Orthopaedica Belgica 2019 Congress

Complications in Orthopaedics and Traumatology

Complications after wrist ligamentoplasty

N. Hollevoet
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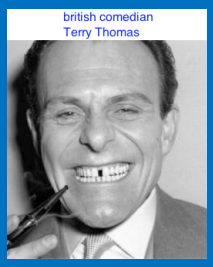
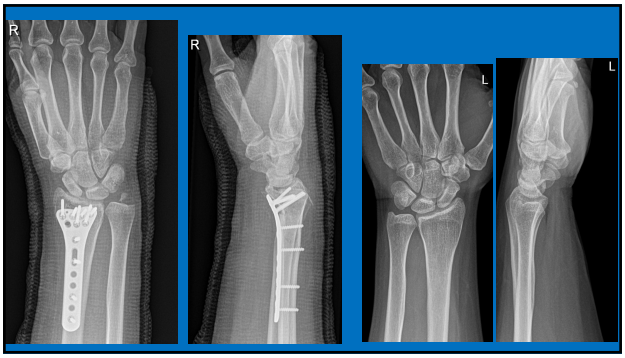
Scapholunate dissociation



Scapholunate dissociation

Aetiology:

trauma
degenerative
congenital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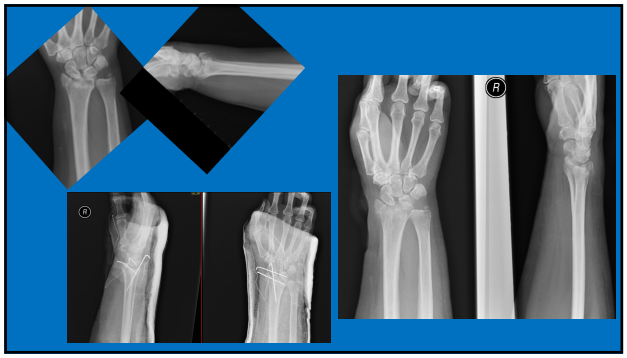
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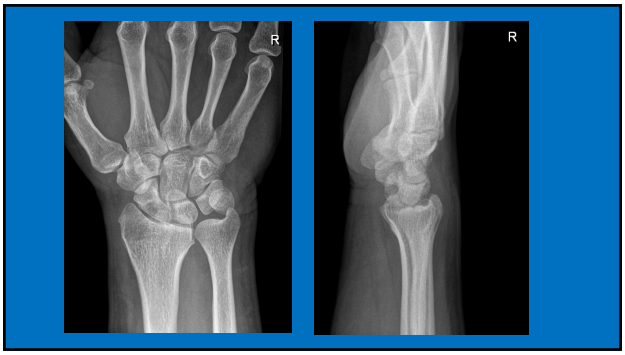
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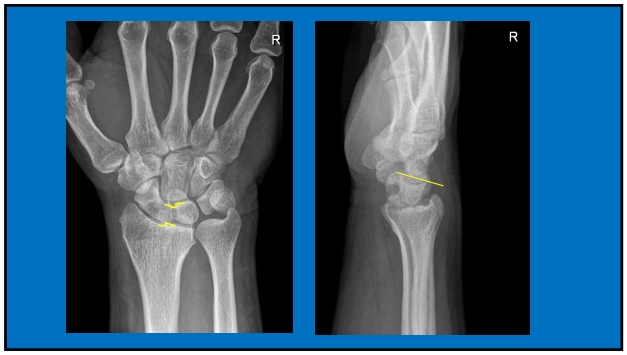
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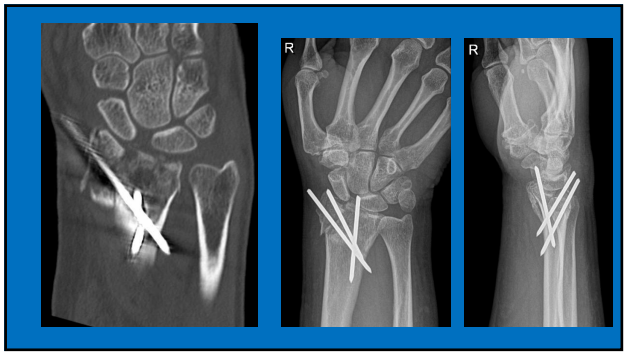
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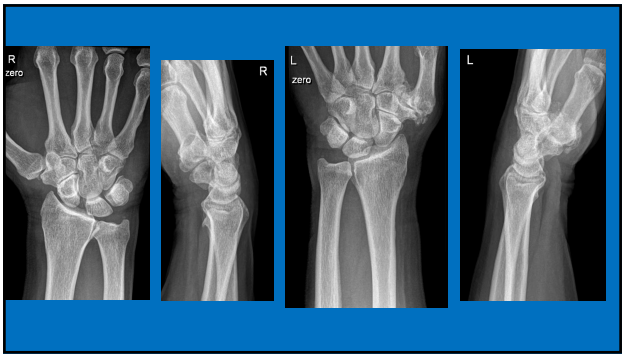
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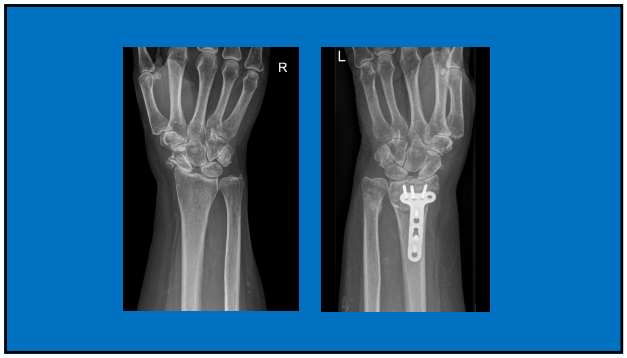
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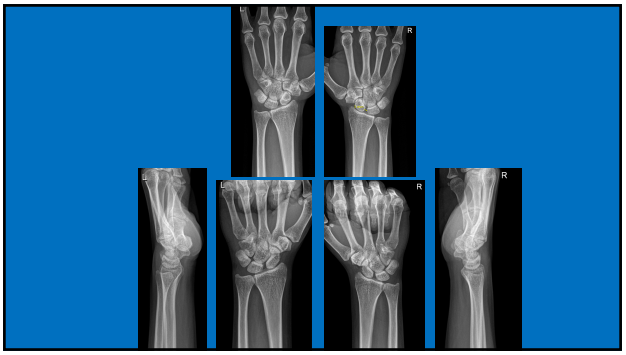

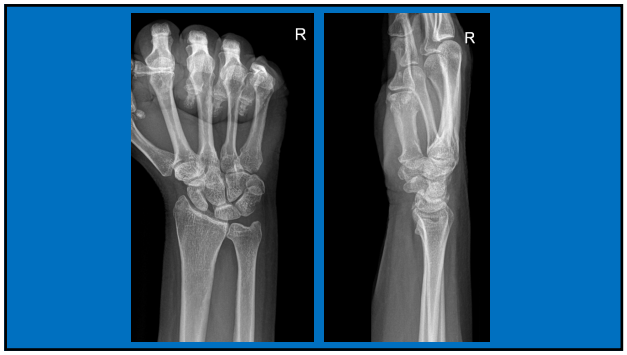
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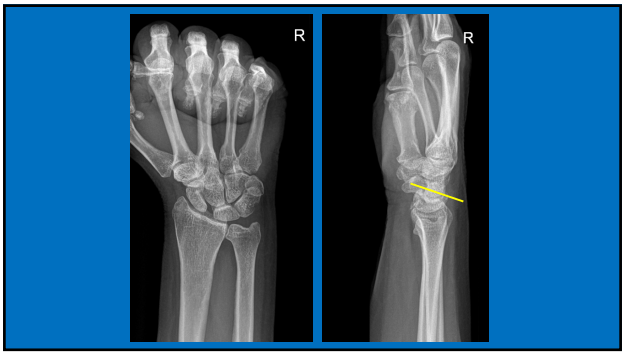
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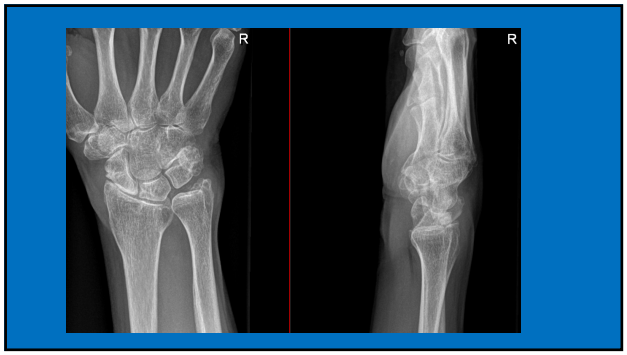
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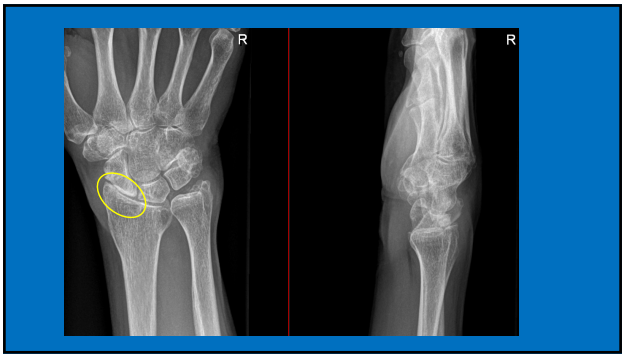
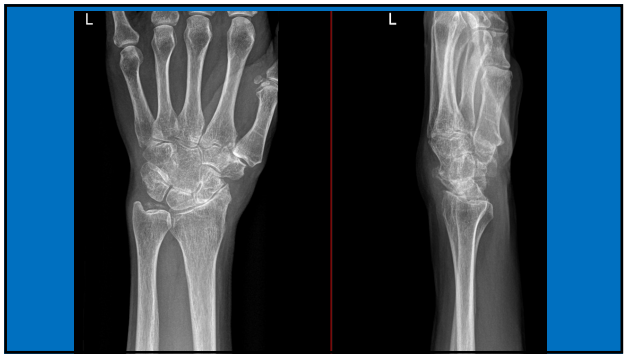
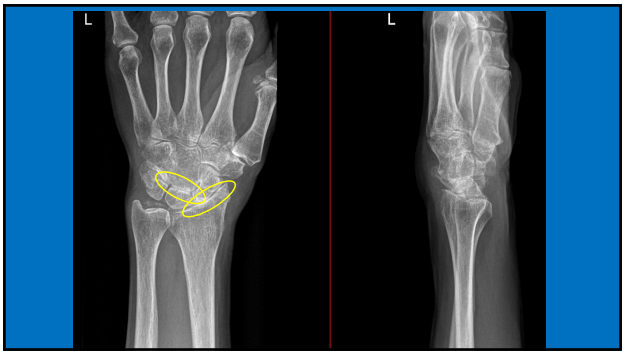
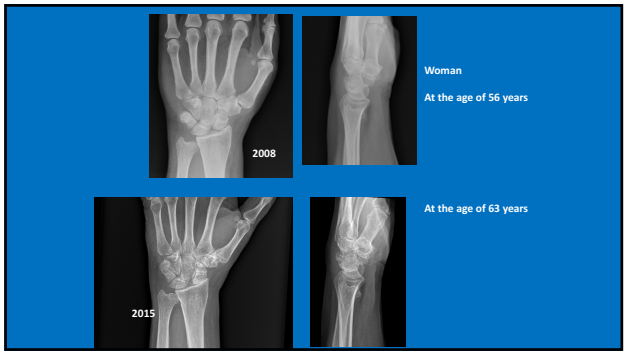








Wrist ligamentoplasty in scapholunate instability

- **Aim:**
- **To decrease the pain**
- **to prevent SLAC in symptomatic patients with chronic reducible scapholunate disscociation without osteoarthritis**

Table 1. Published techniques for the management of chronic SLIL instability.

Technique	Author/year
STT arthrodesis	(Peterson and Lipscomb, 1967)
ECRB tenodesis through the scaphoid	(Palmer et al., 1978)
Scaphoid-lunate-capitate-triquetrum arthrodesis	(Uematsu, 1979)
Limited triscaphoid intercarpal arthrodesis	(Watson, 1980)
Extensor tenodesis (dorsal and palmar)	(Dickel and Millender, 1984)
Scapholunate arthrodesis	(Hastings and Silver, 1984)
Blatt capsulodesis	(Blatt, 1987)
Palmar SLIL reconstruction with K-wire	(Conyers, 1990)
Four-Bone ECRB weave	(Almquist et al., 1991)
Scaphocapitate arthrodesis	(Pisano et al., 1991)
Scaphocapitolunate arthrodesis	(Rotman et al., 1993)
Brunelli FCR tenodesis	(Brunelli and Brunelli, 1995)
Dorsal radioscaphoid capsulodesis	(Wintman et al., 1995)
RASL with Herbert screw	(Rosenwasser et al., 1997)
Dorsal capsulodesis with suture anchors	(Uhl et al., 1997)
Modified Brunelli FCR tenodesis	(Van Den Abbeele et al., 1998)
Bone-retinaculum-bone autograft (distal radius)	(Weiss, 1998)
Metacarpal-carpal bone-retinaculum-bone autograft	(Harvey and Hanel, 2002)
Mayo dorsal capsulodesis	(Moran et al., 2005)
Arthroscopic debridement and pinning of joint	(Darlis et al., 2006)
Three-ligament FCR tenodesis	(Garcia-Elias et al., 2006)
Arthroscopic RASL	(Avilés et al., 2007)
ECRB ligamentoplasty and dorsal capsulodesis	(Papadogeorgou and Mathoulin, 2010)
Arthroscopic dorsal capsulodesis	(Mathoulin et al., 2011)
Viegas dorsal capsulodesis	(Camus and Van Overstraeten, 2013)
Transosseous ligament reconstruction with FCR	(Ross and Couzens, 2013)
Arthroscopic dorsal and volar ligament reconstruction	(Ho et al., 2015)

27 techniques
Eur J Hand Surg 2018

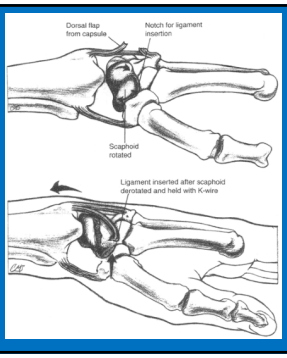
The management of chronic non-arthritic scapholunate dissociation: a systematic review

Zafar Naqui[1], Wee Sim Khor[1], Anuj Mishra[2], Vivien Lees[2] and Lindsay Muir[1]

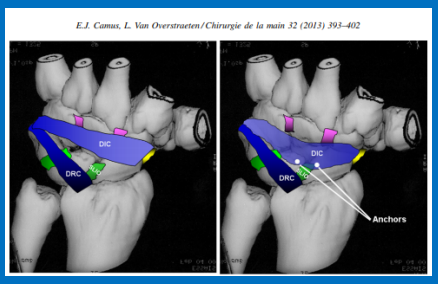
Different ligamentoplasties

capsulodesis

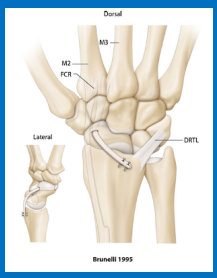
Tenodesis with FCR, ECRL, ECRB

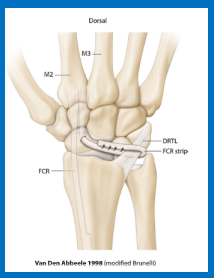


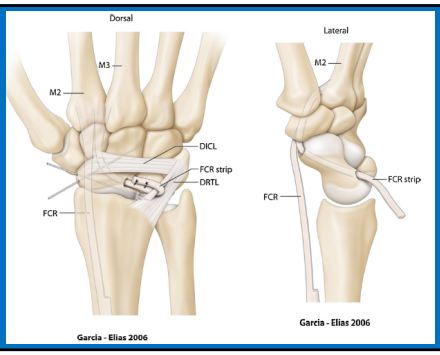
Blatt capsulodesis

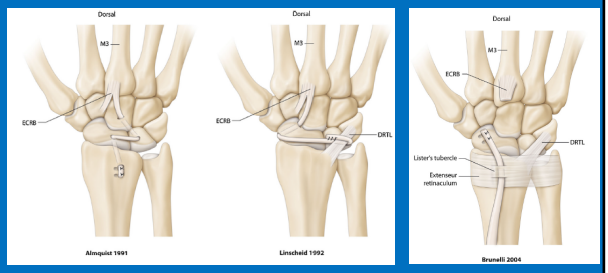


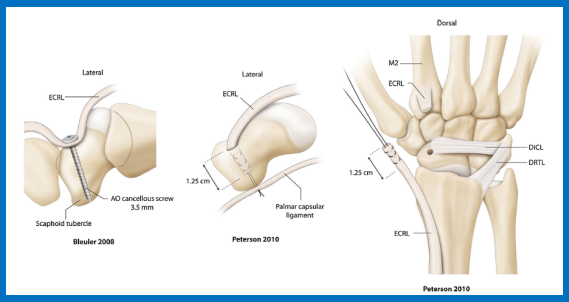
Viegas dorsal capsulodesis



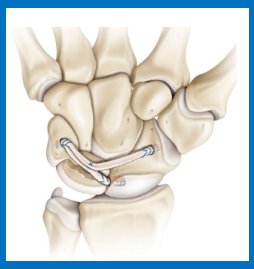








intercarpal ligamentoplasty (Athlani et al., 2019)



Naqui et al., 2018 J Hand Surg Eur

Pain scores, grip strength, movement arc, radiological parameters, and complication rates.

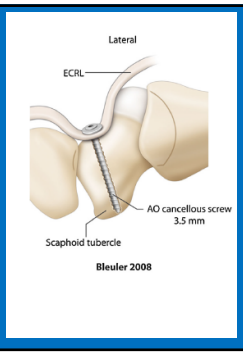
Author	Procedure	Pain	Grip strength	Flex – extension change	Radial ulnar change	SL angle	SL gap	Complications
Busse F	capsulodesis	−30.7%	−3.1%	−17.3%	−4.1%	−6.5%	NR	19%
Camus EJ	capsulodesis	−51.7%	40.8%	−0.4%	48.6%	−3.9%	−22.4%	23%
Deshmukh SC	capsulodesis	−48.1%	NR	−40.5%	NR	6.7%	NR	14%
Mathoulin CL	capsulodesis	−84.9%	NR	NR	NR	−13.5%	NR	3%
Misra A	capsulodesis	−52.4%	27.5%	1.3%	22.2%	−5.9%	−7.7%	13%
Pomerance J	capsulodesis	4.2%	24.3%	−14.6%	NR	10.8%	19.6%	53%
Yang Y	capsulodesis	−73.0%	28.7%	−18.3%	NR	−3.2%	−10.0%	8%
Links AC*	tenodesis	−49.2%	13.3%	−47.9%	−18.6%	−13.1%	−18.9%	0%
Ross M	tenodesis	−24.2%	18.7%	−21.5%	NR	−29.4%	−61.1%	0%
Van den Abbeele KL	tenodesis	−57.8%	0%	−18.6%	6.5%	0%	NR	50%
Chantelot C	arthrodesis	Non-numerical	27.3%	−29.0%	−20.8%	NR	NR	23%
Caloia M	RASL/pinning	−72.2%	NR	NR	NR	−15.9%	−34.2%	22%
Darlis NA	RASL/pinning	Non-numerical	NR	−8.8%	−16.3%	12.8%	18.8%	45%
Ho PC	other	−62.8%	14.5%	13.6%	15.9%	−16.3%	−40.2%	14%
Links AC*	other	−71.0%	36.7%	−16.7%	−22.7%	−24.6%	−43.6%	14%
O'Meeghan CJ	other	−57.9%	−4.0%	0%	−2.4%	0%	8.0%	NR
Papadogeorgou E	other	Non-numerical	NR	7.7%	28.6%	NR	NR	44%
Hahn P	other	Non-numerical	NR	NR	NR	−18.7%	−44.4%	NR

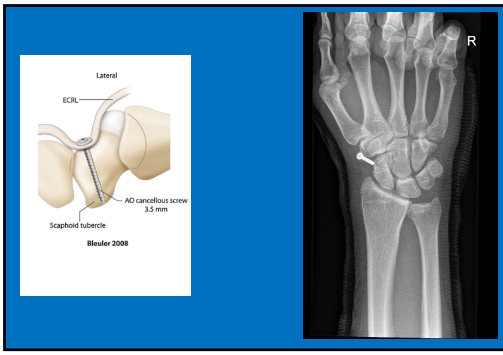
Dautel et al., 2019 Hansur

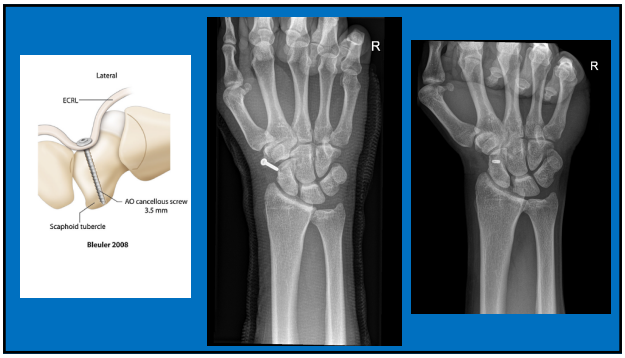
Fig. 5. Radiograph (A) and computed tomography scan (B) showing STT osteoarthritis 10 months after 3 LT. Radiograph (C) and computed tomography scan (D, E) showing SLAC osteoarthritis 30 months after 3 LT.

Complications 3LT:

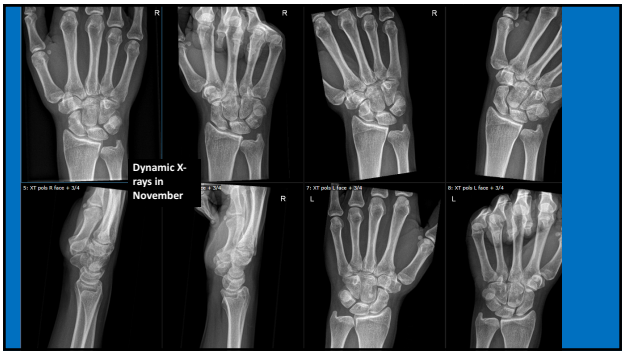
CRPS (10%) 2 cases
STT arthritis (10%)
Progression to SLAC (10%)



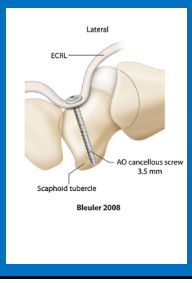




35-year old woman
X-rays in October

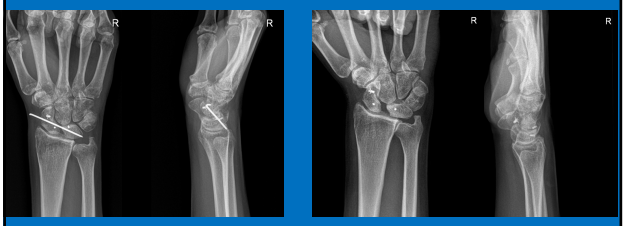


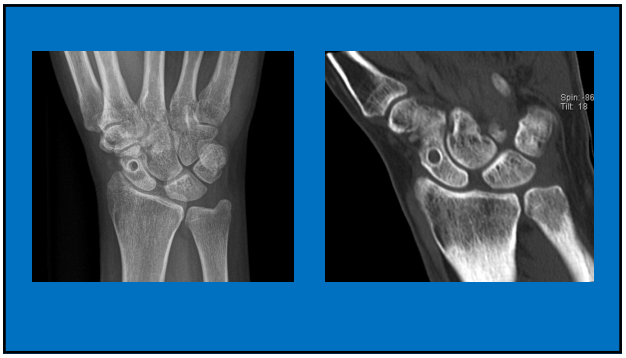
Arthroscopy complete rupture scapholunate ligament
Tenodesis with ECRL tendon and bone anchor

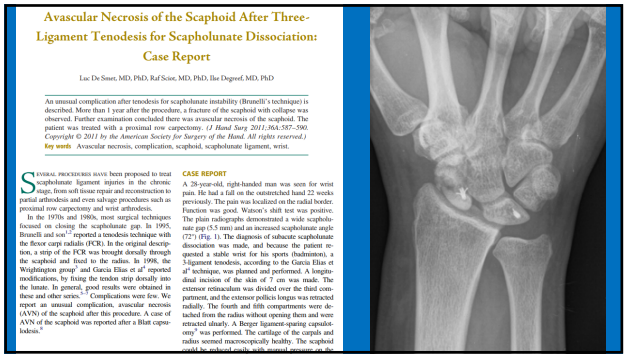


Arthroscopy complete rupture scapholunate ligament
Tenodesis with ECRL tendon and bone anchor

Revision with dorsal capsulodesis







Avascular Necrosis of the Scaphoid After Three-Ligament Tenodesis for Scapholunate Dissociation: Case Report

Luc De Smet, MD, PhD, Raf Sciot, MD, PhD, Ilse Degreef, MD, PhD

An unusual complication after tenodesis for scapholunate instability (Brunelli's technique) is described. More than 1 year after the procedure, a fracture of the scaphoid with collapse was observed. Further examination concluded there was avascular necrosis of the scaphoid. The patient was treated with a proximal row carpectomy. *(J Hand Surg 2011;36A:587–590.*

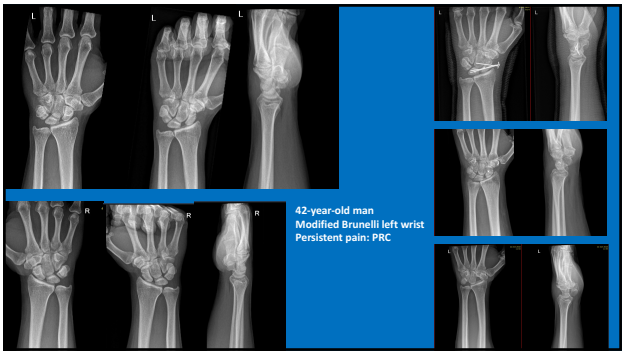
key words Avascular necrosis, complication, scaphoid, scapholunate ligament, wrist.

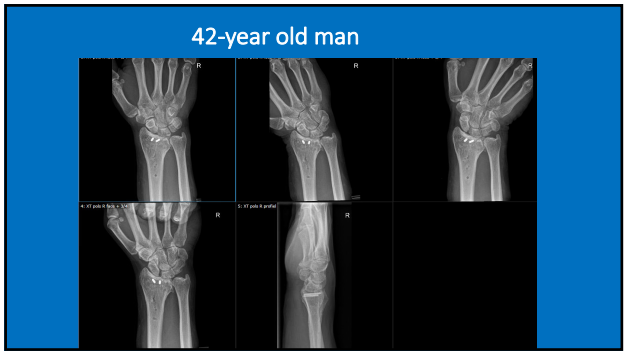
Several procedures have been proposed to treat scapholunate ligament injuries in the chronic stage, from soft tissue repair and reconstruction to partial arthrodesis and even salvage procedures such as proximal row carpectomy and wrist arthrodesis.

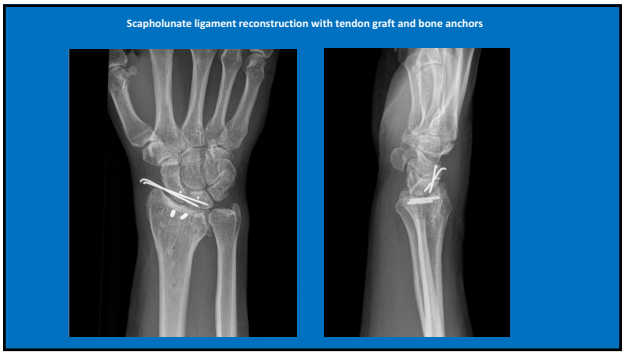
In the 1970s and 1980s, most surgical techniques focused on closing the scapholunate gap. In 1995, Brunelli and son[1,2] reported a tenodesis technique with the flexor carpi radialis (FCR). In the original description, a strip of the FCR was brought dorsally through the scaphoid and fixed to the radius. In 1998, the Weightington group[3] and Garcia Elias et al[4] reported modifications, by fixing the tendon strip dorsally into the lunate. In general, good results were obtained in these and other series.[5–7] Complications were few. We report an unusual complication, avascular necrosis (AVN) of the scaphoid after this procedure. A case of AVN of the scaphoid was reported after a Blatt capsulodesis.[8]

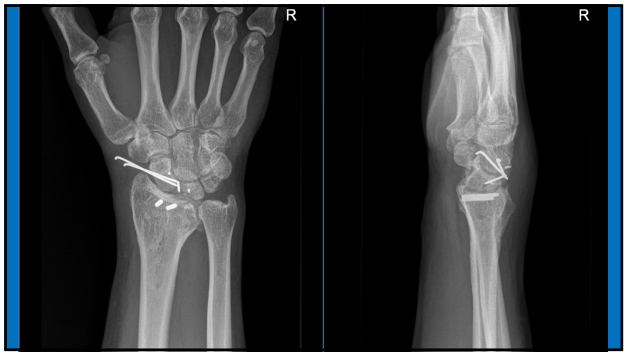
CASE REPORT

A 28-year-old, right-handed man was seen for wrist pain. He had a fall on the outstretched hand 22 weeks previously. The pain was localized on the radial border. Function was good. Watson's shift test was positive. The plain radiographs demonstrated a wide scapholunate gap (5.5 mm) and an increased scapholunate angle (72°) (Fig. 1). The diagnosis of subacute scapholunate dissociation was made, and because the patient requested a stable wrist for his sports (badminton), a 3-ligament tenodesis, according to the Garcia Elias et al[4] technique, was planned and performed. A longitudinal incision of the skin of 7 cm was made. The extensor retinaculum was divided over the third compartment, and the extensor pollicis longus was retracted radially. The fourth and fifth compartments were detached from the radius without opening them and were retracted ulnarly. A Berger ligament-sparing capsulotomy[9] was performed. The cartilage of the carpals and radius seemed macroscopically healthy. The scaphoid







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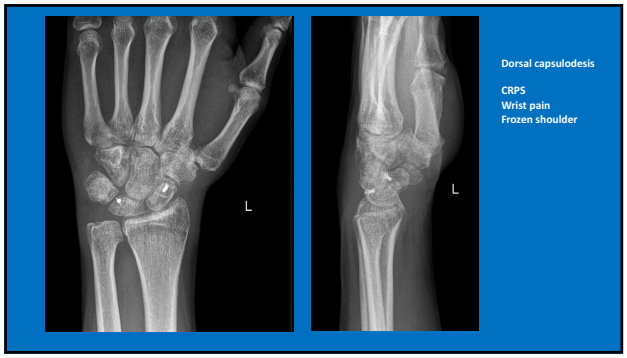
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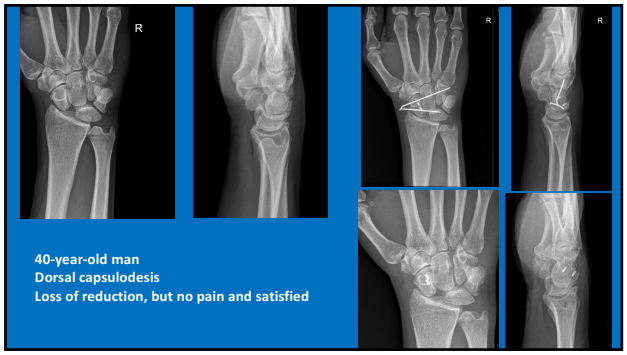
Dorsal capsulodesis
CRPS
Wrist pain
Frozen shoulder


L
Dorsal capsulodesis
CRPS
Loss of wrist flexion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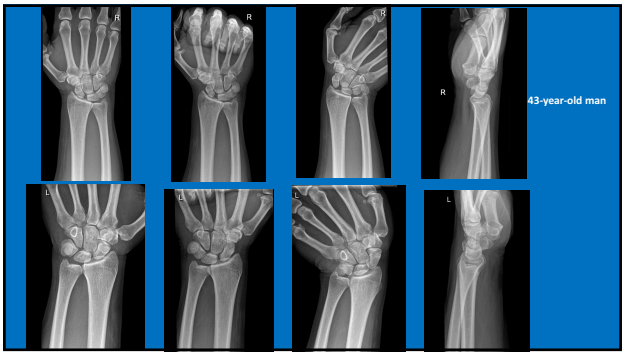
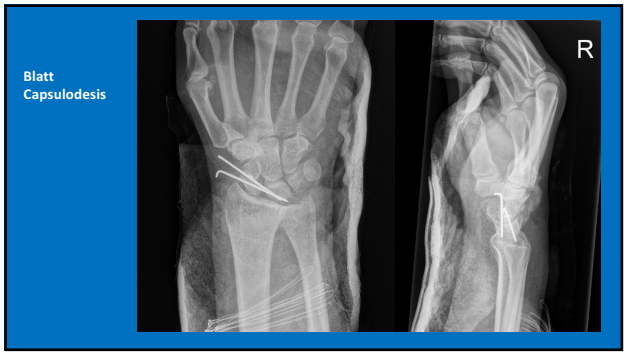
40-year-old man
Dorsal capsulodesis
Loss of reduction, but no pain and satisfied


43-year-old man


Blatt
Capsulodesis
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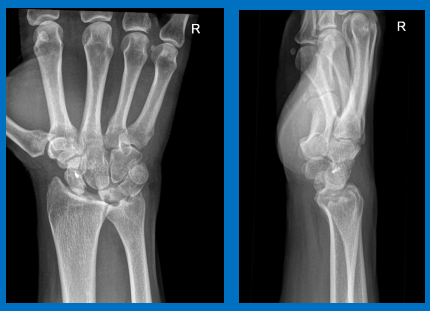

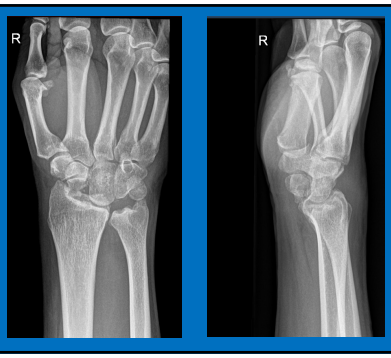

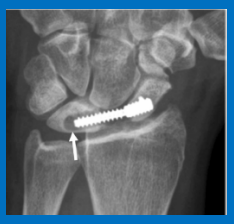

Conclusion

20% complications:

- **Loss of wrist flexion**
- **CRPS**
- **Loss of reduction**
- **Progression to osteoarthritis**