1386. Copyright © 2006 by the American Society for Surgery of the Hand.)

Type of study/level of evidence: Therapeutic IV.

Key words: Dynamic, instability, ligament, repair, scapholunate.

Would anyone do?

- **An STT or scaphocapitate fusion for this OB-GYN?**

Scaphocapitate Arthrodesis for Treatment of Scapholunate Instability in Manual Workers

Matthias Luegmair, MD, Philippe Saffar, MD

Purpose To assess the long-term efficacy of scaphocapitate arthrodesis for treatment of chronic scapholunate instability in high-demand patients.

Methods We retrospectively analyzed the clinical and radiographic results of 20 manual workers who underwent scaphocapitate arthrodesis for chronic scapholunate instability at a mean follow-up of 10 years (range, 1–23 y). We measured range of motion and grip strength; pain on a scale of 0 to 5; Quick Disabilities of the Arm, Shoulder, and Hand score; and ability to return to work. We assessed radiographs for union, carpal height and alignment, signs of ulnar translation or radiocarpal arthritis, and hardware problems.

Results At most recent follow-up, the arc of motion averaged 87° for flexion-extension and 41° for the radioulnar deviation. The postoperative average maximum grip strength was 21 kg, which was 60% of the opposite, normal wrist. Pain was significantly reduced. The average postoperative Quick Disabilities of the Arm, Shoulder, and Hand score was 19, and the return-to-work rate was 90%. Radiographic analysis showed union in all patients, improvement of carpal height and scaphoid angle, no evidence of ulnar translation, and a 30% rate of radiocarpal osteoarthritis.

Conclusions This report of long-term results demonstrates the efficacy of scaphocapitate limited carpal arthrodesis for the treatment of chronic rotatory subluxation of the scaphoid. We conclude that continued use of this procedure is warranted. (*J Hand Surg* 2013;38A:878–886. Copyright © 2013 by the American Society for Surgery of the Hand. All rights reserved.)



A

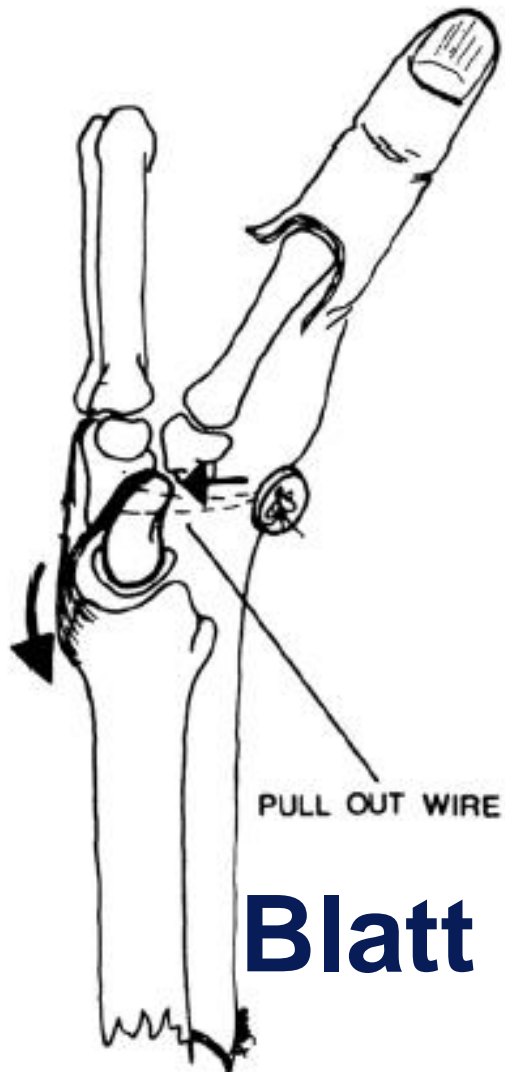


B

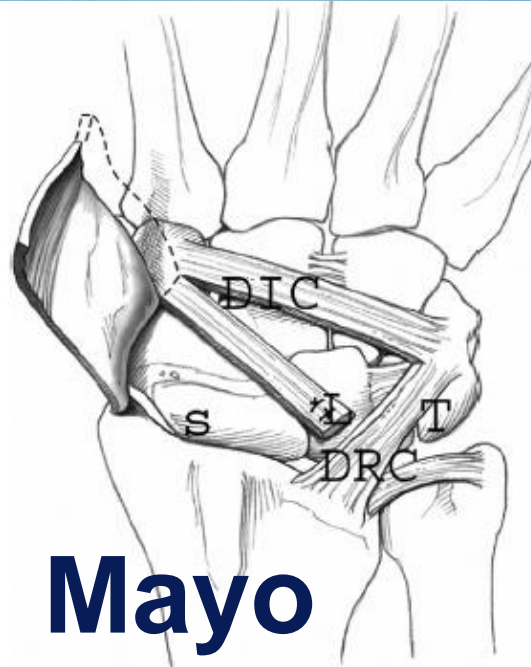
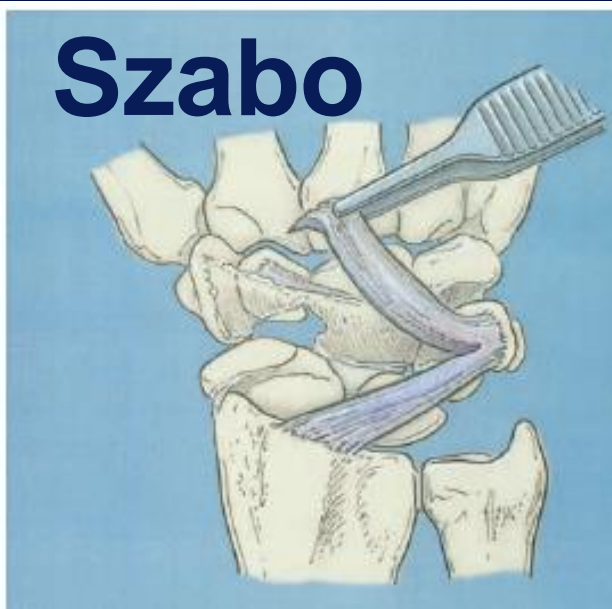
FIGURE 3: Onset of osteoarthritis 19 years after an SC arthrodesis: **A** anteroposterior and **B** lateral view.

“Wannabe” STT fusions: The capsulodeses

- Blatt and DIC and Brunelli
- Suspend the scaphoid but allow some ‘play’ with more motion
- Long-term radiographic results disappointing but clinical results reasonable

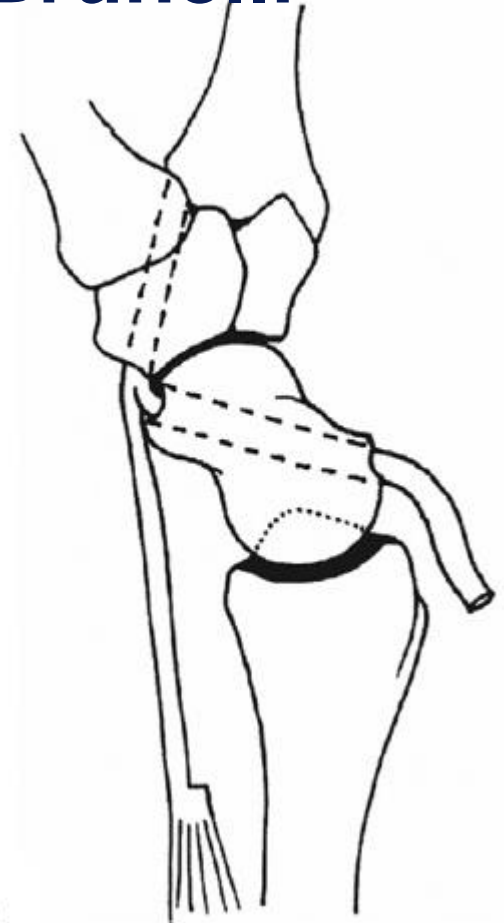


Blatt



Mayo

Brunelli



Interestingly, both Blatt and DIC have about equal results

- Moran, Cooney, Berger and Strickland JHS 2005:
 - No difference in outcome or motion between Blatt or DIC at 2 years
 - 20% loss of wrist motion
 - Pain better but not gone
 - X-rays worsened over time

Long-Term Outcomes of Dorsal Intercarpal Ligament Capsulodesis for Chronic Scapholunate Dissociation

Varun K. Gajendran, MS, Brett Peterson, MD, Robert R. Slater Jr., MD,
Robert M. Szabo, MD

From the Department of Orthopaedic Surgery, University of California, Davis, Sacramento, CA; and the Department of Orthopaedic Surgery, The Permanente Medical Group, Roseville, CA.

Conclusions: The DILC does not consistently prevent radiographic deterioration and the development of arthrosis in the long-term; however, the level of functionality and patient satisfaction remained relatively high in 58% of our patients, suggesting a lack of correlation between the radiographic findings and development of arthrosis and the functional outcomes and patient satisfaction. We believe that the DILC is still a reasonable option for treating flexible static scapholunate dissociation in patients without radiographic signs of arthritis presenting with wrist pain despite conservative treatment. Prevention of radiographic deterioration and arthrosis remains an unsolved problem. (J Hand Surg 2007;32A:1323–1333. Copyright © 2007 by the American Society for Surgery of the Hand.)

What I do for acute SL (for last 2 years anyway):

- Transverse incision dorsally
- Repair the S-L ligament with suture anchors (that don't show on x-ray)
- Do both a Blatt and a DIC into same suture anchor in distal scaphoid
- Pin S-L and S-C for 7-8 weeks

What I did in this case:

- **7/25: Repair of SL ligament and double capsulodesis**
 - **ligament was robust**



[L] [A]

C8192
W16384

[H]



R
KA
⊕

[H]

[V]

Pins removed 7 weeks postop

- **Last seen 6 months postoperatively**
 - back at work
 - flex/ext 30/30 vs 60/50 opposite
 - minimal pain

**The key to
success:**

**No follow up
x-rays!**

**I am not
kidding**

Thank You

