Use of HemiCAPs for the Treatment of Engaging Hill Sachs Lesions

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COSI ORTHOPAEDICS

What are we talking about?

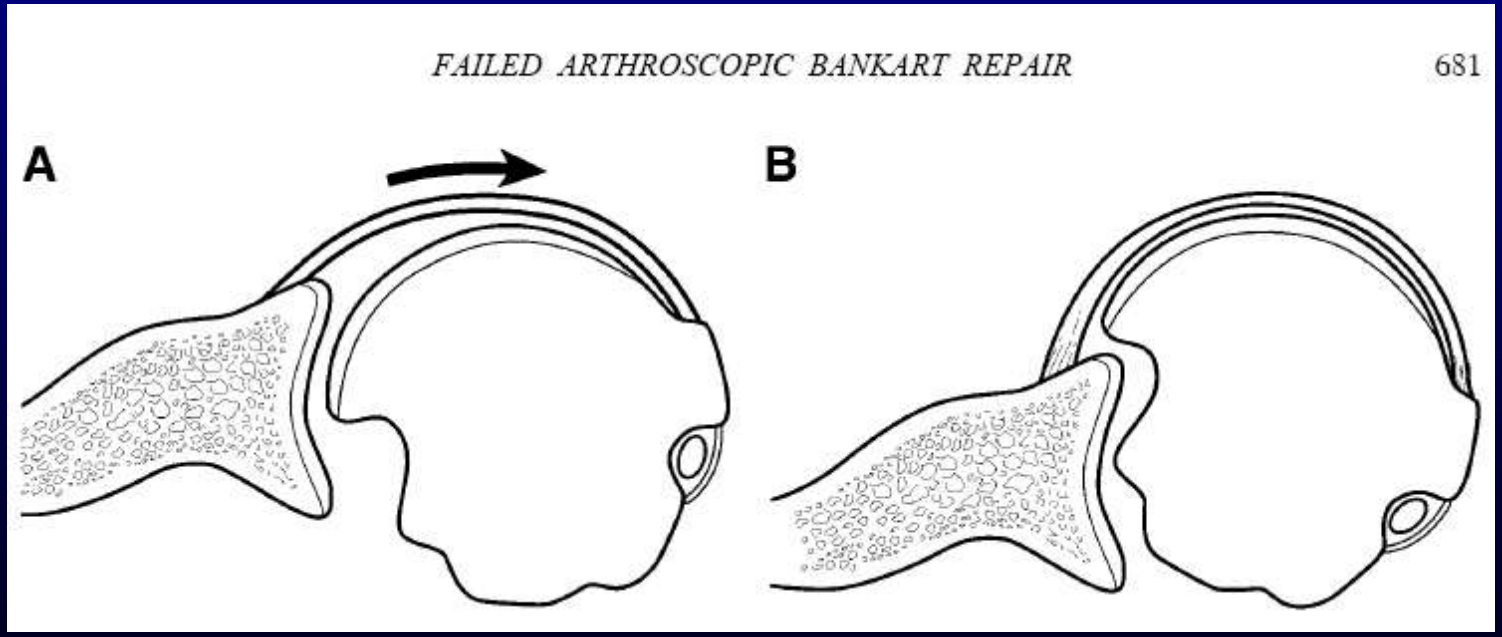
15 & 20mm Toe & Knee size

Rationale

- Address all pathology to restore normal anatomy
- Avoids need to over-tighten anterior structures to restrict external rotation
- Relatively simple
- Minimal Morbidity

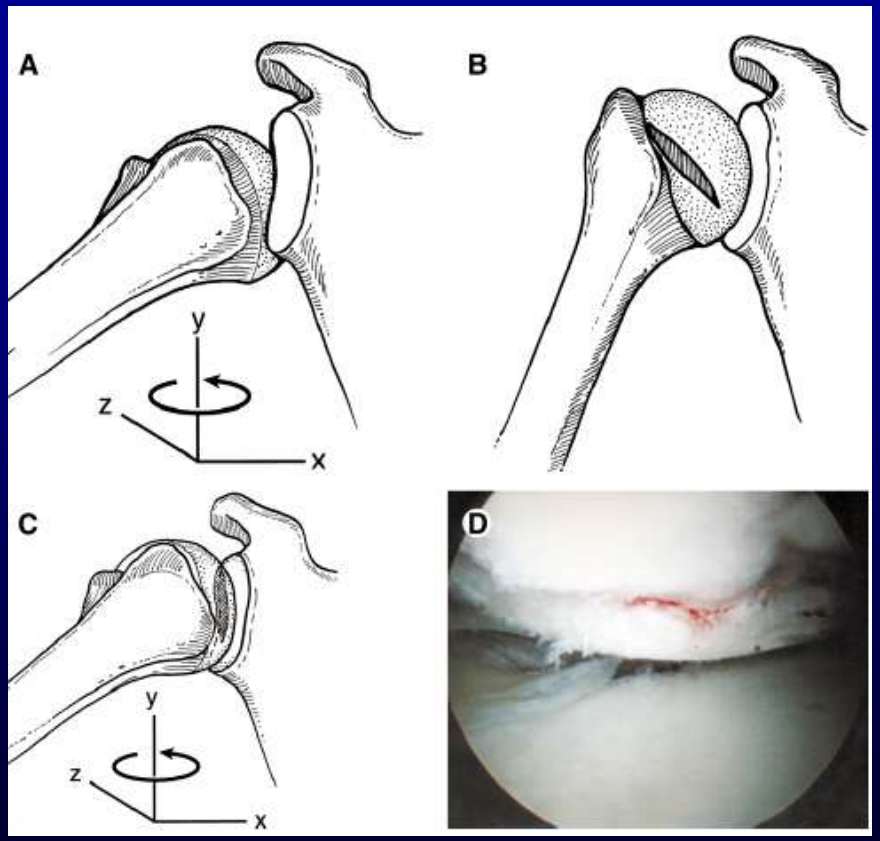
Engaging Hill Sachs Lesions

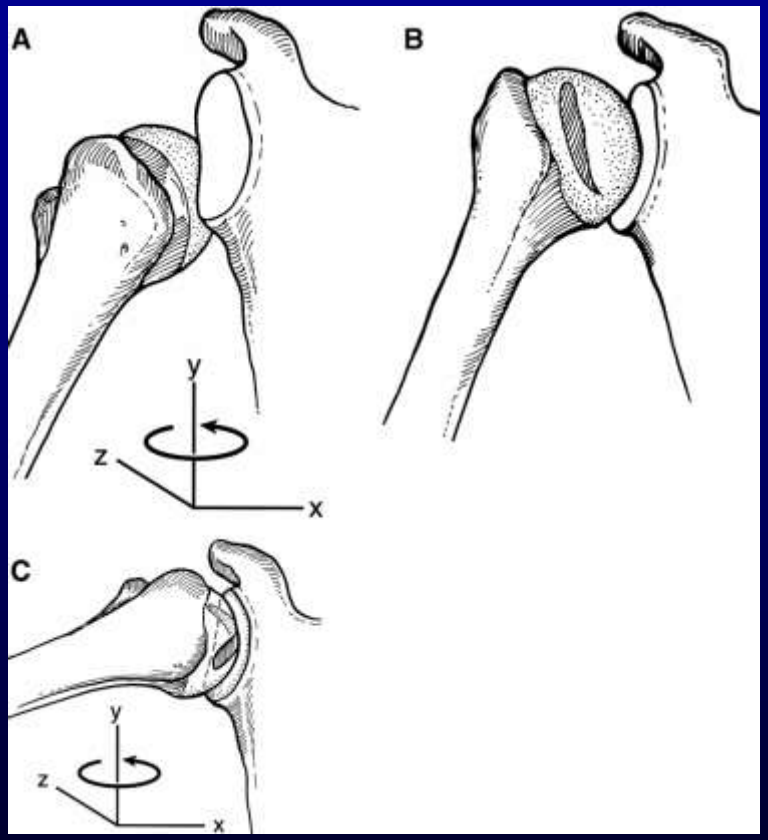
An engaging Hill-Sachs lesion is one that will engage when the shoulder is in a functional position of abduction and external rotation



Arthroscopy:, Vol 16, No 7 October), 2000 Burkhart

Engaging Vs Non Engaging Hill Sachs Lesions

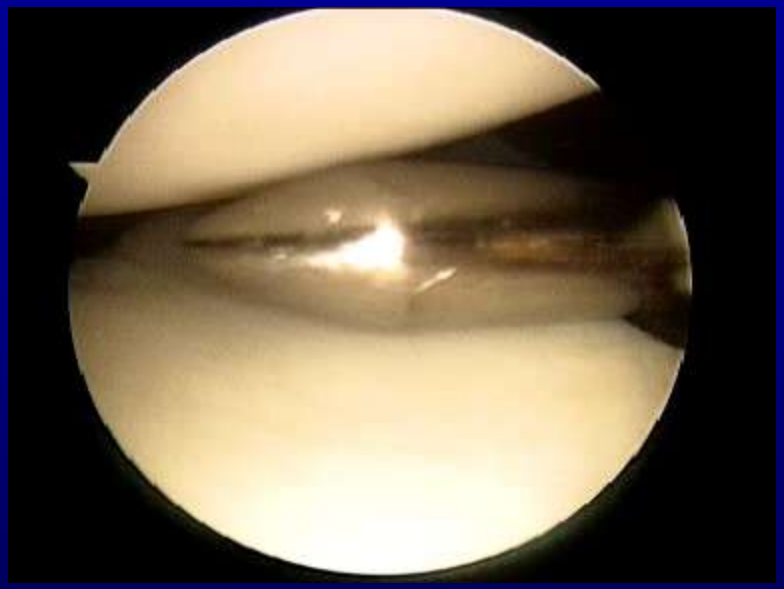


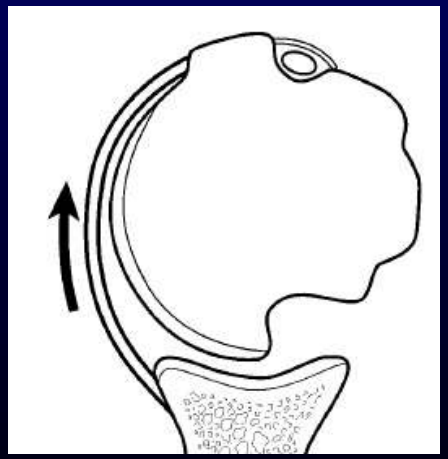


Arthroscopy:, Vol 16, No 7 October), 2000 Burkhart


Left Shoulder Left Lateral Position
Posterior Viewing Portal

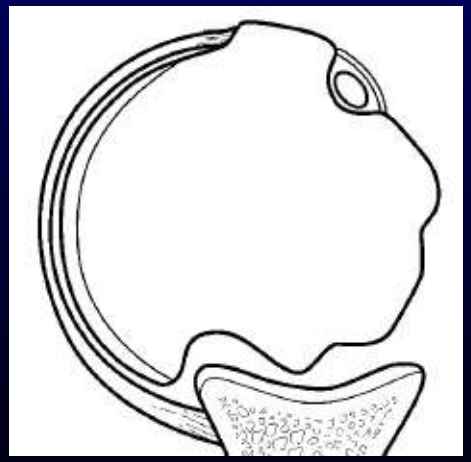
Engaging Hill Sachs Lesions

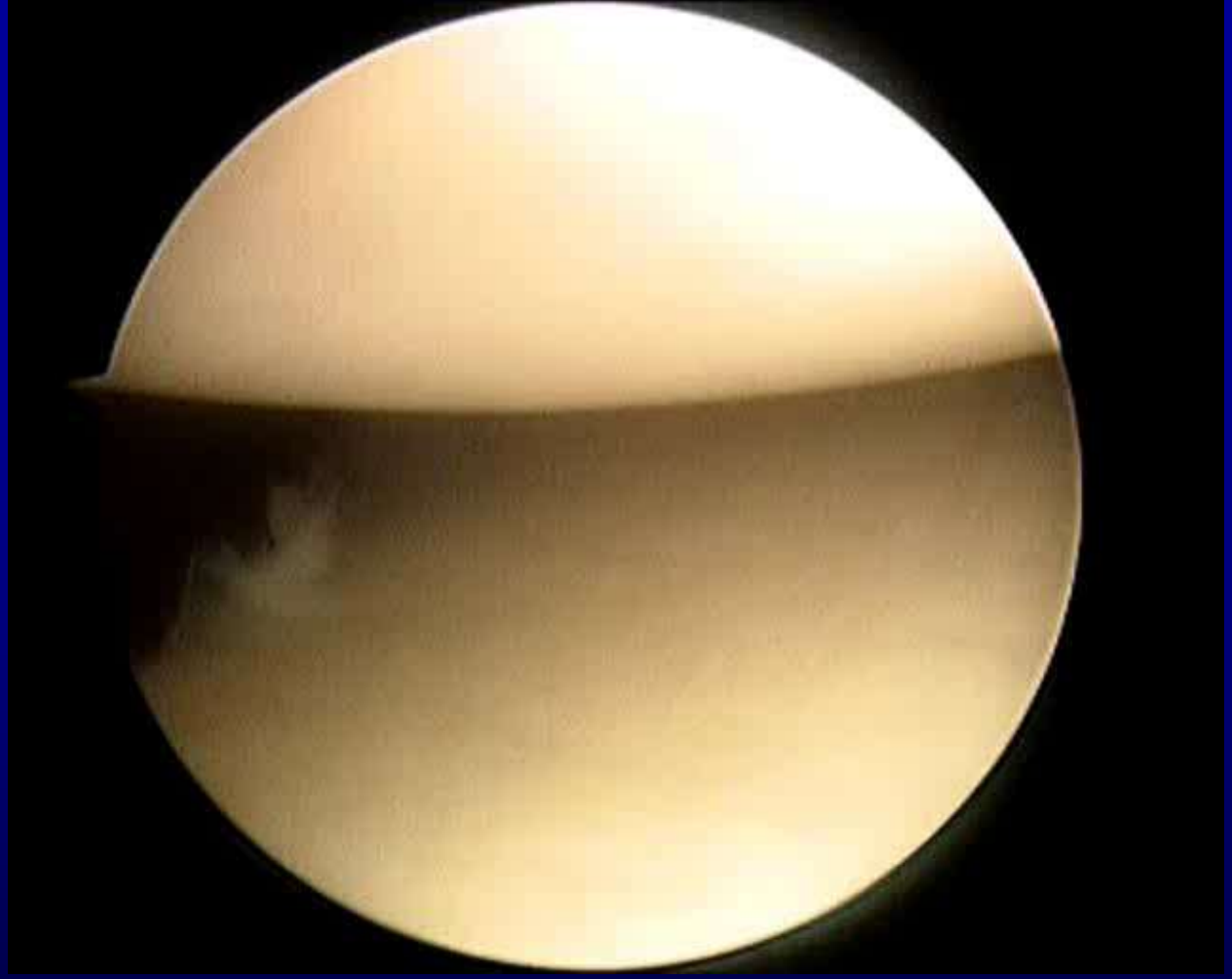


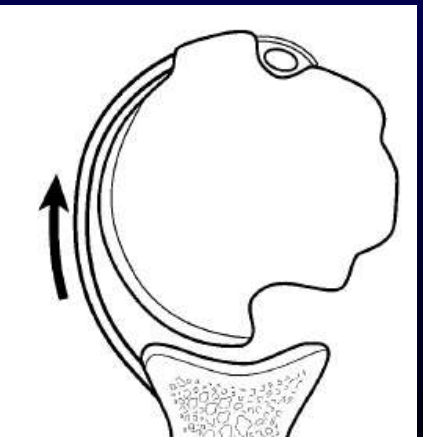


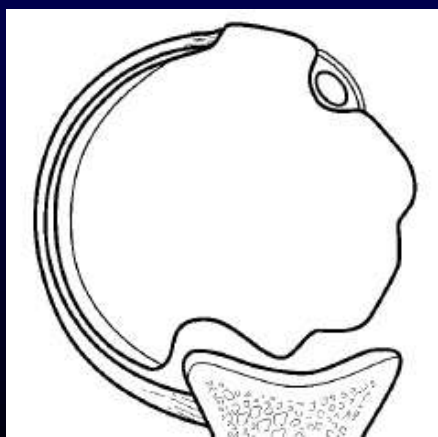
Right Shoulder

Anterior viewing portal









Co-Existing Pathology

- Anterior Glenoid Loss
- SLAP Lesions
- Bankart
- HAGL

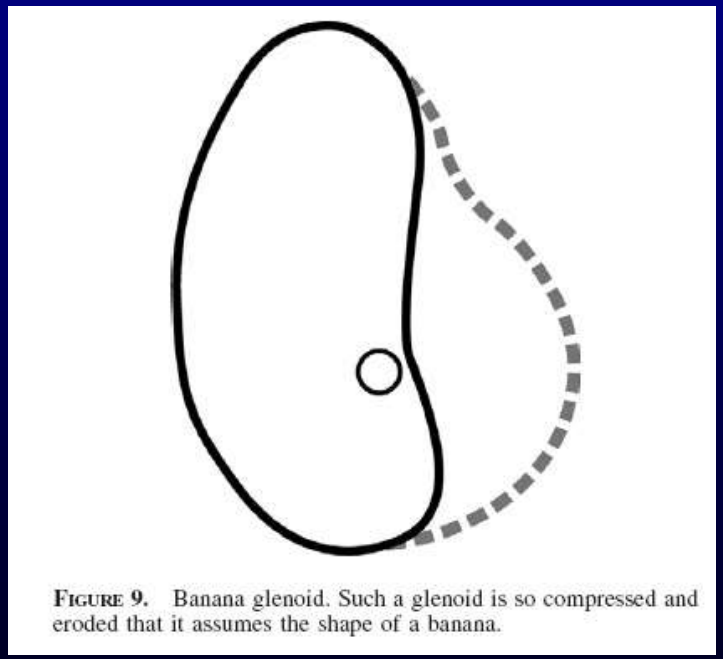


FIGURE 9. Banana glenoid. Such a glenoid is so compressed and eroded that it assumes the shape of a banana.

Treatment of Instability with Engaging Hill Sachs Lesions

Primarily Dictated by Co-Existing Pathology

- Anterior Soft tissue damage must be corrected
  - ie Bankart or HAGL repair, Capsular shift etc
- Anterior Bone loss must be restored

What about the Hill Sachs Compression Fracture?

Treatment of Instability with Engaging Hill Sachs Lesions

- Historically prevented engagement by restricting External Rotation

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  - ie over tighten ant capsule, Putti Platt or Magnussens Stack procedure

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- Historically prevented engagement by restricting External Rotation
  - ie over tighten ant capsule, Putti Platt or Magnussens Stack procedure
  - Loss of end range movement
  - Significant Medium Term Osteoarthritis

Treatment of Instability with Engaging Hill Sachs Lesions

- Latarjet (cf Bristow) procedure to restore or "extend" anterior glenoid bone stock

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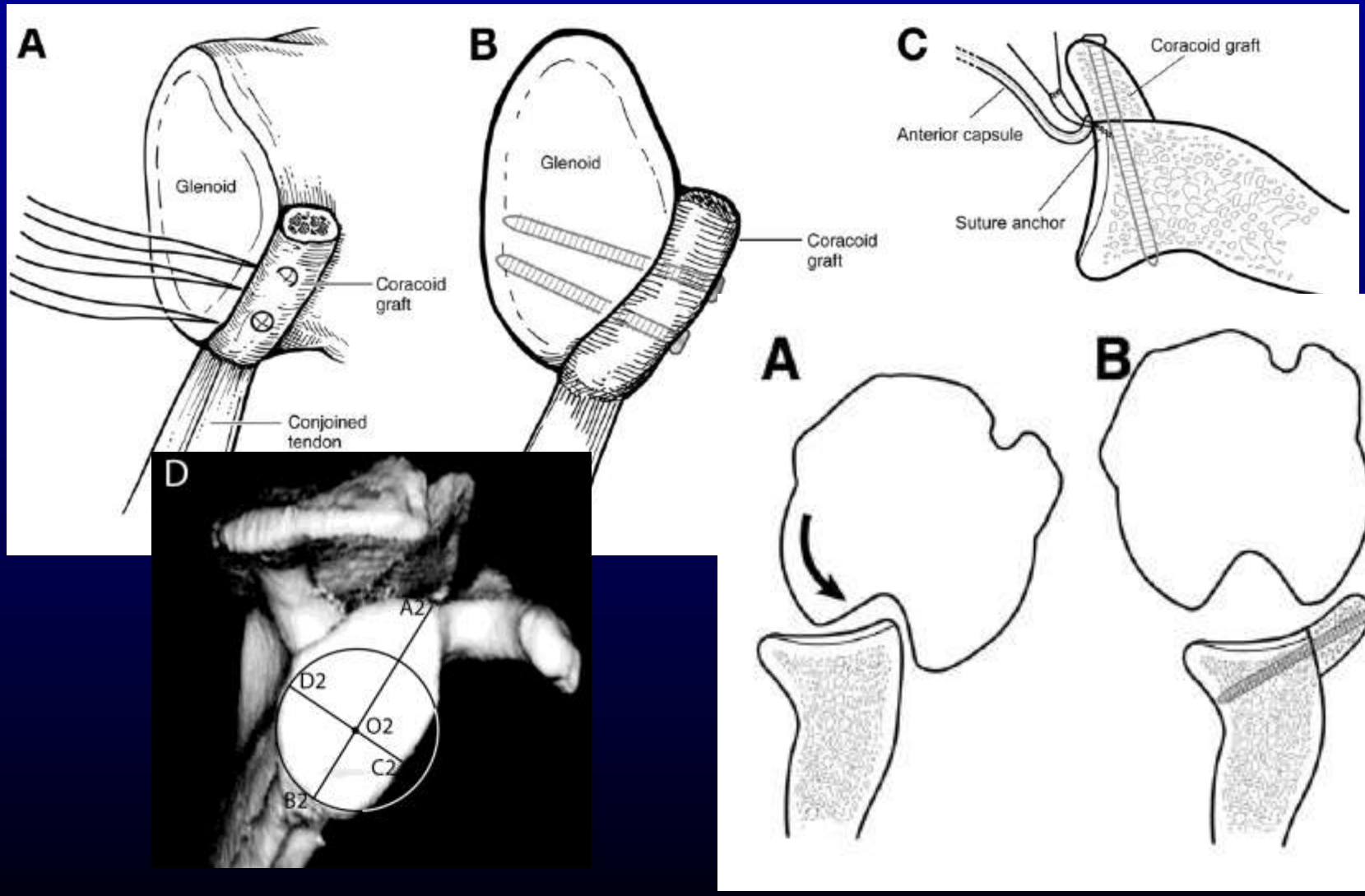
  - Glenoid Bone stock must be restored if deficient ie restore anatomy

Treatment of Instability with Engaging Hill Sachs Lesions

- Latarjet (cf Bristow) procedure to restore or "extend" anterior glenoid bone stock
  - Glenoid Bone stock must be restored if deficient
  - ? Wisdom of "extending" a normal anterior Glenoid (non anatomical)

Latarjet Procedure



Correcting the Hill Sach Lesion

Non Anatomical Procedures

Correcting the Hill Sach Lesion

Non Anatomical Procedures

- "*Remplissage*" E Wolf *Arthroscopy:, Vol 24, No 6 (June), 2008:*

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Non Anatomical Procedures

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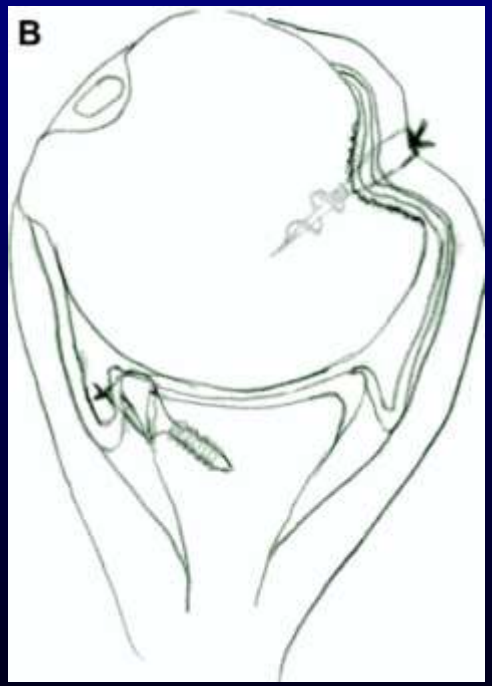
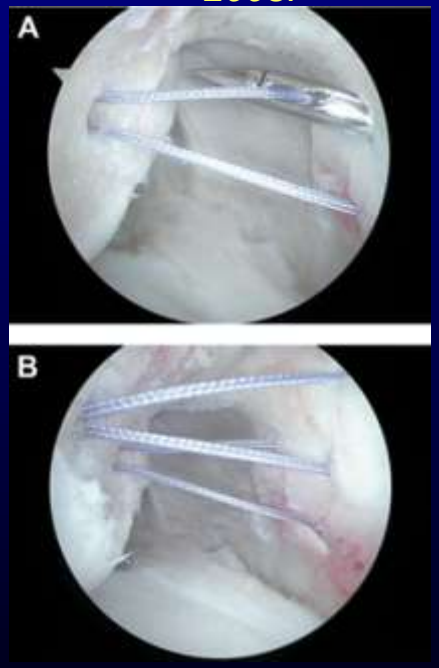




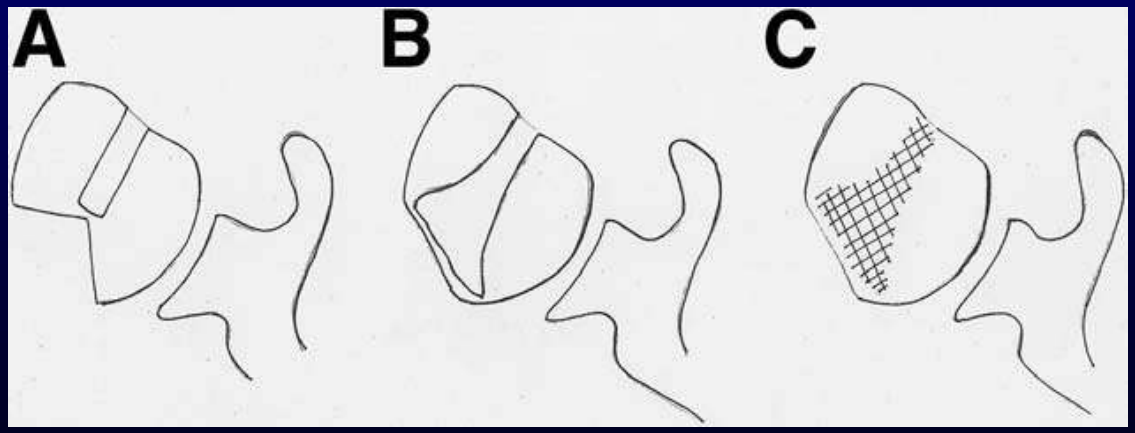
Correcting the Hill Sach Lesion

- Anatomical Procedures

Correcting the Hill Sach Lesion

Anatomical Procedures

- Elevate the compression Fracture
  - Transhumeral Head Plasty



Correcting the Hill Sach Lesion

Anatomical Procedures

- Elevate the compression Fracture
  - Transhumeral Head Plasty
- Fill the defect

Correcting the Hill Sach Lesion

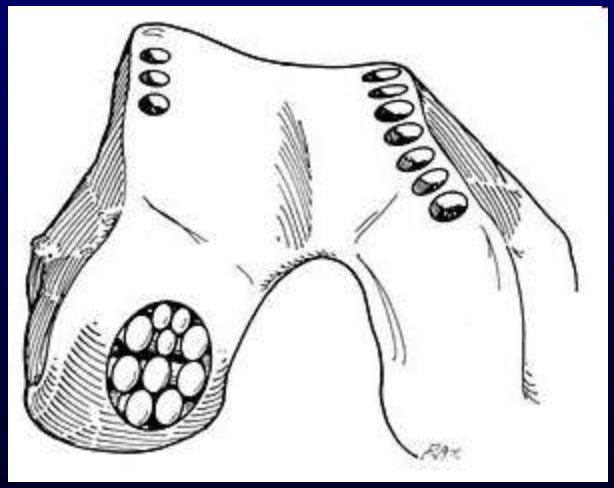
Anatomical Procedures

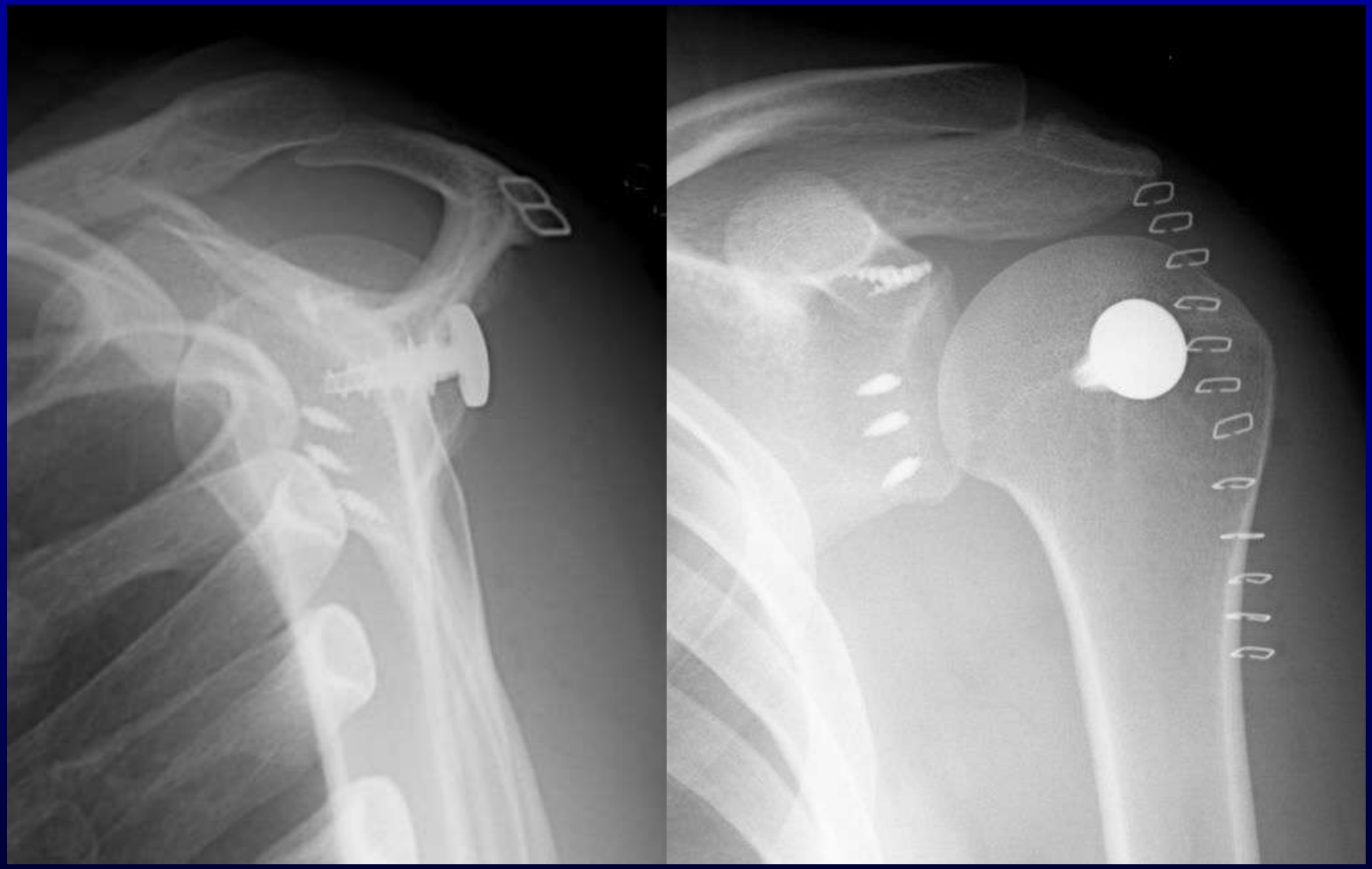
- Elevate the compression Fracture
  - Transhumeral Head Plasty
- Fill the defect
  - Fresh Osteochondral Allograft

Correcting the Hill Sach Lesion

Anatomical Procedures

- Elevate the compression Fracture
  - Transhumeral Head Plasty
- Fill the defect
  - Fresh Osteochondral Allograft
  - Mosaicplasty





–HemiCAP

Pre Op Investigations

Need to assess possible anterior glenoid bone loss & size of Hill Sachs lesion

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- Xray Trauma Series

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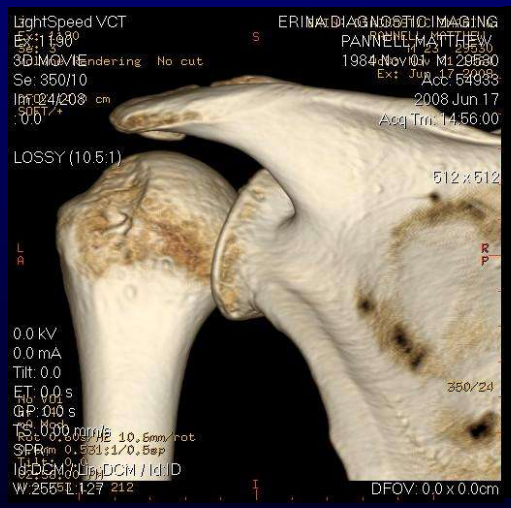
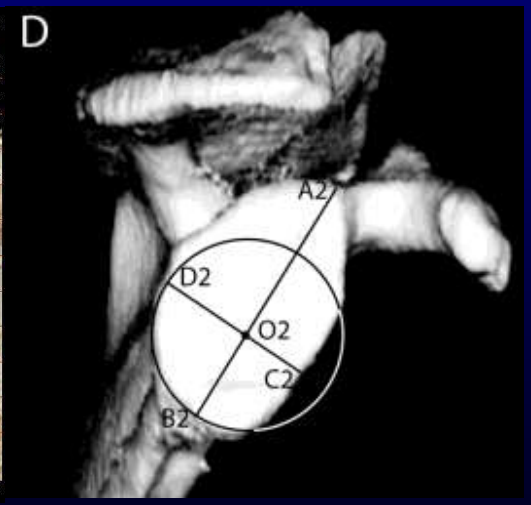
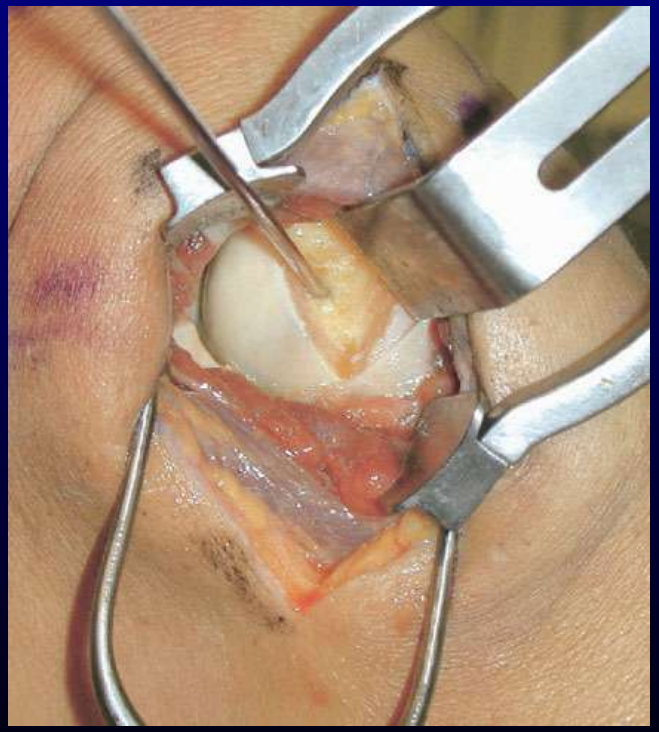
- Xray Trauma Series
- CT Scan & 3D Recon
- MRI Scan





Approach

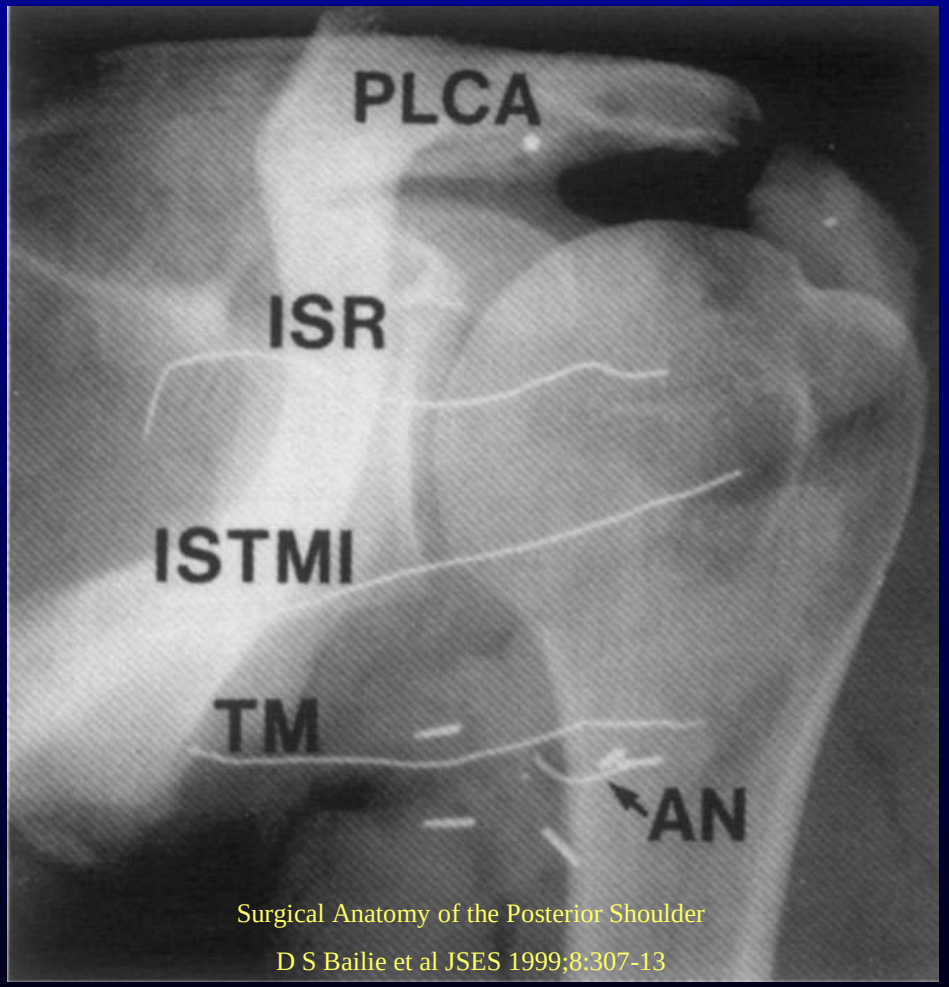
- Direct Posterior, Patient Lateral
- Muscle & Capsular Splitting
- Excellent Exposure
- Quick & Safe
- Minimal Morbidity



Surgical Anatomy of the Posterior Shoulder

D S Bailie et al JSES 1999;8:307-13

Direct Posterior Approach Landmarks



Surgical Anatomy of the Posterior Shoulder

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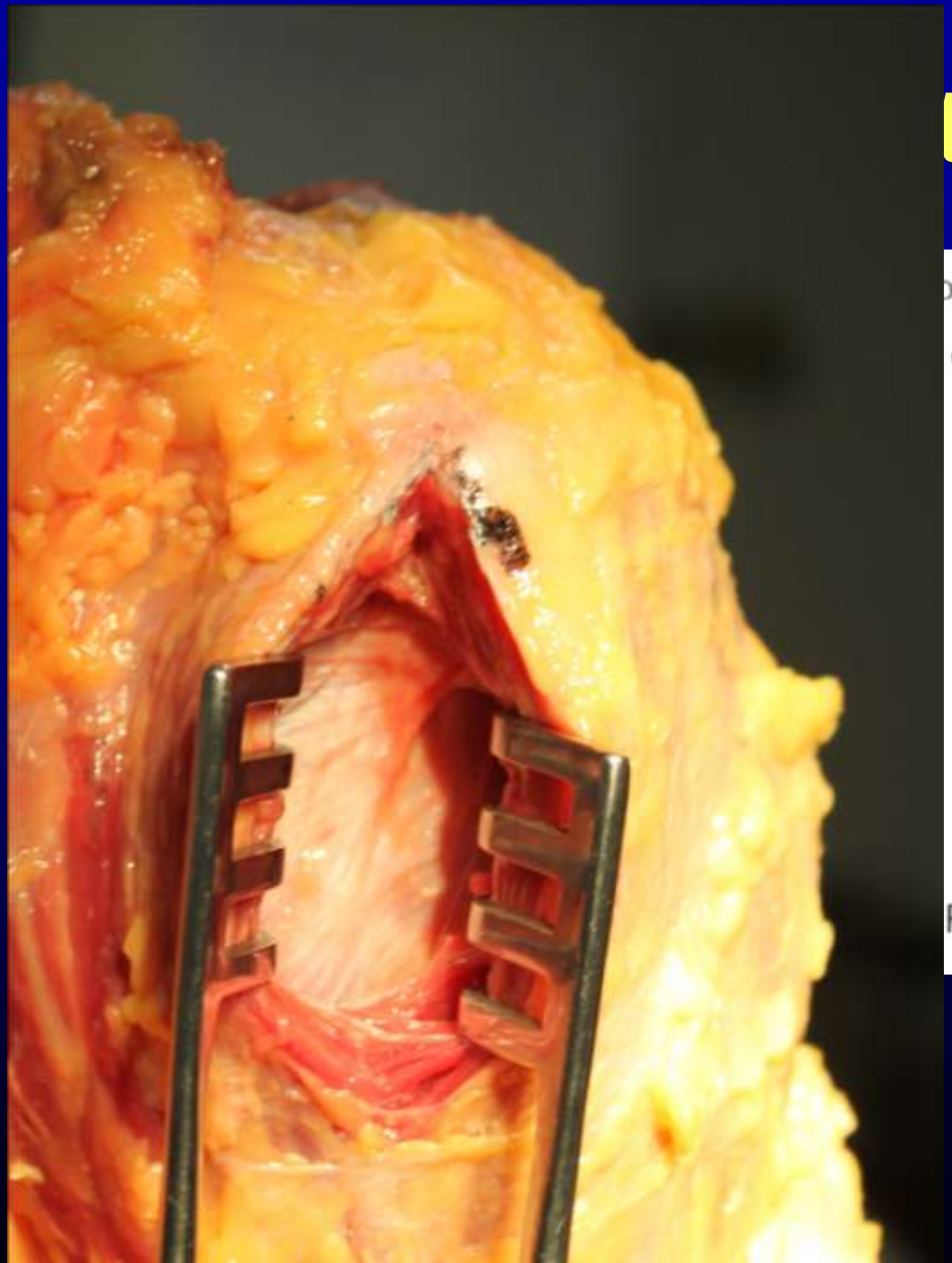
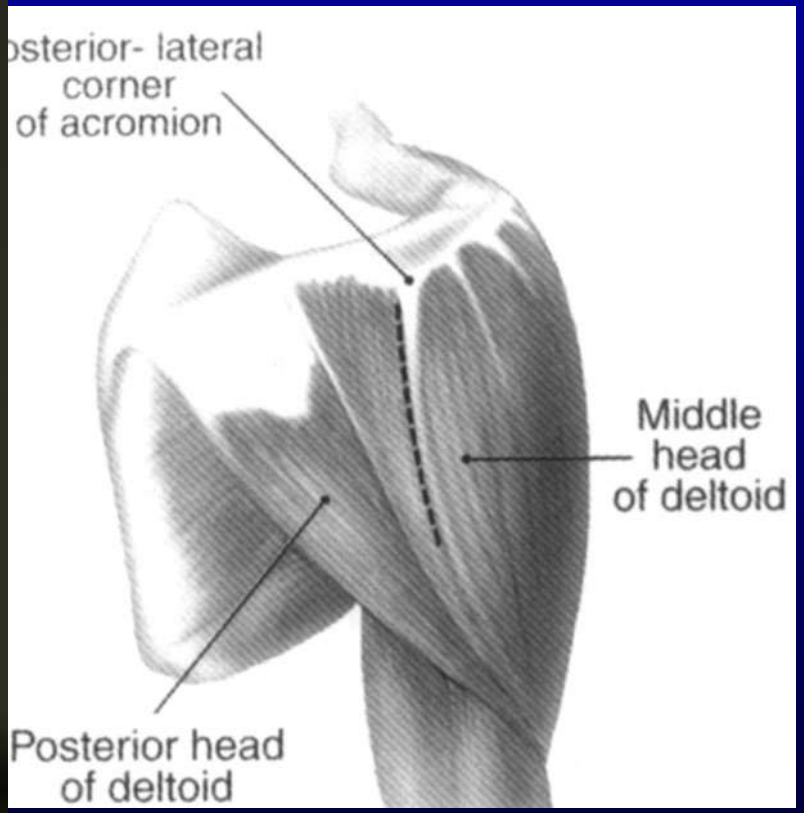
Direct Posterior Approach

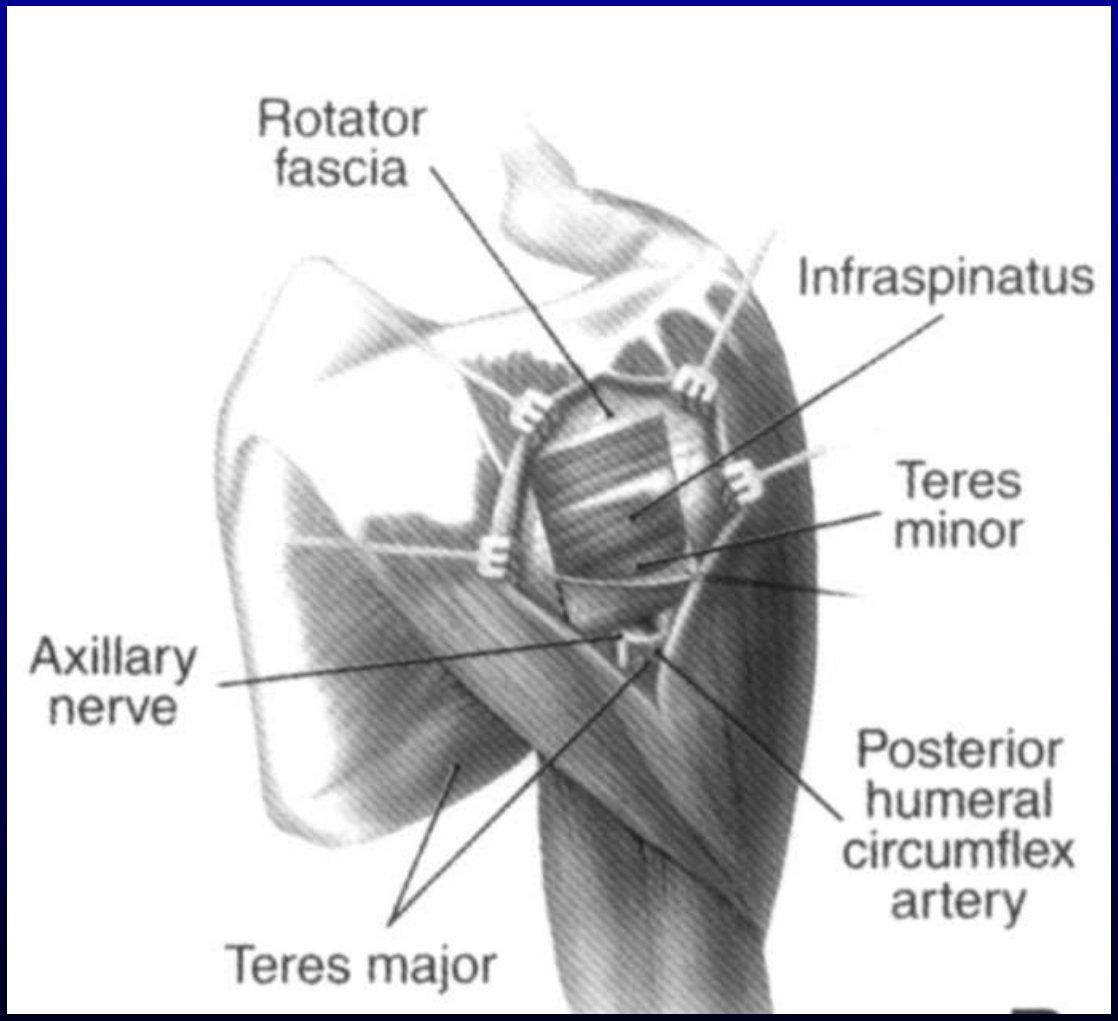
Incision 6cm from PCLA

toid Split

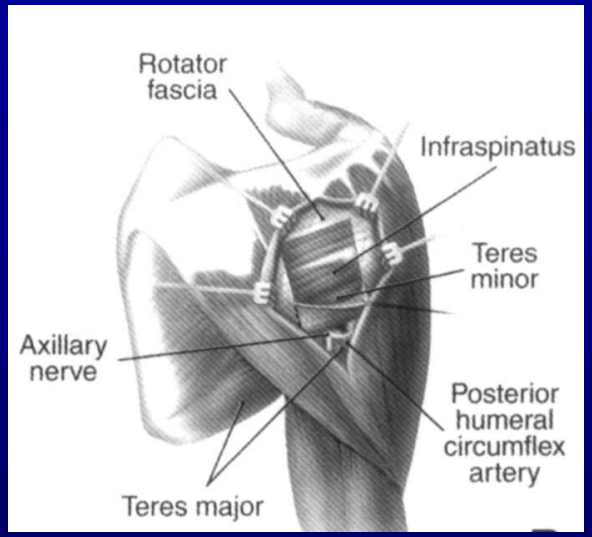


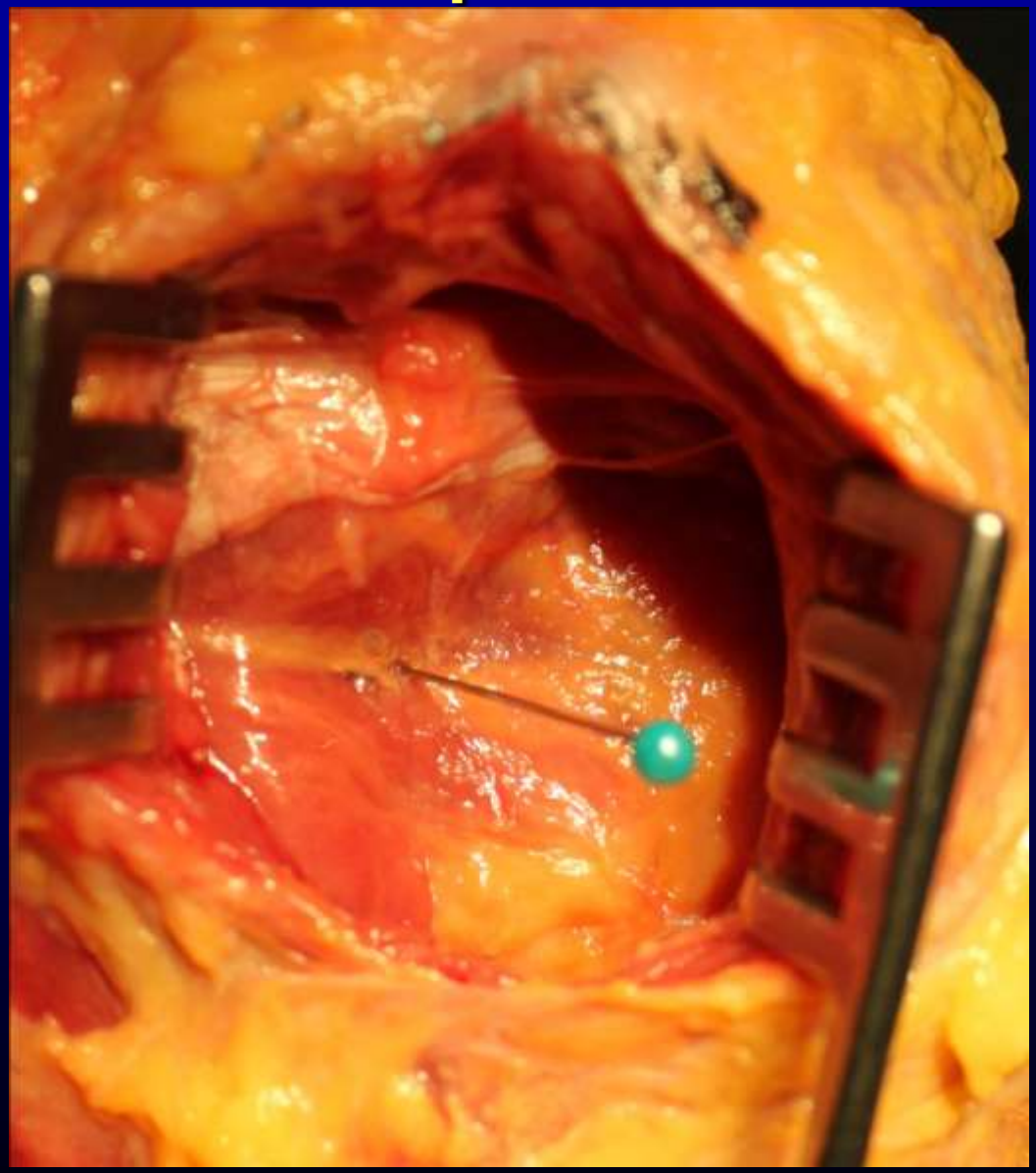

sterior- lateral
corner
of acromion
Middle
head
of deltoid
Posterior head
of deltoid

Infraspinatus Split

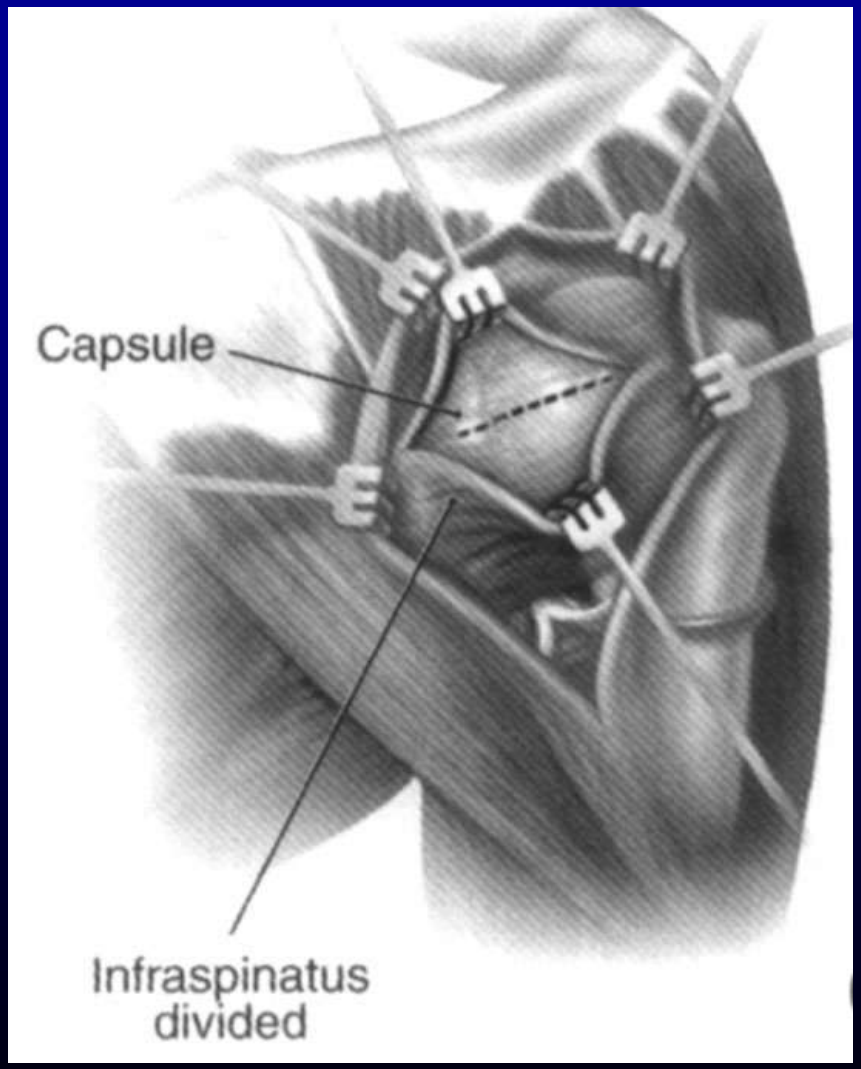


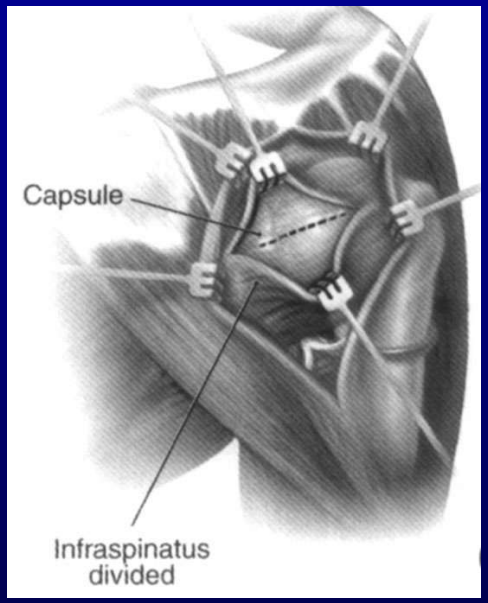
Infraspinatus Split

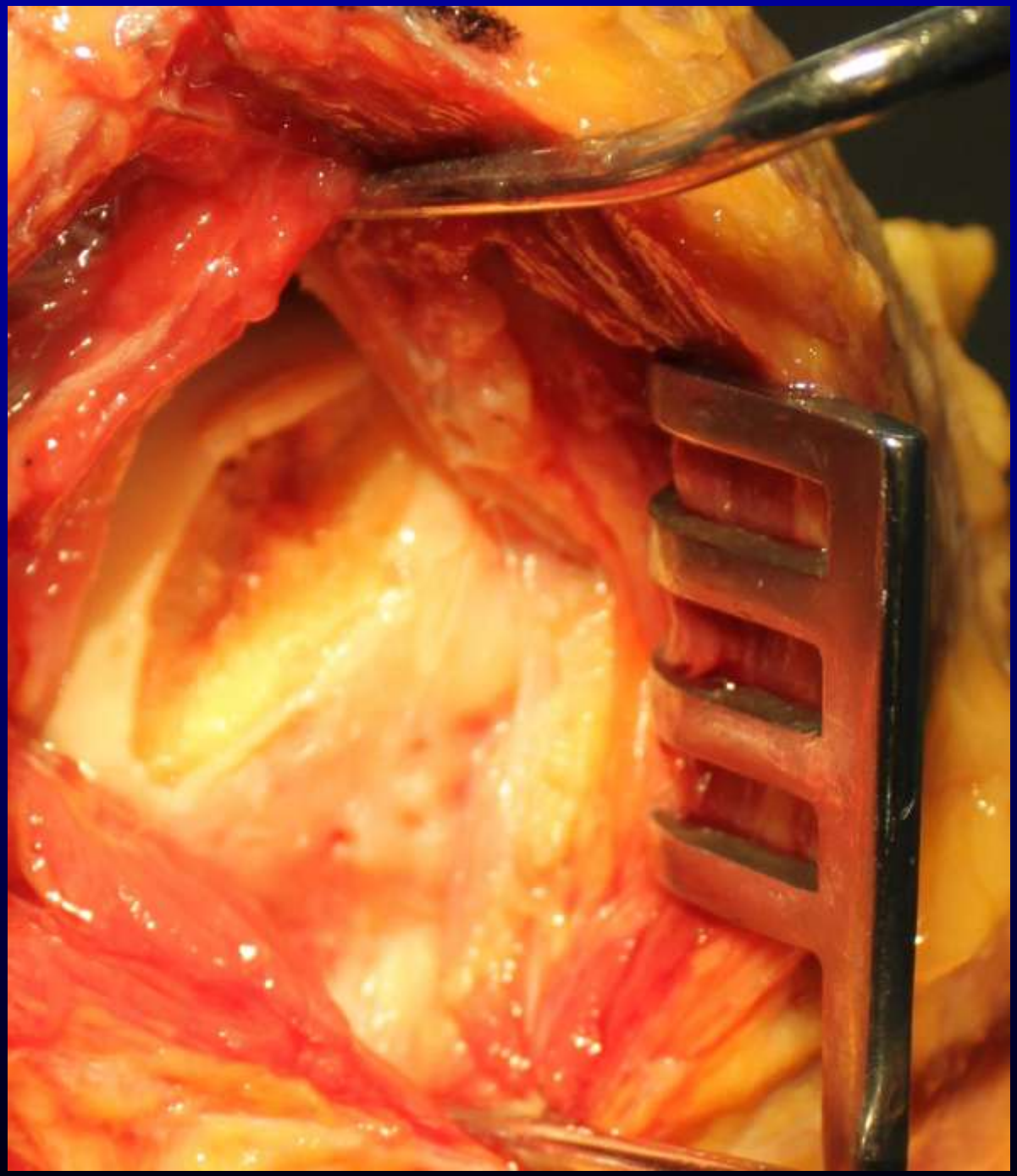




Posterior Capsular Incision




Capsule
Infraspinatus
divided



HemiCap Preparation

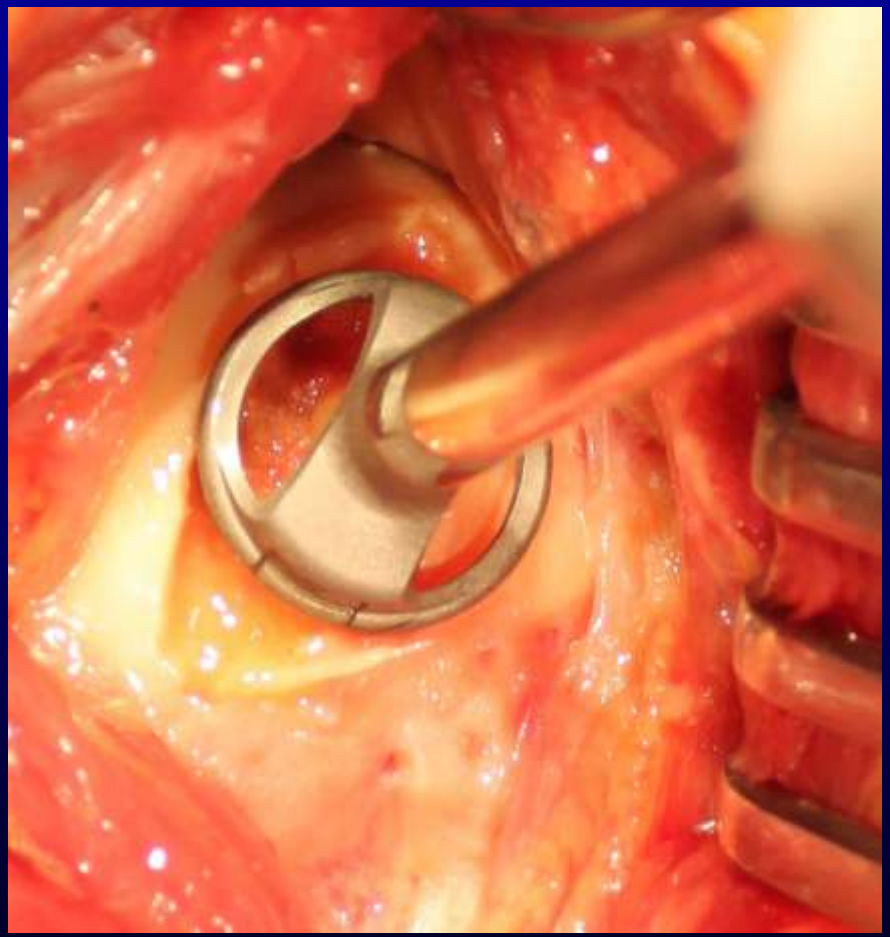
Choose Size

20mm
15 & 20mm (ie 2 HemiCaps)

Only Medial Congruency Important

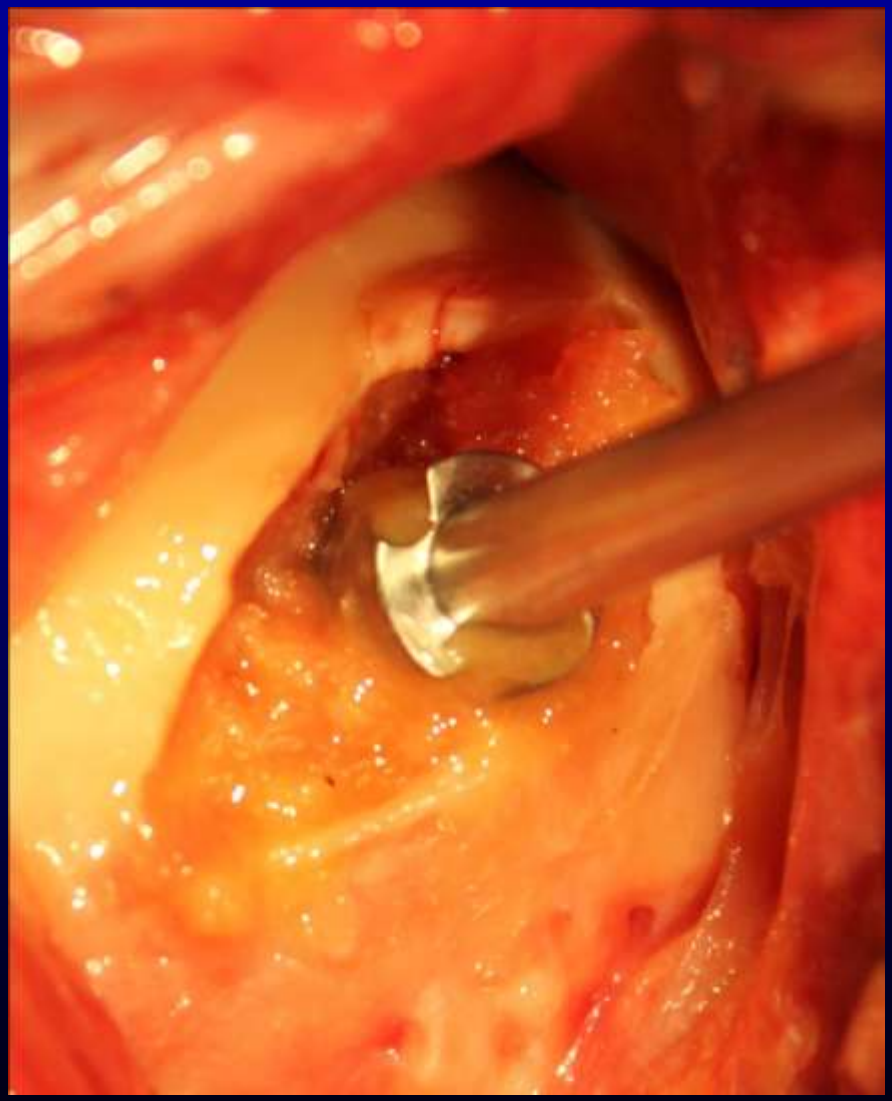
Lateral Edge often deficient

Superior & Inferior unimportant



HemiCap Preparation

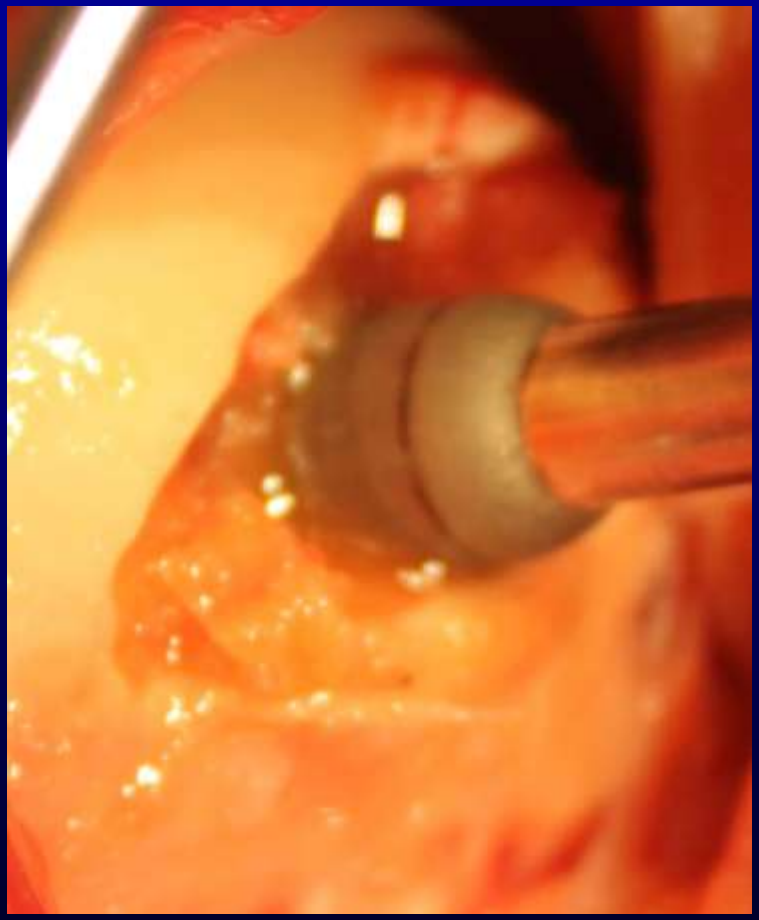
- Drill over guide wire
- Essential not to drill too deep
- Leave proximal flange of drill proud of planned restored articular surface



HemiCap Preparation

Tap, again leave proud

Insert screw, leave proud

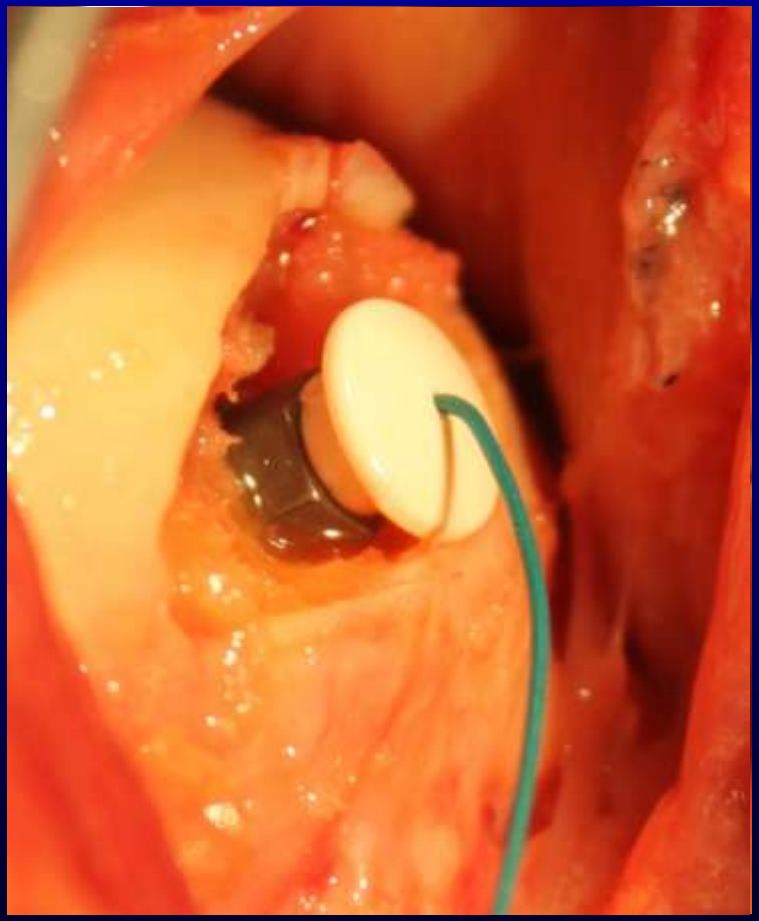


HemiCap Preparation

Tap, again leave proud

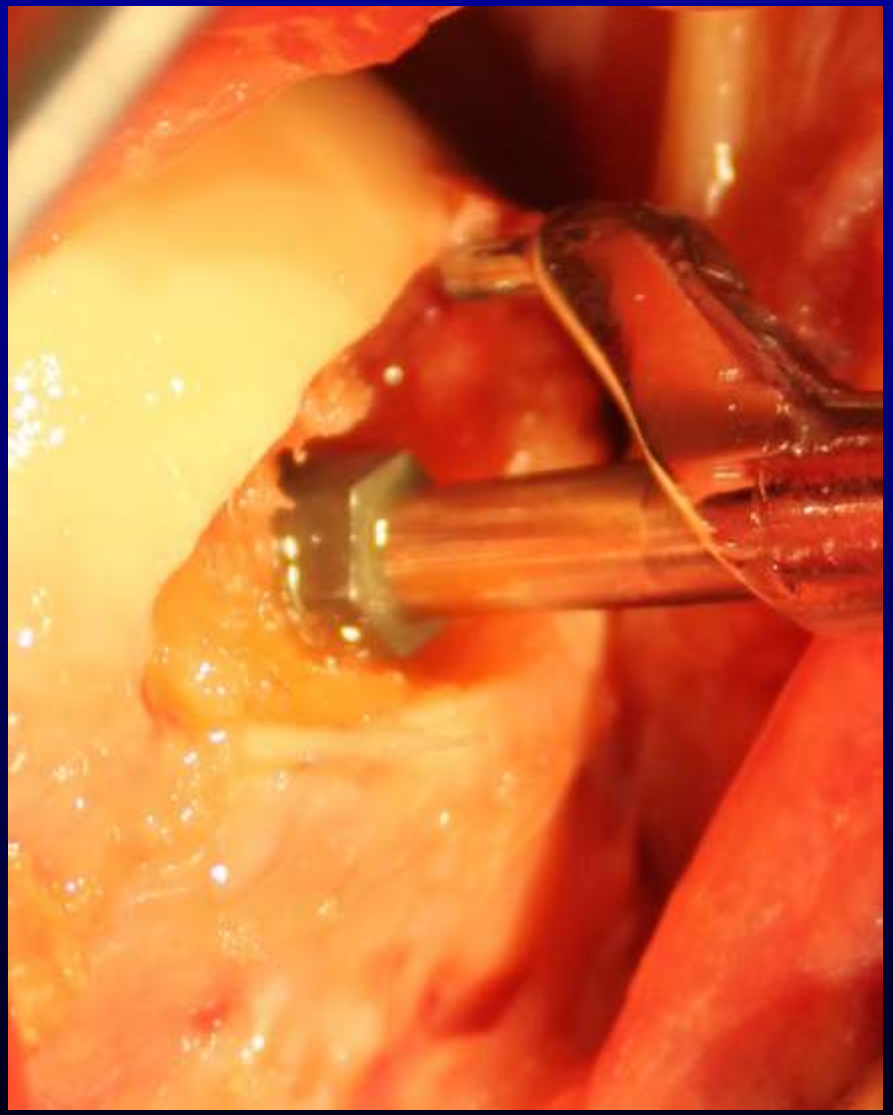
Insert screw, leave proud

Trial with cap



HemiCap Offset

Only important congruency is medial

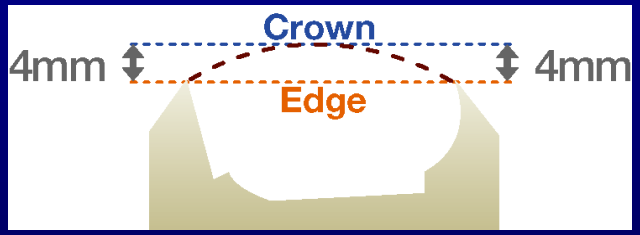


HemiCap Offset

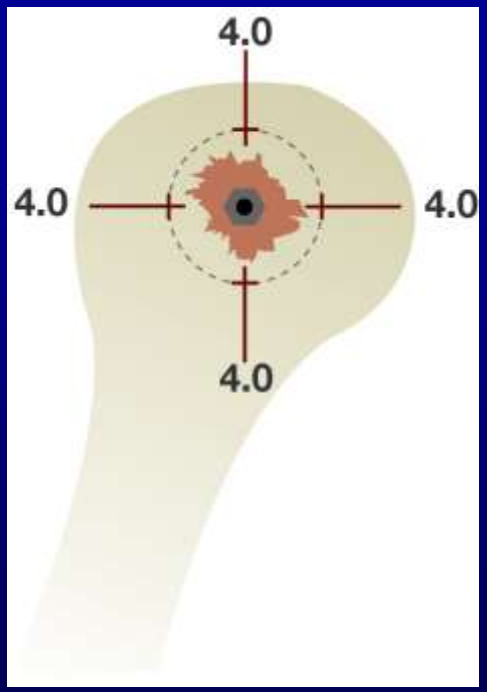
Only important congruency is medial

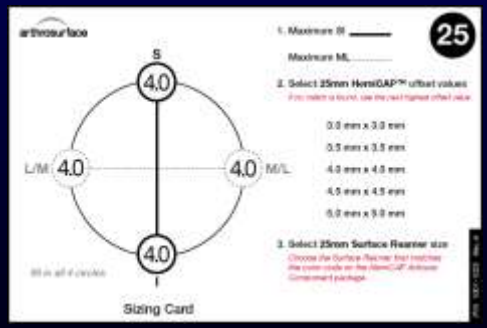
Always 2 x 2mm or 2 x 1.5mm

Offset measured from
Crown of original surface
To **Edge** of native cartilage



Offset Indicator





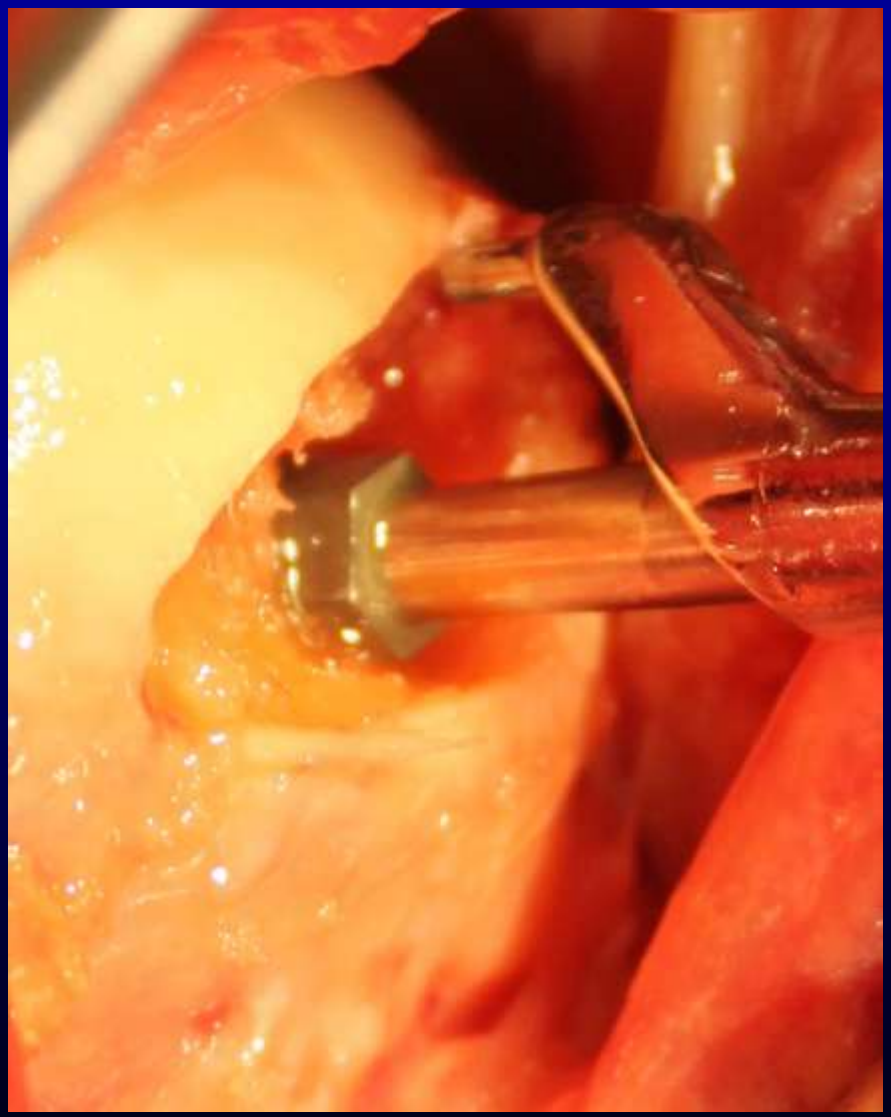
HemiCap Offset

Only important congruency is medial

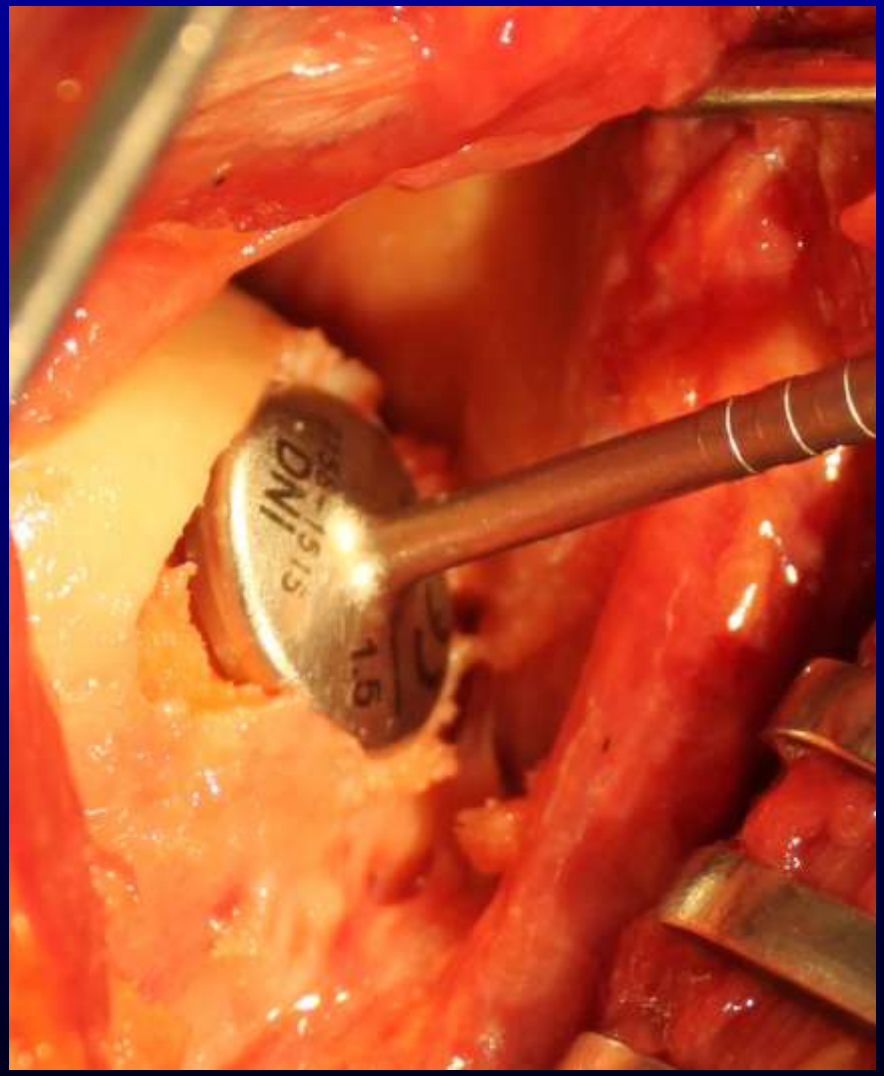
Always 2 x 2mm or 2 x 1.5mm

Can easily drive screw in further at this stage if required

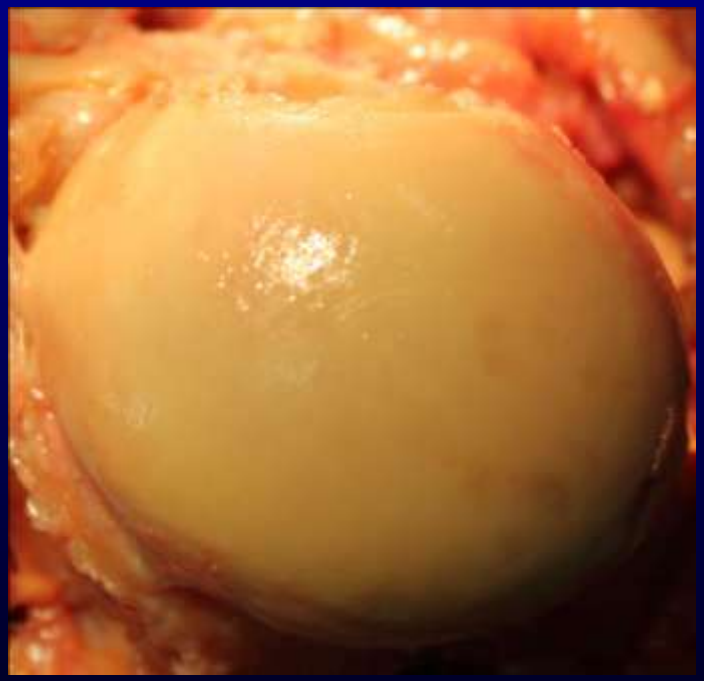
Can’t back screw out as tapered design will loosen

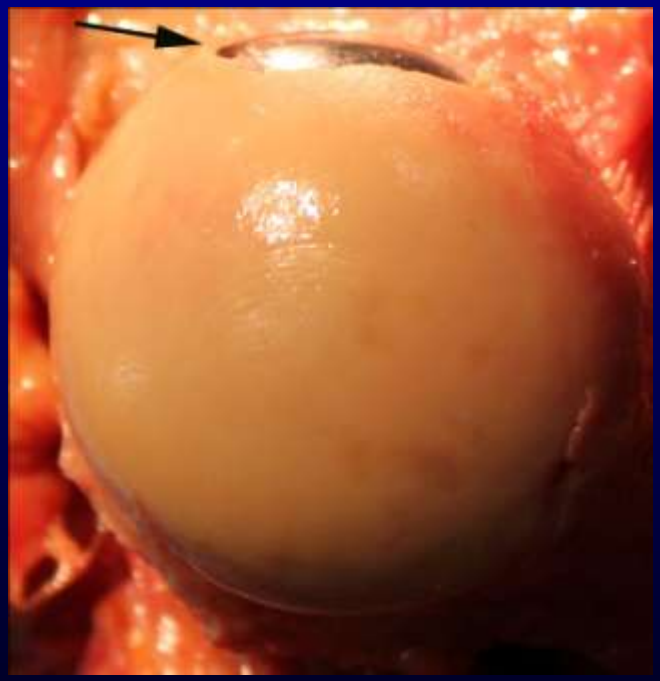


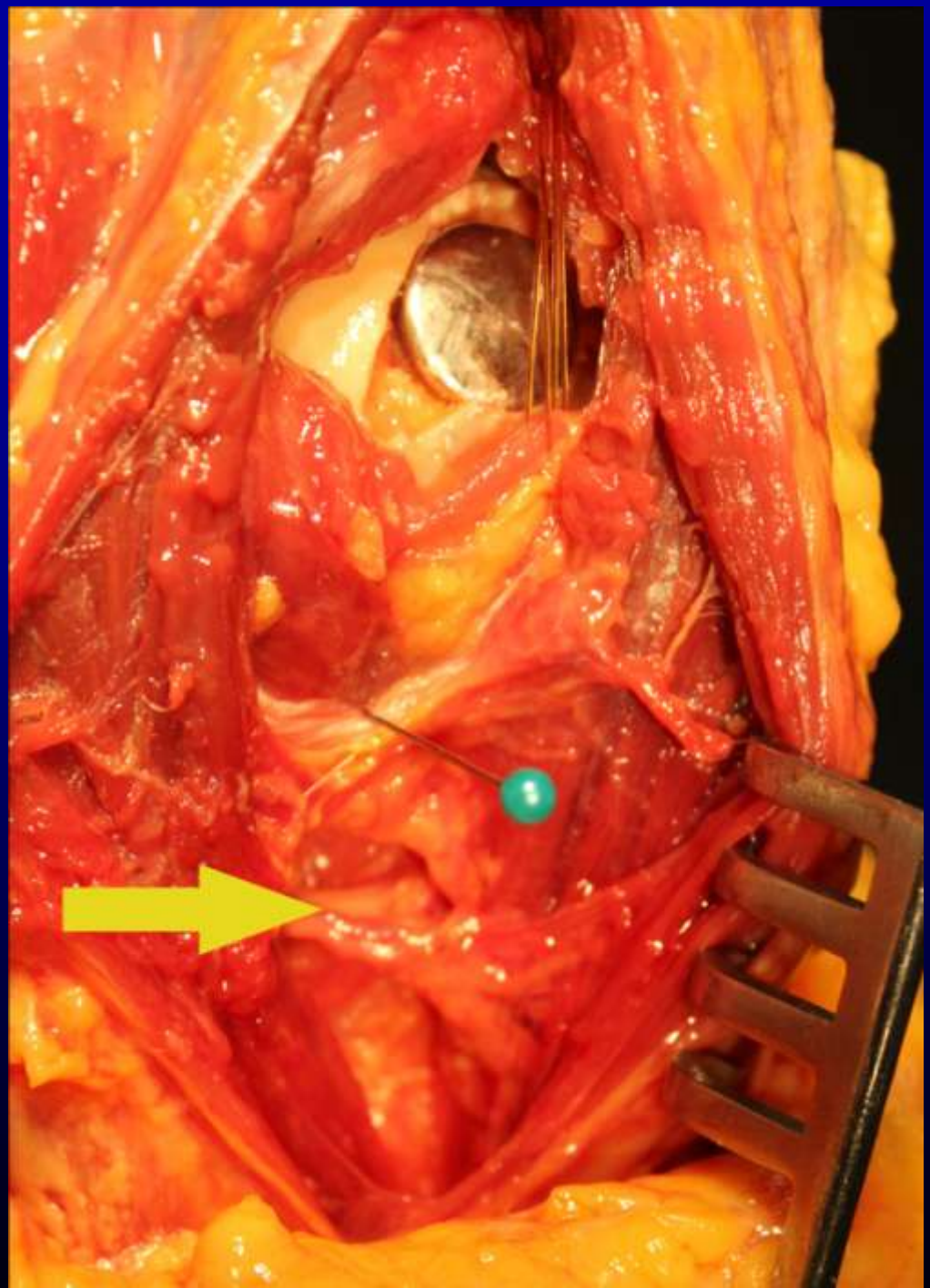
Trial & Final Implants



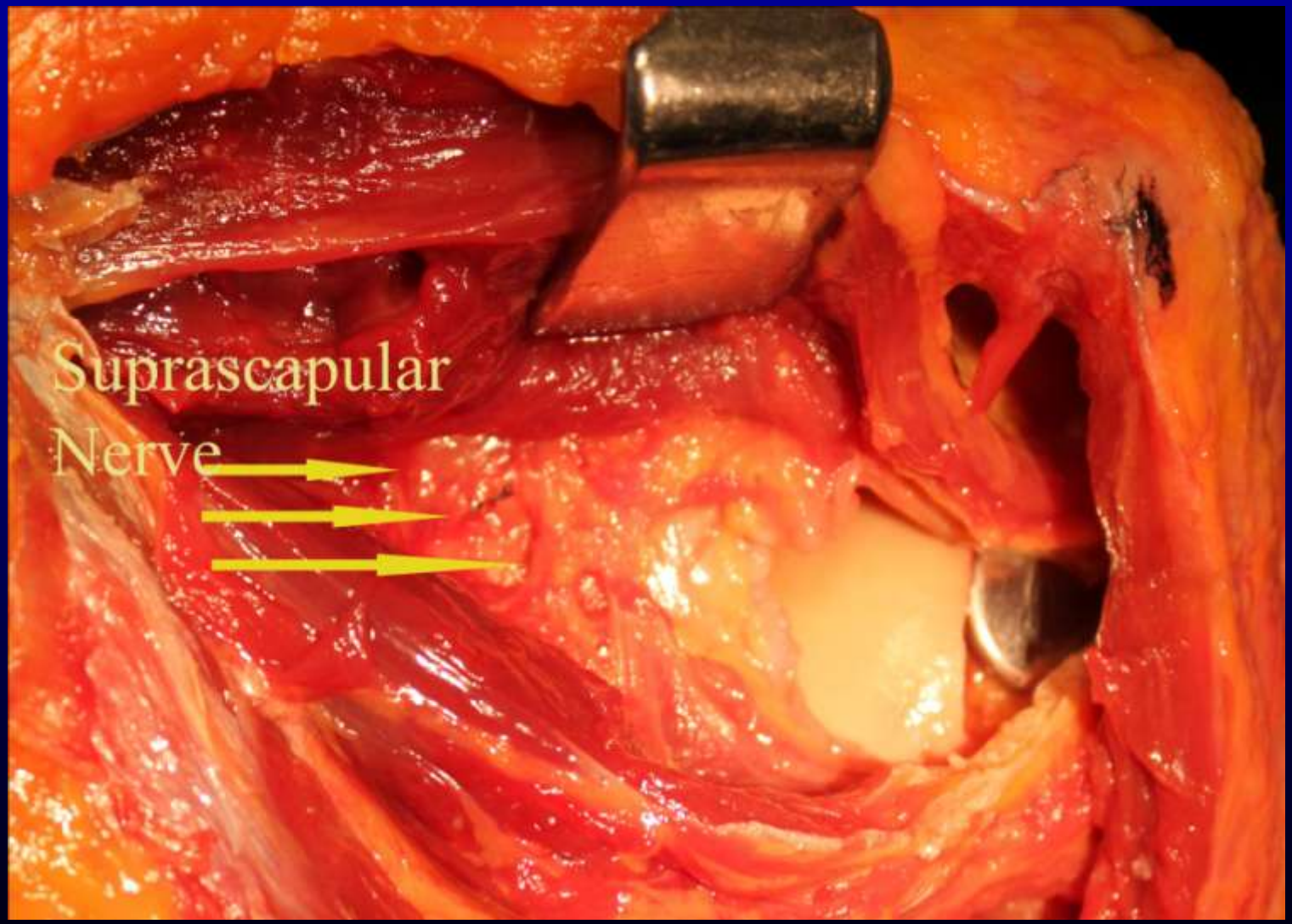
HemiCap Medial Congruence





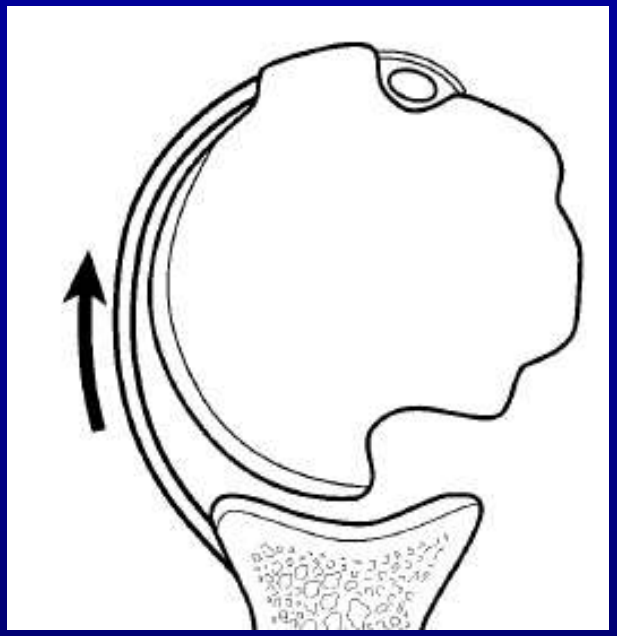


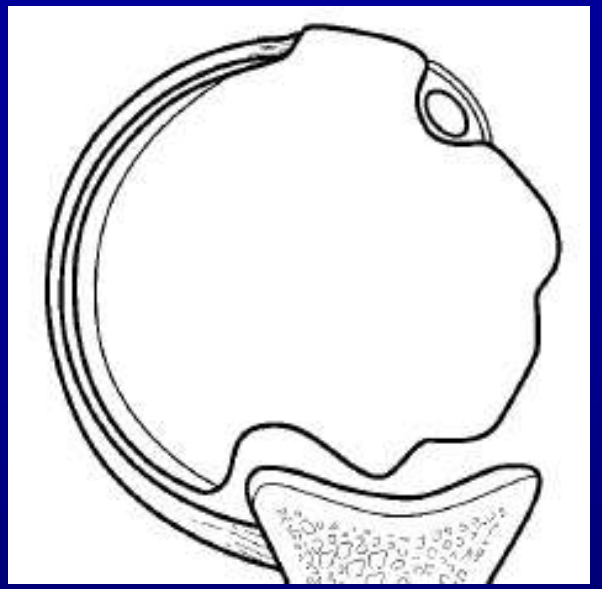
Suprascapular Nerve

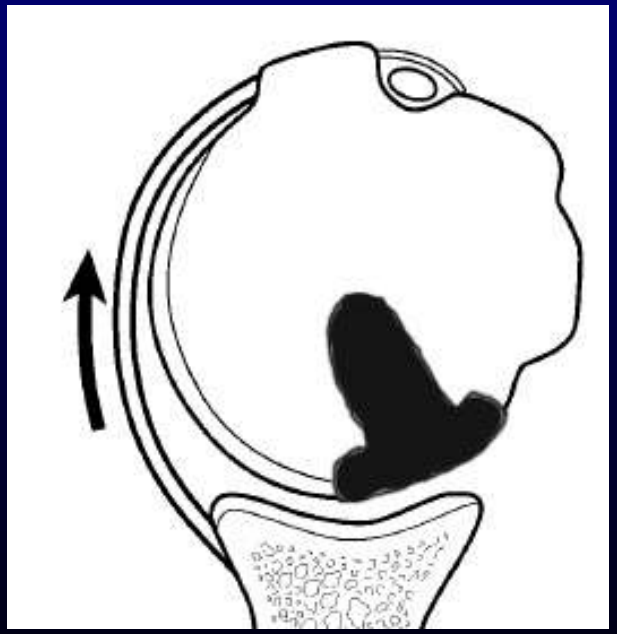


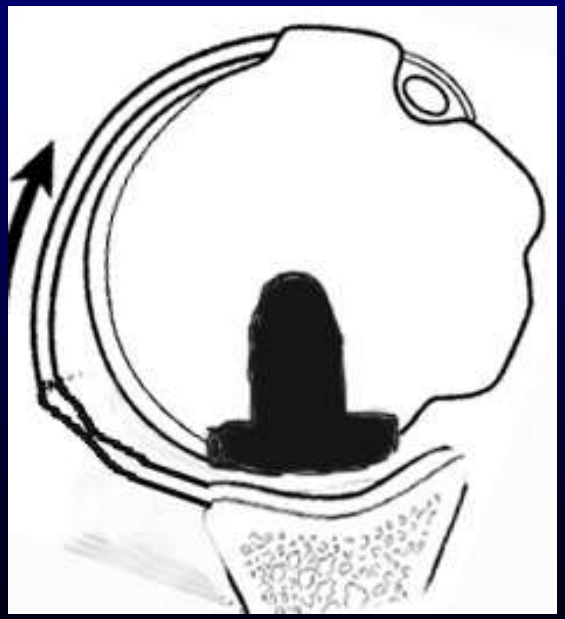
HemiCap

- Use 15 – 20mm Caps (Toe & Knee size)
- 1x20mm or 1x20 & 1x15mm to fill elliptical “lemon wedge” defect
- Err on placing trial prothesis proud
- Only important congruence is medial articular surface



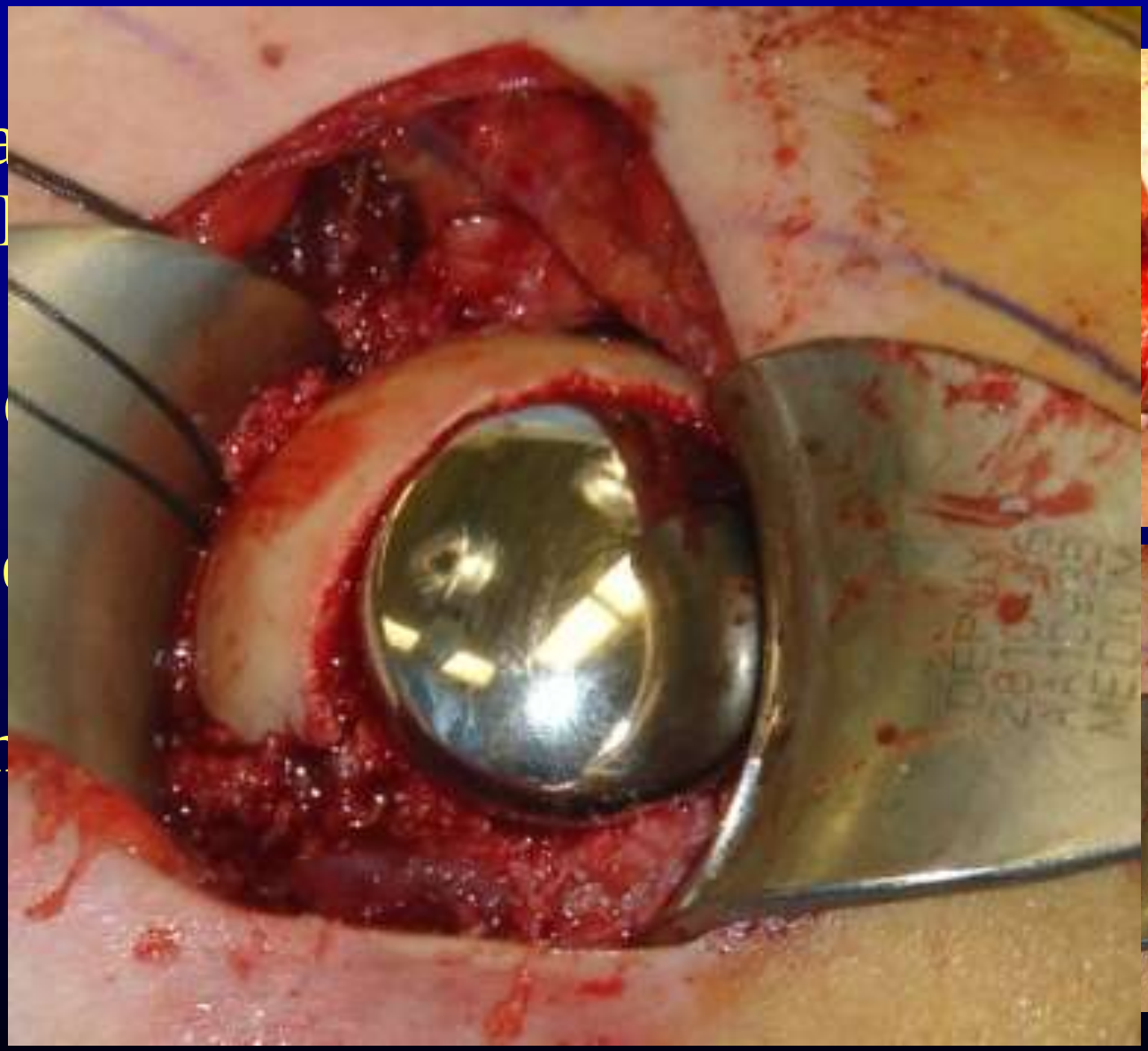






Reverse Hill Sachs

- Usua
  "Mc
- Can
  with
  Less
- Main



RK Plumber 22 yrs

Unable to work

Severe instability, Bony Bankart, Large Hill Sachs

2 HemiCaps Posterior, then Anterior Latarjet

RK Plumber 22 yrs

Unable to work

Severe instability, Bony Bankart, Large Hill Sachs

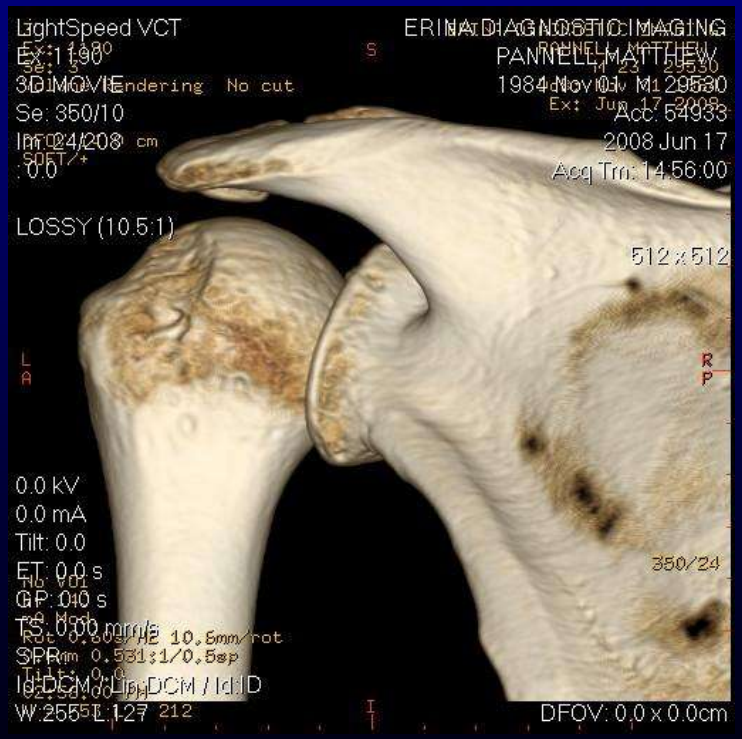
2 HemiCaps Posterior, then Anteri Latarjet

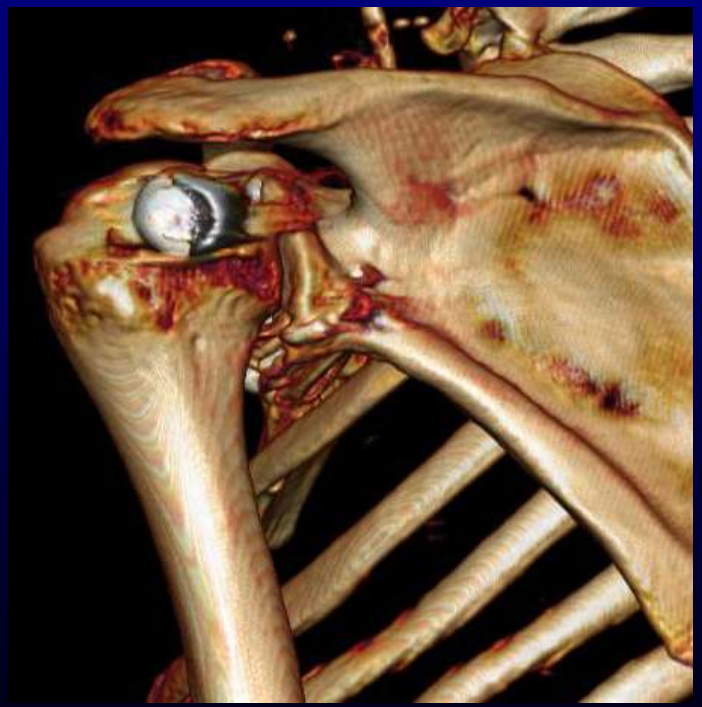
Returned to full plumbing duties @ 10 weeks

Range of Movement equal

22 yr old

Failed Scope Bankart & SLAP repair 9 mths prior

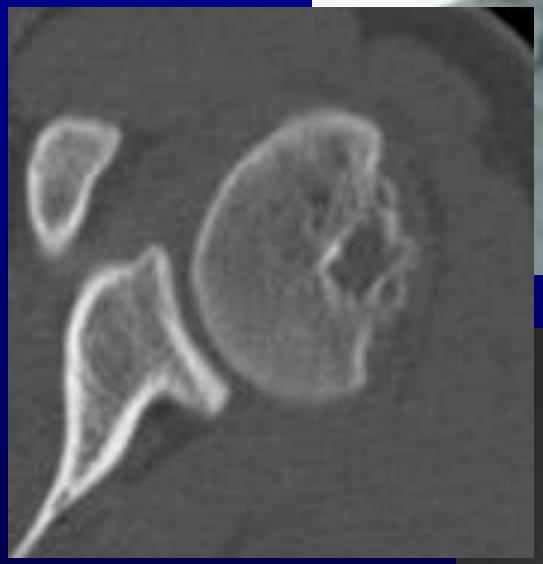




MW 23 yr old Male

Massive Hill Sachs

Intolerable Instability



25 & 20mm HemiCAPs

Latarjet

12 mths Stable Shoulder

Timing & Order

- Dependant on equipment available
- Suspect with multiple, easy shoulder dislocations
- CT scan pre-Op with 3D reconstruction
- Simultaneous or Sequential 2 Stage procedure
- Can safely delay 2nd stage until HemiCap available
- Now have 15 & 20mm (2x2 & 2x1.5) HemiCap in stock in our theatres

Timing & Order

- Only our initial 2 cases were sequential
- Rest simultaneous
- Anterior Arthroscopic work 1st
  (eg Arthroscopic Bankart)
- Posterior approach HemiCap 2nd
- If all open ▶ Posterior 1st

Results
Short term 12-30mths

- 24 patients (7 female)
  - 16 Arthroscopic Bankart & HemiCAP (7 female)
  - 8 Latarjet & HemiCAP

- 1 revision. Epileptic related instability
  - Anterior bone loss Not initially corrected
  - Revised to Latarjet

Lessons Learn't

- Reconstruct Anterior Bone Loss
  - 60% failure
- Keep the trial HemiCAP proud
  - Can always sink later
- May require 2 HemiCAPs
- Routine Radiology poor predictor of engaging lesion

Conclusions

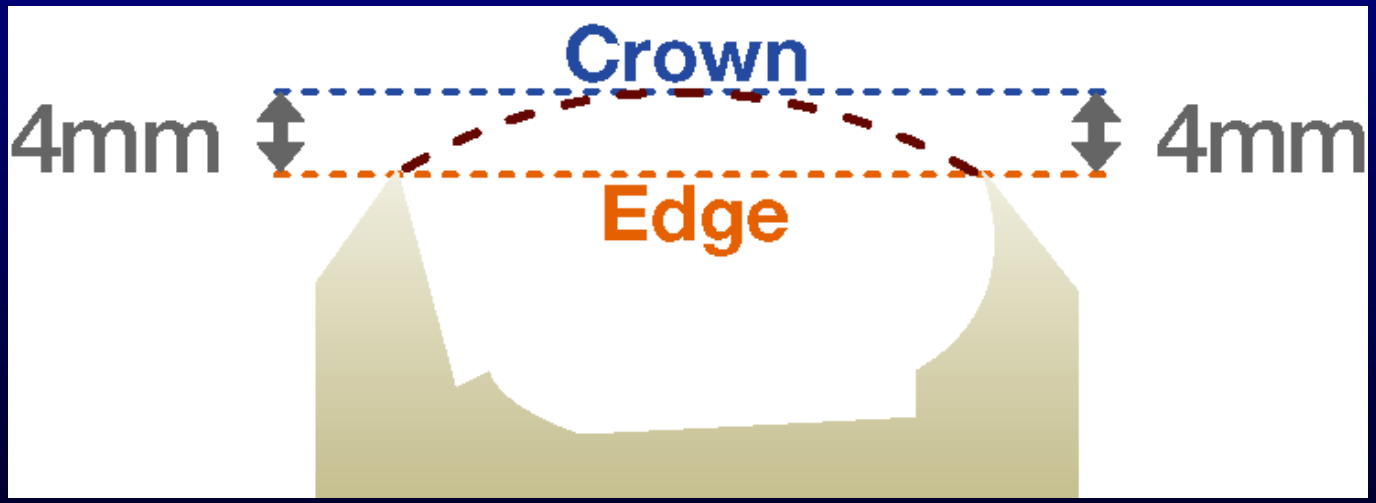
- Restoring normal anatomy will allow a full range of movement with a stable shoulder
- Correct all pathology precipitating shoulder instability
- HemiCap allows anatomical correction of Hill Sachs Lesions

WORKSHOP

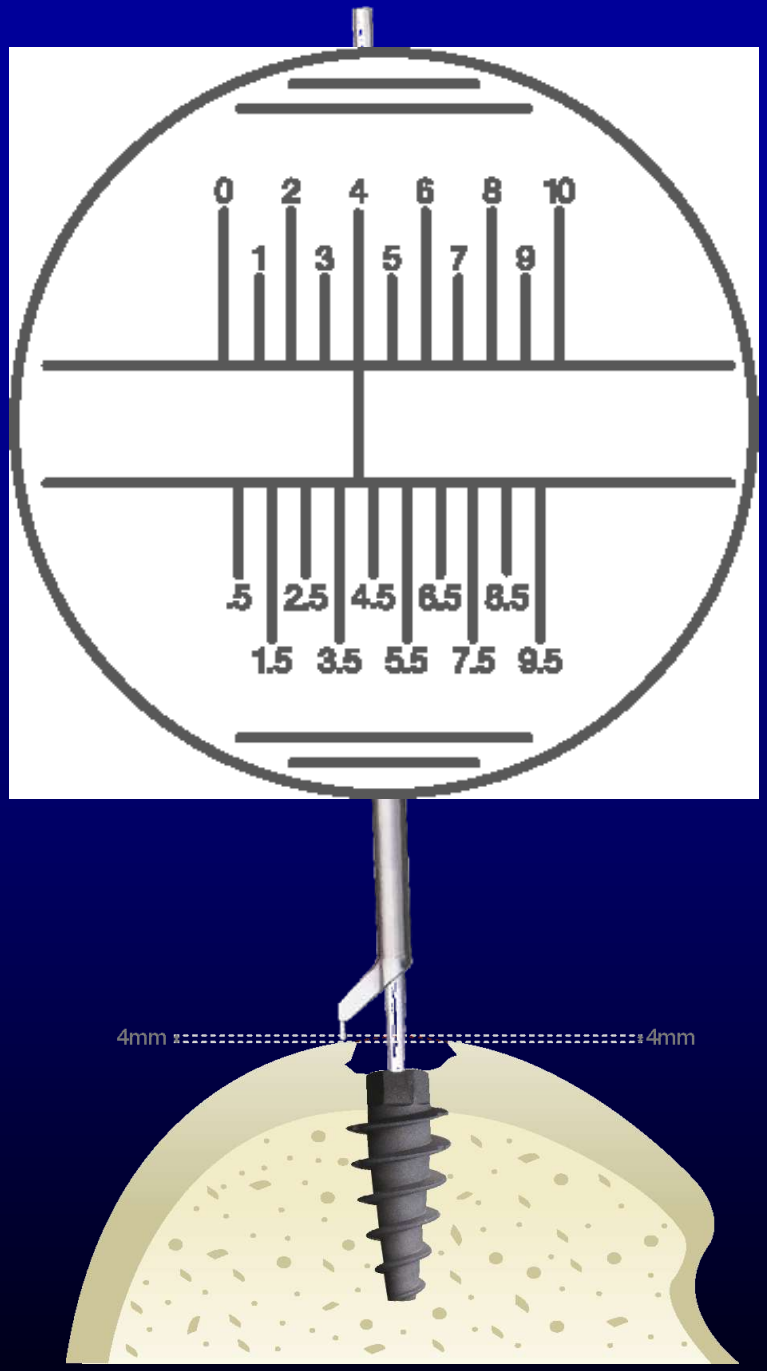
Wish List

- Elliptical defect – Circular HemiCap
- Need for elliptical implants
- Handy to have on shelf as lesion can be unpredictable

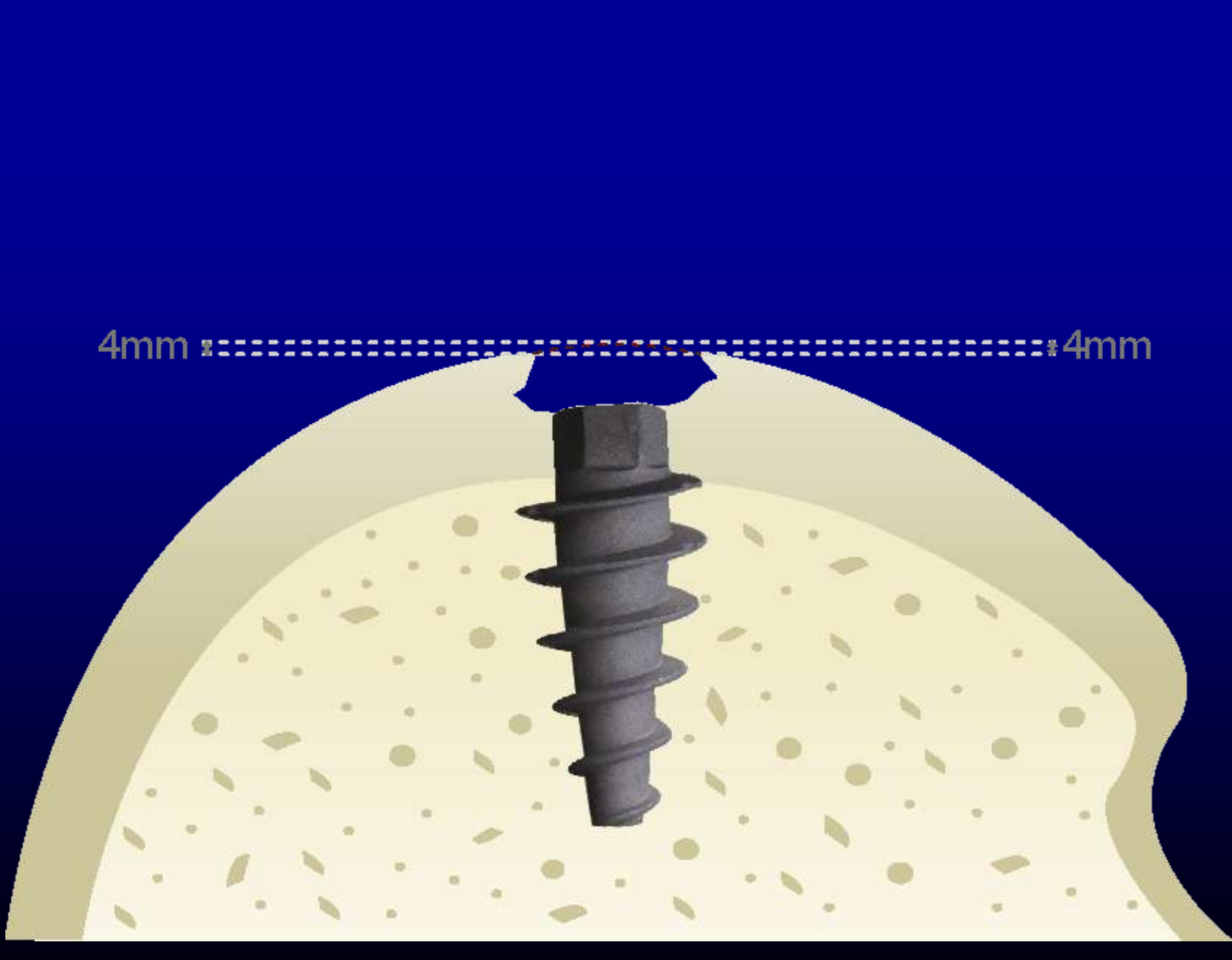
Offset measured from
Crown of original surface
To **Edge** of native cartilage




4mm
4mm



Offset Indicator


4mm
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