

Allan Stirrat

22.2.2010

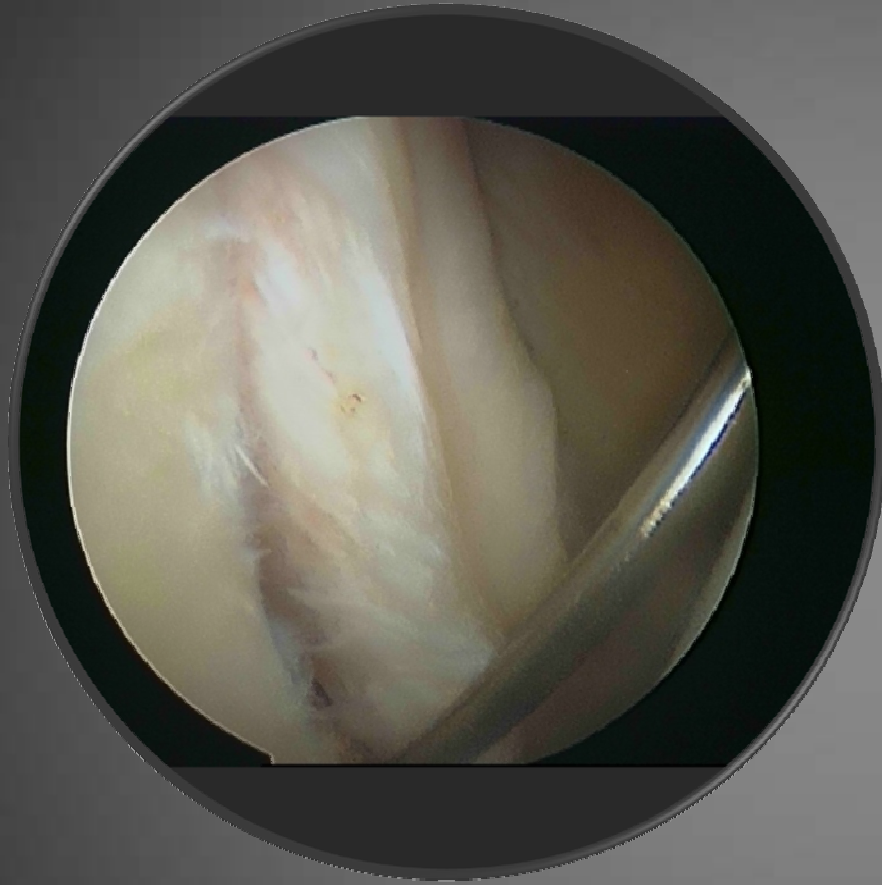
# TREATMENT OF TRAUMATIC STRUCTURAL INSTABILITY OF THE SHOULDER

1. Shoulders dislocate
2. Shoulders redislocate
3. Surgery works well
4. Arthroscopic surgery is feasible
5. Dislocating shoulders get arthritic



# EPIDEMIOLOGY

- ⦿ Young, male, contact sports
- ⦿ Posterior impact/abduction ext rotation
- ⦿ Recurrence: 17% - 90%+
- ⦿ **Teens/high level sports/military**
- ⦿ **Teens: 75%      20-30: 50%**
- ⦿ Why youngsters?
- ⦿ Take particular care > 50
- ⦿ Robinson, JBJS [Br] 2004, 86-B, 469-79



What are the  
benefits of?

Physiotherapy

Splint/external rotation

Lavage

1<sup>o</sup> arthroscopic repair



# PHYSIOTHERAPY



# SPLINT/EXTERNAL ROTATION

- Itoi: JBJs(Am) 01
  - MRI of Bankart lesions
  - IR 29° vs ER 35°
  - ↓ separation/displacement in ER
  - NB: n=19 and 13 recurrent
  - Miller: JSES 04 ↑ contact force 45° ER  
cadavers - ? comfort/compliance
  - Hart: JSES 05 – 1° scope, 2/4 labrum  
ER – 92% reduce
- Optimum 60°ER/30° ABD



# SPLINT/EXTERNAL ROTATION

- Itoi: JBJS(Am) 07
- RCT      10° ER      3/52      F/U > 2 yr
- F/U 80%
- **Compliance: 53% IR, 72% ER**
- Recurrence: 42% IR, 26% ER
- <30yrs: relative risk reduction 46.1%
- Limpivasti: AJSM 08 - cadavers –  
no ↑ contact pressure in ER

# THE BASIS FOR SURGERY

- Edinburgh – C.M. Robinson
- JBJS Am 06
- Natural History/Trial Design
- 15-35 years
- 60% redislocated @ mean 13/12
- 2 year plateau (86% of recurrences)
- Predictors – **male/young** (not sports)



# Probability of recurrence at 2 years

AGE	MALE	FEMALE
15	0.86	0.54
17	0.81	0.48
20	0.72	0.40
25	0.56	0.28
27	0.50	0.24
35	0.29	0.13

= more benefit from surgery in young males

# Trial Design

- ⦿ Arthroscopic surgery
- ⦿ Randomised controlled
- ⦿ To demonstrate large treatment effect
- ⦿ 30 in each limb
- ⦿ Instability measurement – WOSI
- ⦿ DASH/Constant not sensitive.

# ARTHROSCOPIC LAVAGE

- ⦿ Wintzell: JSES 1999
- ⦿ PRS – lavage vs nonoperative
- ⦿ 15 each group
- ⦿ Early movement
- ⦿ 2 year f/u
- ⦿ Recurrence: nonoperative - 60%
- lavage - 20%
- ? ↓ haematoma/distension

# 1<sup>0</sup> ARTHROSCOPIC REPAIR

- Viable.....✓
- Desirable?.....✓
- Logical - ?labrum only.....✓
- Easy.....X
- Robinson JBJS Am 08

.....but consider....

- Timing of surgery
- Sports calendar
- 'Collision' sports
- Youth ? ↑ failure





# Classification of surgery

Operation	Introduced	Type
Perthes (Bankart)	1906 (1923)	anatomic
Eden-Hybinette	1918/1932	augmentation
Putti-Platt (Osmond-Clark)	1948	tightening
Magnusson - Stack	1940	tightening
Bristow- <b><u>Helfet</u></b>	1958	augmentation
Latarjet	1954	augmentation

# Blundell Bankart: RNOH

- The gold standard

RECURRENT OR HABITUAL DISLOCATION  
OF THE SHOULDER-JOINT.

BY

A. S. BLUNDELL BANKART, M.C.CANTAB., F.R.C.S.,  
ORTHOPAEDIC SURGEON, MIDDLESEX HOSPITAL; SURGEON, ROYAL  
NATIONAL ORTHOPAEDIC HOSPITAL AND HOSPITAL FOR  
EPILEPSY AND PARALYSIS, MAIDA VALE.

BMJ 1923

1132 DEC. 15, 1923]

RECURRENT DISLOCATION OF SHOULDER-JOINT.

# Bankart lesion

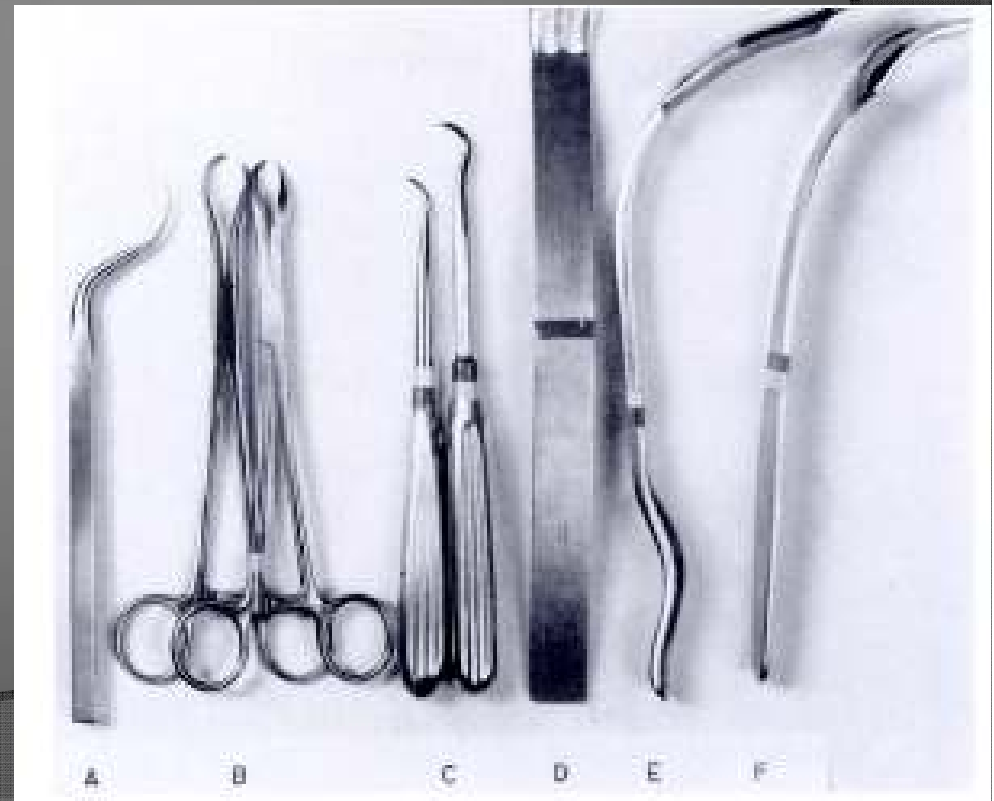
The damaged area is now fully exposed. Internally one sees the neck of the scapula with the fibro-cartilaginous glenoid ligament lying upon it. This ligament has usually been torn up a little way from the glenoid margin, so that it appears as a free edge lying upon bare bone.



A. S. BLUNDELL BANKART  
1879-1951

# Bankart technique (Rowe 1978)

- Beach chair/deltopectoral
- Subscapularis separation – reflect/split
- Capsulotomy
- Preparation
- Reattachment  
+/- capsular tightening

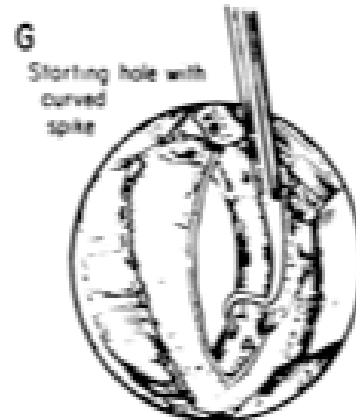




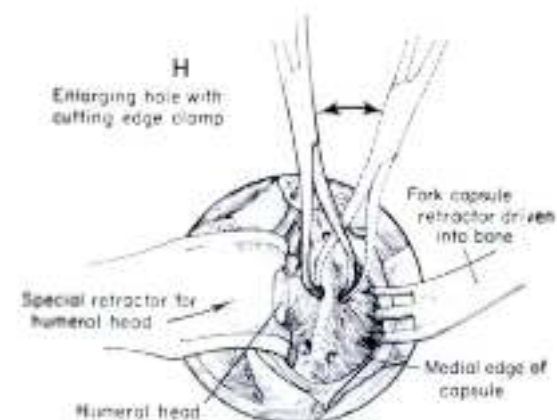
# Bankart technique (Rowe 1978)



Carter R. Rowe  
1906-2001



G  
Starting hole with  
curved  
spike

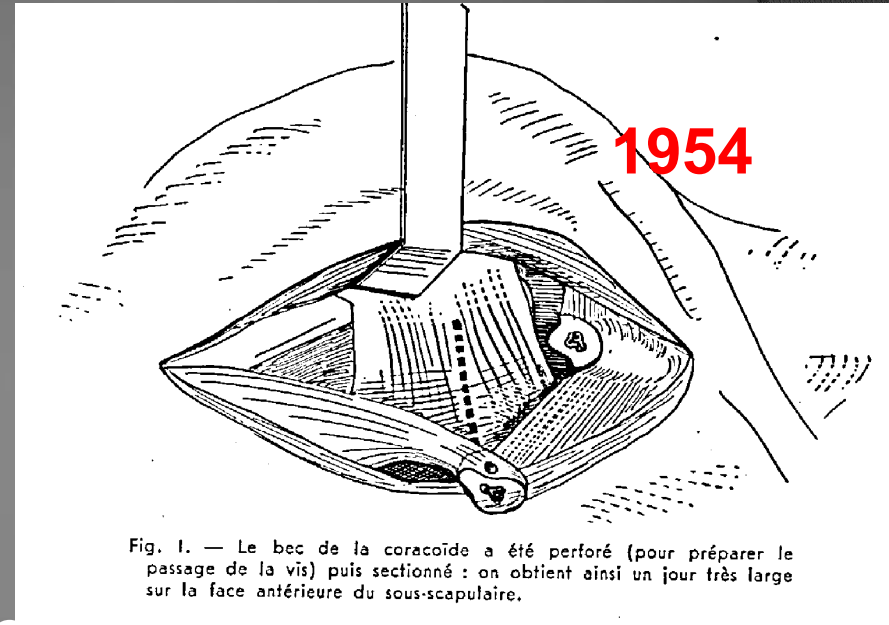


H  
Enlarging hole with  
cutting edge clamp  
Fork capsule  
retractor driven  
into bone  
Special retractor for  
humeral head  
Medial edge of  
capsule  
Humeral head



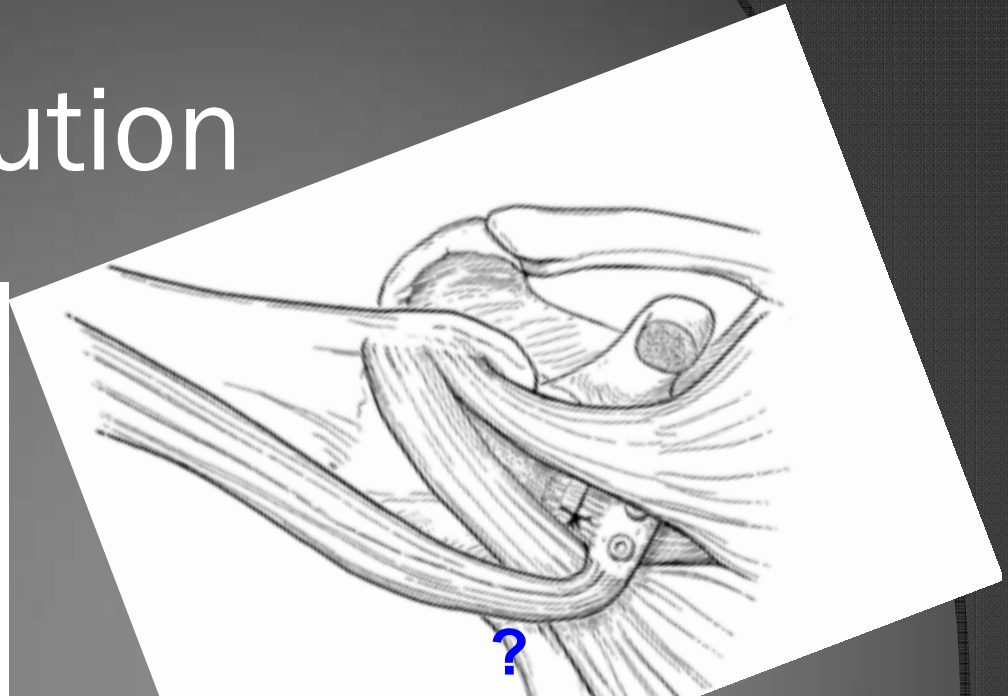
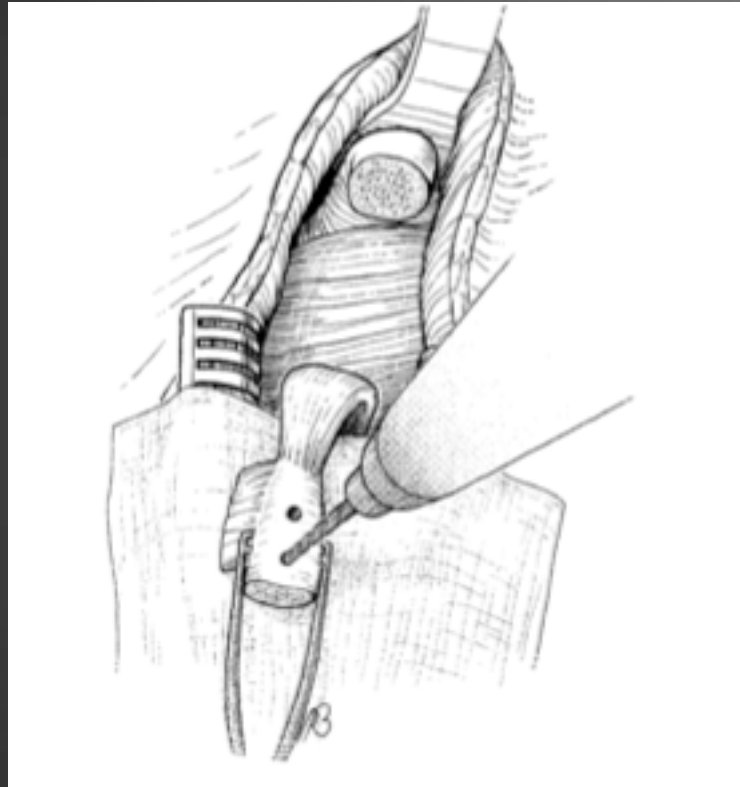
\* **ANCHORS**

# Hovelius and the 'Bristow/Latarjet'- I

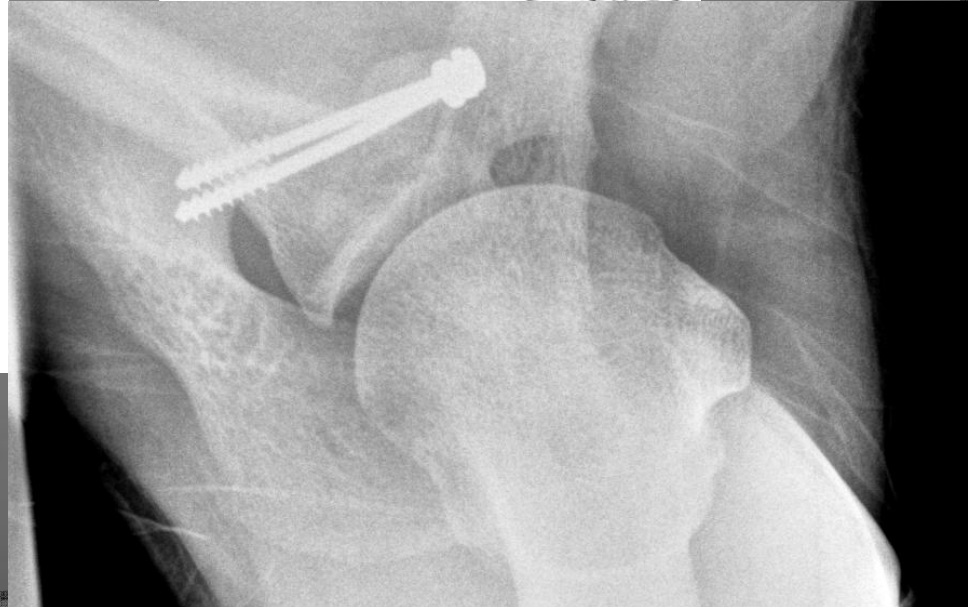


- JSES 04
- 15 years: 3.4% recurrence - 1 redo
- 13.4% subluxations, 98% 'satisfied'
- Bilateral instability ↑ with time - 35%
- Now: bone deficiency/revision cases

# Latarjet - evolution



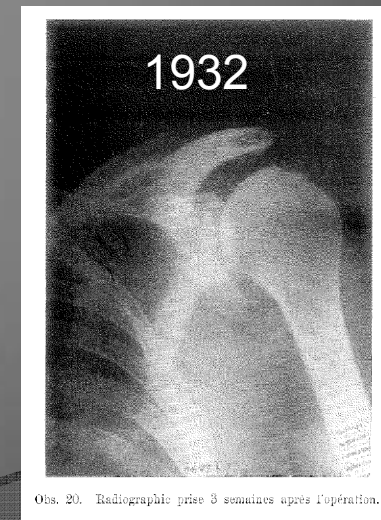
**Edwards 2002**





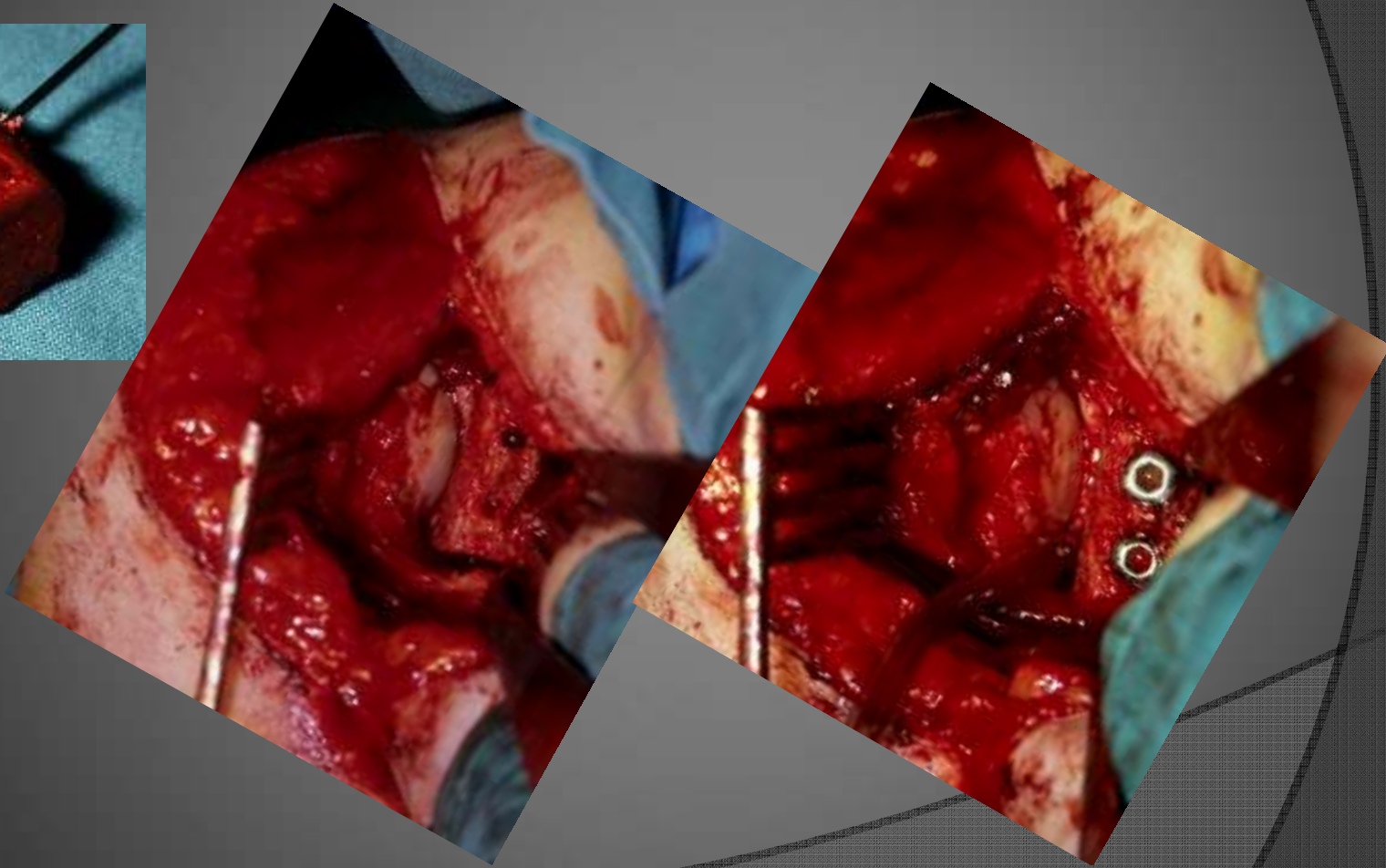
# Eden-Hybinette/glenoid graft

- Eden 1916
- Hybinette 1932
- Bone defect - 25% glenoid width
- 'Inverted pear'
- Epileptics





# Eden-Hybinette/glenoid graft



# External rotation before surgery

- Silvestro: JSES 07
- Under GA/Compare with uninjured side
- Blinded observer
- ER-abd, ER-side – mean loss  $11^{\circ}$
- Maximum loss –  $28^{\circ}$
- Unstable shoulders tend be **stiff** not lax
- Beware capsular tightening
- Unstable shoulders lose proprioception

# Arthroscopic vs Open

- Meta-analysis
- Hobby (Boileau) JBJS Br 07
- 1985 → 2006
- Failure rates:
  - staple      16-33% (23%)
  - transglenoid 8-60%
  - BA tacks    0-44%
  - anchors     0-30% (9.1%)
  - open        8.7% - 'similar' to anchors



# Arthroscopic vs Open

- Meta-analysis
- Linters (Matsen) JBJS Am 07
- 1991 - 2005
- Arthroscopic:
  - relative risk of instability x2
  - less effective in return to sports/work
  - higher Rowe scores ? better ROM

Ref re scores: “arbitrary weighting of one attribute in relation to another”

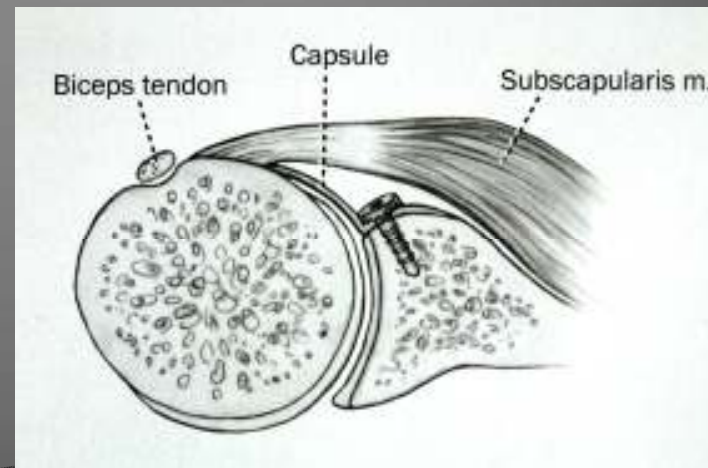
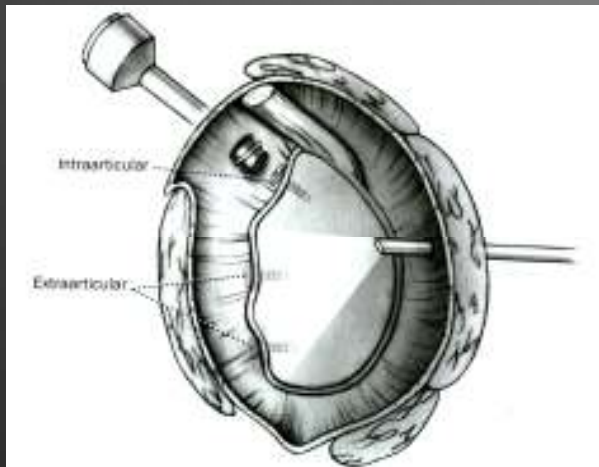


# Transglenoid suture

- Caspari 1988
- Why? – a blind alley?
- Suderland JBJS 08
- 445 military recruits
- 34% redislocation @ 6.4 years

# Bioabsorbable Tacks

- Kartus (Resch) JBJS Am 07
- 1994-97
- 71/81 at 107/12
- 27 had instability (16 redislocated)



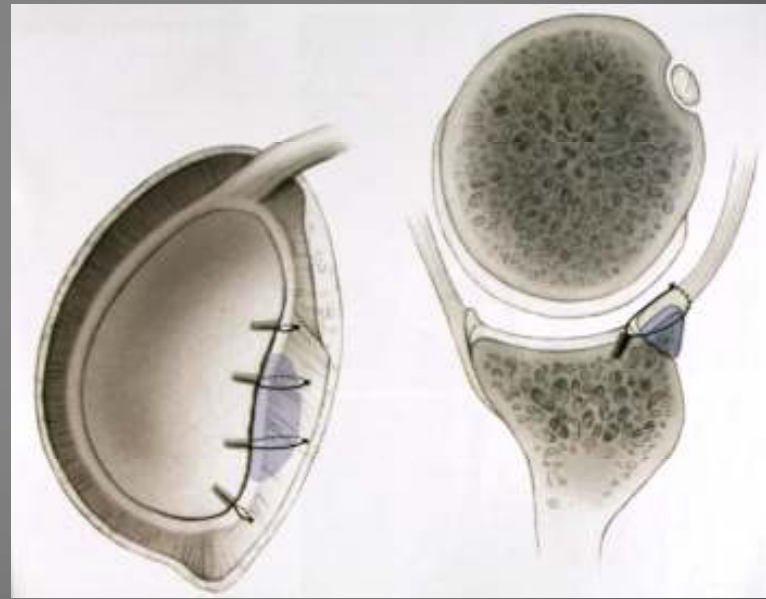
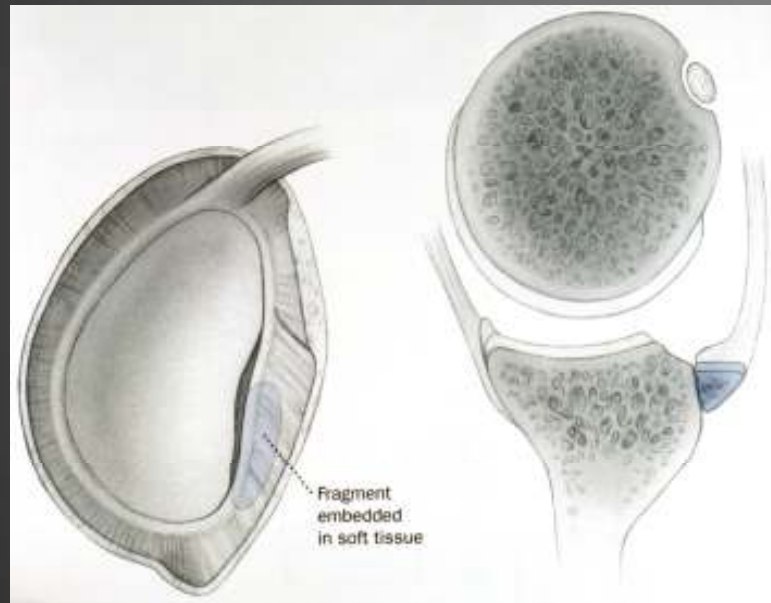
# Arthroscopic Technique - anchors

- Set up, set up, set up
- Assistant
- Portal placement
- Avoid pump
- Efficiency
- Key instruments
- Knots or 'knotless'?





# Arthroscopic Technique





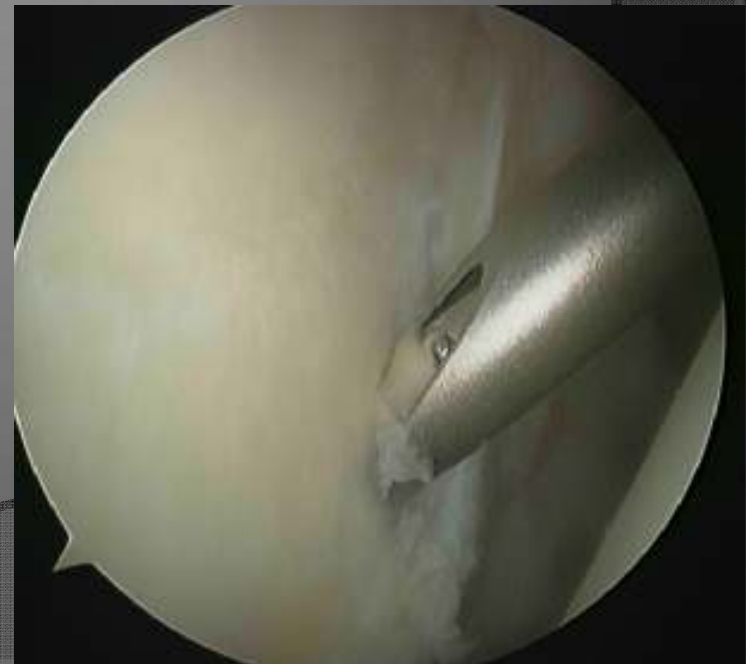
# ARTHROSCOPIC FAILURE

- Boileau - JBJS Am 06
- Acknowledged higher failure rates
- Mean age 26/male/sports - 3 years
- 15% recurrence
- Bone defects
- Hyperlaxity
- 3 anchors or less?



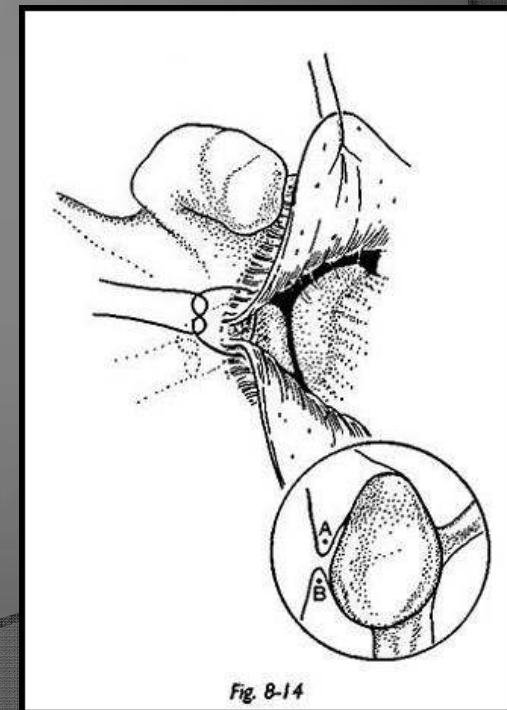
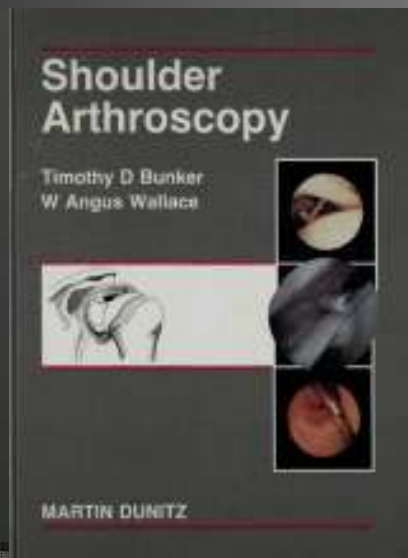
# WHY THE FOUR ANCHORS?

- Open technique - usually 3
- Arthroscopic stabilisation has a flaw
- Difficulty with **key** anchor
- *Wrong angle*
- Securing labrum/capsule is difficult



# Bankartvs Arthroscopic technique

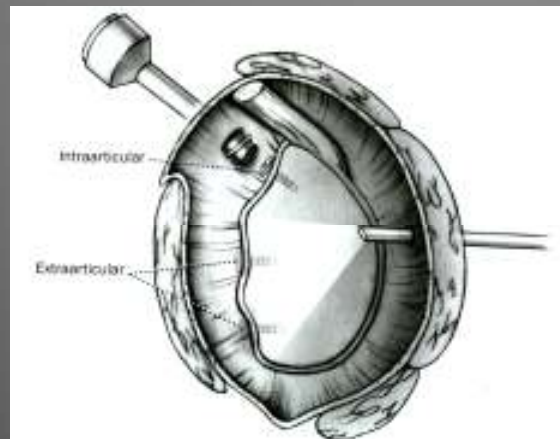
- Key point - **inferior suture/anchor**
- Copeland single suture - 90's
- **[www.shoulderdoc.co.uk](http://www.shoulderdoc.co.uk)**





# Herbert Resch

- Percutaneous expert
- Anterior/inferior portal
- “Slalom technique”
- BA tacks





# Open vs Arthroscopic

“Open is reliable in my hands, you can’t teach an old dog new tricks”

“I haven’t opened a shoulder in years, I haven’t seen a failure yet”



‘The Third Way .....Education, Education, Education’

# Introducing **New** Techniques



And of course.....Bob!



# Which way to go?

- Calvo JBJS Br 05

- 18% recurrence (TG)

- Scoring: age < 28 1  
lax 1  
rim fracture > 15% 5  
contact/overhead 1

2 or more - 43% recurrence = go open



# Which way to go?

- ⦿ Porcellini JBJS Am 09
- ⦿ 385 studied
- ⦿ Arthroscopic anchor technique
- ⦿ 8.1% redislocation at 36/12
- ⦿ 13.3% < age 22

Risks: young,

male (x3.5)

delay to surgery > 6/12 (x2.6)



# Bankart – the aftermath

- Pelet JSES 06
- 30/39 reviewed at 20 – 41 years
- 10% recurrence
- 5 → TSR, 7 → OA
- OA rate 40%
- Mean loss ER 24°
- Severity of OA ↑ with time



# Hovellius and the 'Bristow/Latarjet'- II

- ⦿ Radiological study: JSES 06
- ⦿ 15 years
- ⦿ Moderate/severe OA - 15%
- ⦿ Graft placement 2-4 mm medial to articular margin

# 1<sup>o</sup> Repair - too controversial?

- Robinson JBJS Am 08 - 14 pages!
- DBPRT 88 (42 per group) <35
- 2 year F/U
- Risk of recurrence  $\square$  82%
- Repair 3/42 Lavage 16/42
- No. needed to treat to prevent one patient having instability = 3.2
- Not justified as routine



# CONCLUSIONS

- Epidemiology indicates treatment
- Unstable shoulders are stiff
- Bankart - gold standard - ?full circle
- Bankart – easier with the arthroscope?
- Arthroscopic compromises
- Arthroscopic revision? - it depends.....
- Long learning curve for profession
- Shorter curve for the surgeon now
- OA - 15% at 20 years.





**BESS 2011**

**Newcastle upon Tyne**