



# Complex Shoulder Instability


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## “Simple” Dislocation


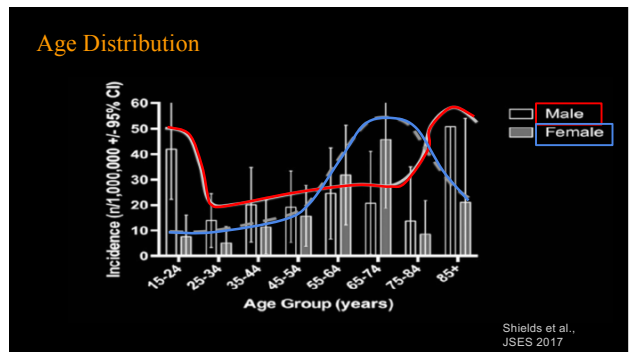
Frequency  
High mobility = high risk  
Closed reduction  
Soft-tissue injury




Veeger and Van der Helm, 2007

## “Complex” Shoulder Instability

> Bankart Lesion

## Anterior Shoulder Instability



Young  
Male  
Sportive  
Bone lesions  
Hyperlaxity

Balg and Boileau, 2007  
Leclere et al., 2013


## Anterior Shoulder Instability

Young >> recurrence  
Old >> complications



Shields et al., JSES 2017

22% of ANT = ♀  
 27% of POST = ♀  
 36% of MDI = ♀



Hienstra and Kirkley, 2002

Exposure  
 Type of sport



Treat female athletes = male athletes

Peck et al., 2013  
 Owens et al., 2009

Simple Dislocation



Life is really simple, but we insist on making it complicated.

- Confucius

Think Smarter



Not Harder



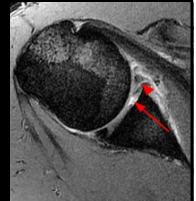
Cartilage Lesions  
 Bone Lesions  
 Tendon Lesions  
 Nerve Lesions



### Glenoid Chondral Injury

GLAD lesions

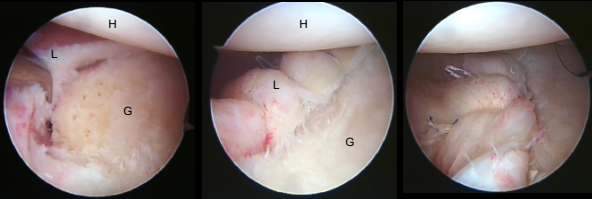
Pain  
 Dead arm  
 ≠ instability



Neviasser et al. 1993; Page et al. 2008

### GLAD

R/ microfracture and labral repair

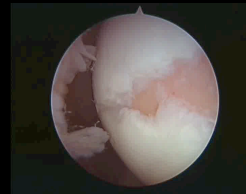


Neviasser et al. 1993; Page et al. 2008

### Humeral Chondral Injury

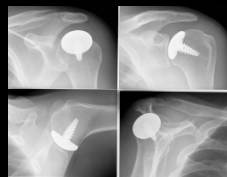
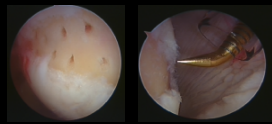
Hill-Sachs  
 ≠ central  
 chondropathy

Pain  
 Dead arm  
 Subluxations



### Treatment

Conservative  
 Debridement  
 Microfracture  
 Autologous Cartilage Transplant  
 Osteochondral allograft  
 Metallic resurfacing



De Palma and Gruson, 2012  
 Sweet et al., 2015 AJSM

### Glenohumeral bone loss



### Glenoid rim injury

84% in recurrent

Fragment  
Avulsion  
Shear

Fragment size

Taylor et al., 1997, Widjaja et al., 2006, Griffith et al., 2008, Griffith et al., 2008, Widjaja et al., 2006

### Glenoid Fragment

Open vs. Arthroscopic

Hardware vs. Sutures

Supava et al., 2005; Porcellini et al., 2002

### Glenoid bone loss

Erosion/Impaction  
Resorption

Nakagawa et al., 2013

Taylor et al., 1997, Widjaja et al., 2006, Griffith et al., 2008

### “Critical” Bone Loss

20-25%  
(Yamamoto et al., 2009)

↓

13.5%  
(Shaha et al., 2015)

### “Critical” Glenoid Bone Loss

Non-linear  
Measurement error  
Bipolar Lesions

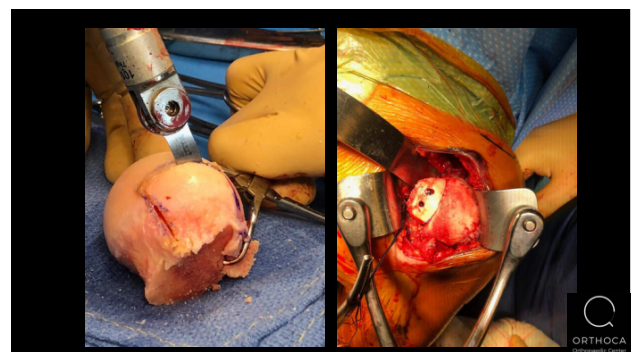
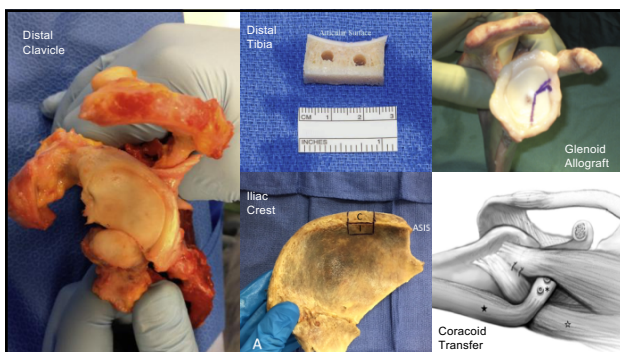
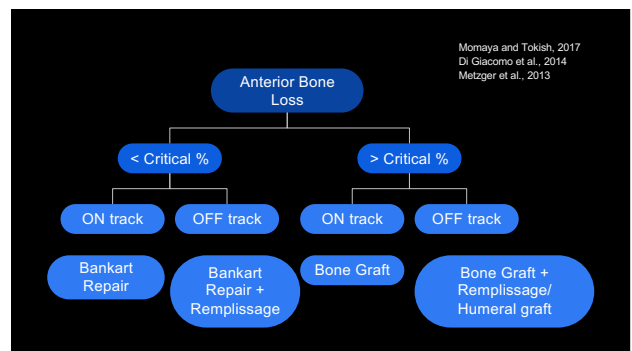
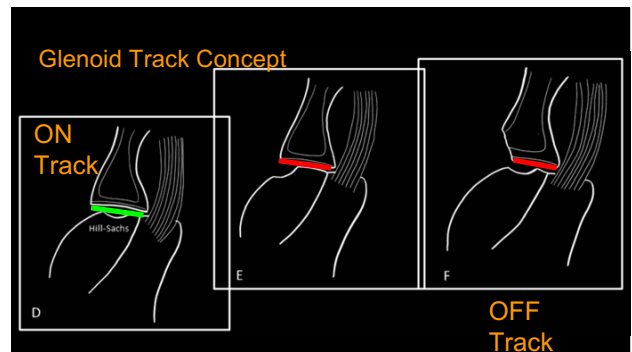
De Wilde et al., 2004  
Bakshi et al., 2018  
Moroder et al., 2019

### Humeral Bony Injury

67% primary  
100% recurrent

Rowe et al., 1984  
Widjaja et al., 2006  
Yiannakopoulos et al., 2007  
Spatschil et al., 2006

Hill Sachs lesion



## Type of Bone Grafts

Free Bone Grafting	Coracoid Transfer
Biomechanical Evidence	Biomechanical Evidence
Clinical record	Clinical Record
Arthroscopy	Arthroscopy
Graft availability	Graft Availability
Osteochondral / Bony	Bony
Morphology	Morphology
Anatomical Procedure	Non-Anatomical Procedure

Yamamoto et al., 2013, Wellmann et al., 2012, Mizuno et al., 2006, Carbone et al., 2016, Willemot et al., 2017, Kraus et al., 2014, Provencher et al., 2013, Tokish et al., 2014.

## Complications

Bristow-Latarjet  
15%-30%  
7% reoperation

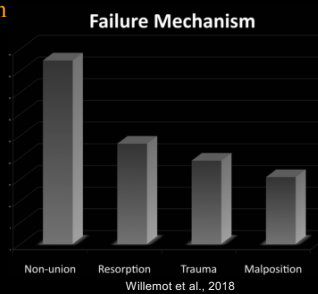
Eden-Hybinette  
17.2%



Grieser et al., 2013  
Lunn et al., 2014

## Reasons for ICBG revision

Non-union 42.3%  
Resorption 23.1%  
Graft fracture 19.2%  
Malpositioning 15.4%



## Open ICBG revision

↓ Recurrence rates  
↓ Outcome scores  
↑ Arthropathy

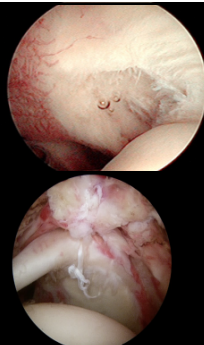


Willemot et al., 2018, Lunn et al., 2008



## CUFF TEARS

7-32% of dislocations  
Incidence increases with age  
Pain and dysfunction  
2 to 3 weeks  
=>US / MRI !!

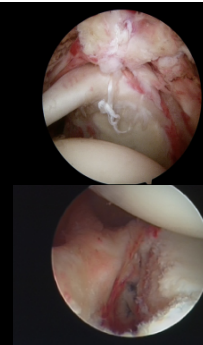


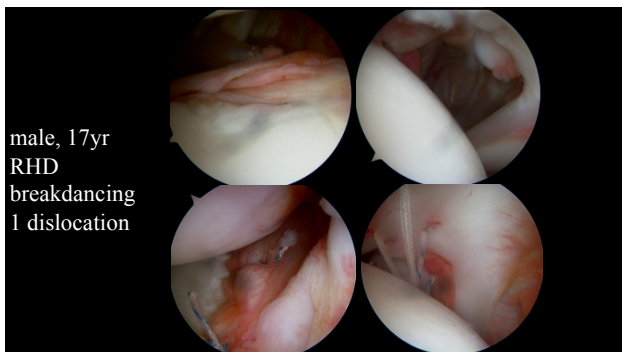
## CUFF TEARS

Early surgical repair = better outcomes  
Lahteenmaki et al., 2006

Bankart + cuff repair  
=> patients < 40 yrs  
Hawkins et al., 1999; Porcellini et al., 2012

Older patients  
=> solitary cuff repair





### NERVE INJURY

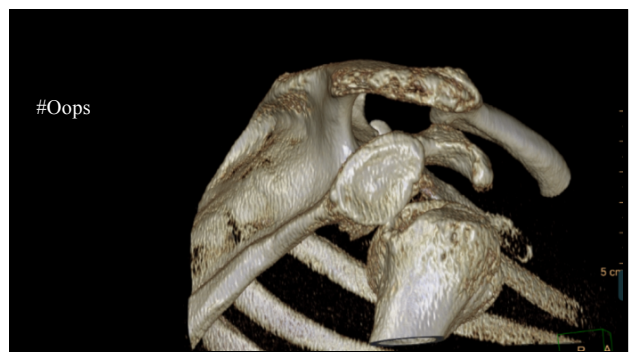
13.8 %  
Axillary nerve  
> suprascapular nerve > radial nerve  
De Laat et al., 1993

> 65 yrs  
Cuff lesion  
Greater tuberosity fracture  
=> higher risk "Terrible Triad"  
Pevny et al., 1998; Porcellini et al., 2012


28 yo male  
Judoka  
First-time dislocation  
Persistent pain + weakness

### SPINOGLENOIDAL CYST

56 y.o. ♀  
Pain and stiffness  
after fall  
No imaging  
"frozen shoulder"  
Physiotherapy 2 months



Open reduction  
Cuff repair  
Latarjet procedure




Spin: -56  
Tilt: -125

**Latarjet after > 50 years**

- ↑ non-union
- ↑ graft fracture
- ↑ static AI subluxation
- ↑ osteo-arthritis

**Latarjet for locked dislocation**

- ↑ recurrence (50%)




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Domos, Lunini and Walch, 2017 Shoulder&Elbow  
Li and Jiano, 2016 JBJS

**Chronic Locked Anterior dislocation**

- ↑ humeral bone loss
- => address Hill-Sachs



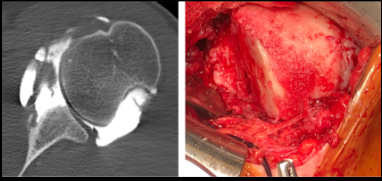
**Chronic Locked Anterior dislocation**

- ↑ humeral bone loss
- => address Hill-Sachs
- Remplissage
- Bone graft
- Implant

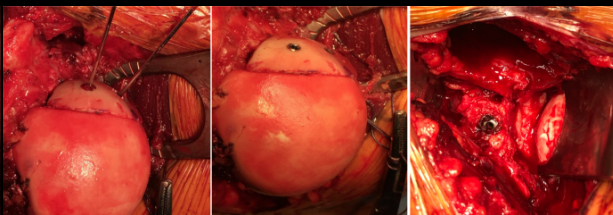


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40 y.o. ♀  
Epilepsy  
Highly unstable



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### TAKE HOME MESSAGES

Be aware of “**simple**” dislocation  
Pain, weakness or stiffness

**Cuff tears, neurological injuries, associated chondral / bony lesions**



### TAKE HOME MESSAGES

If all you have is a **hammer**...



Thank you



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