

Acromio-Clavicular Dislocation

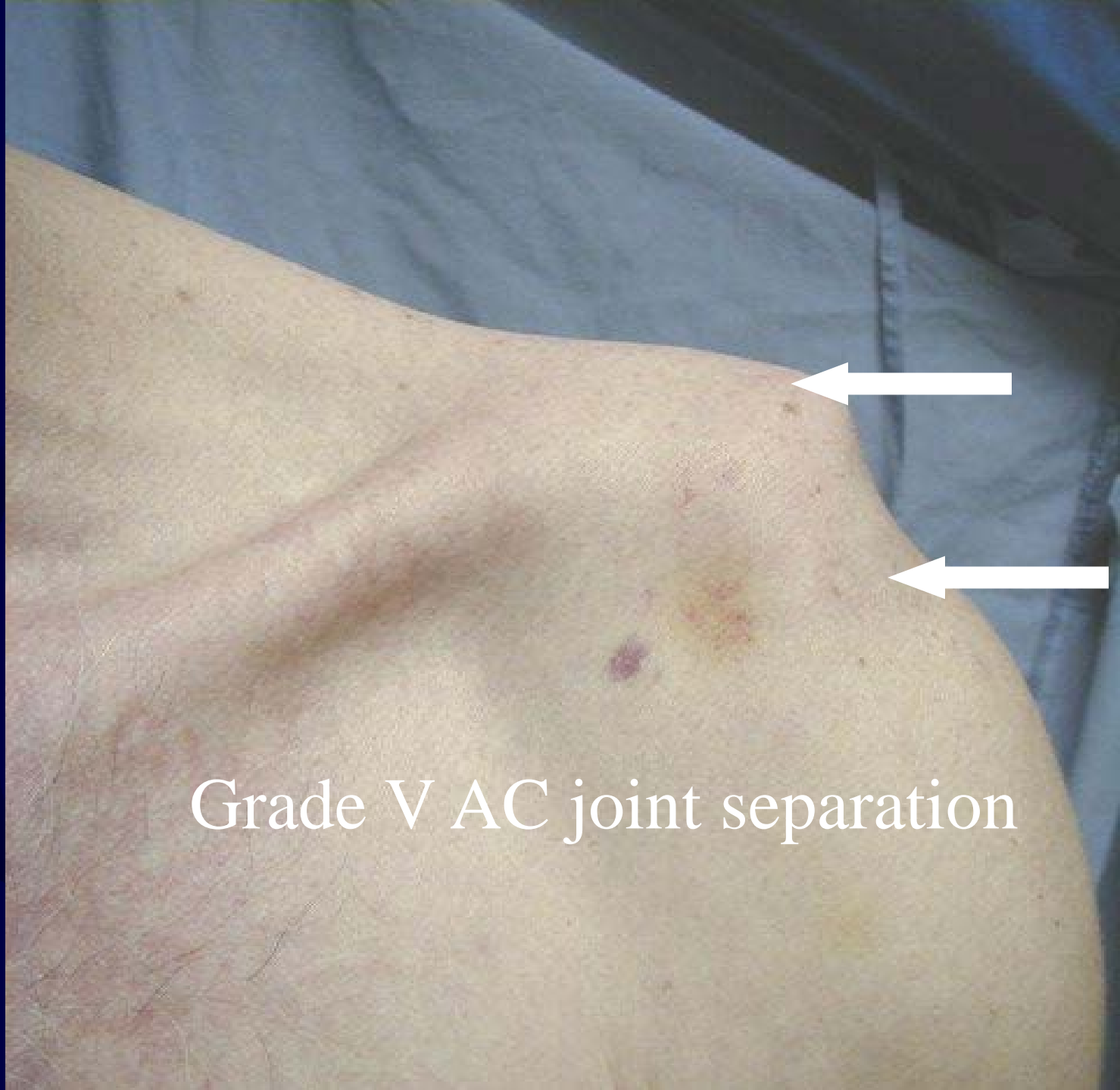


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AC joint dislocations

- Common
- Blow to the point of the shoulder
- Variety of slings available
- Most treated non-op
- Operative indications controversial

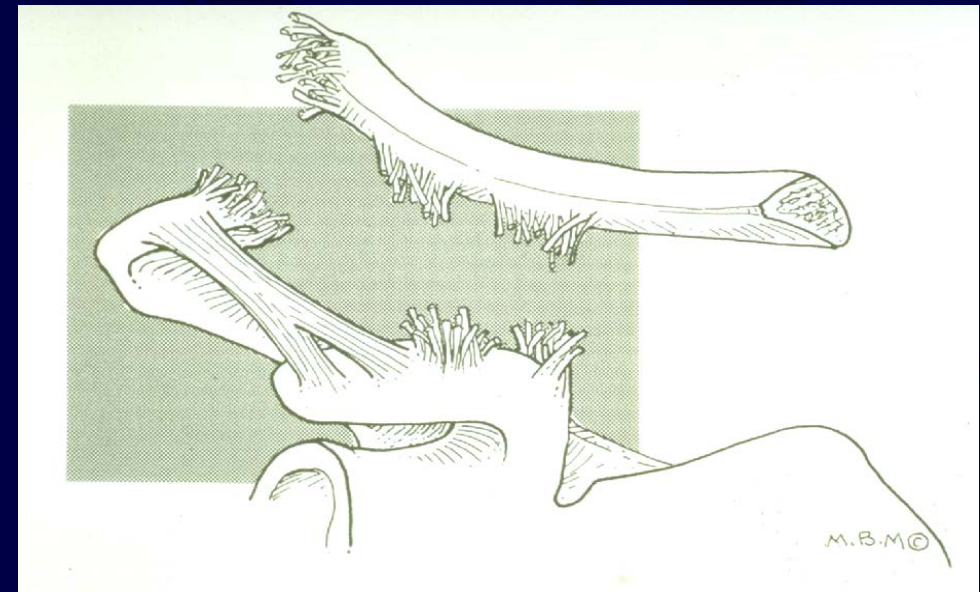
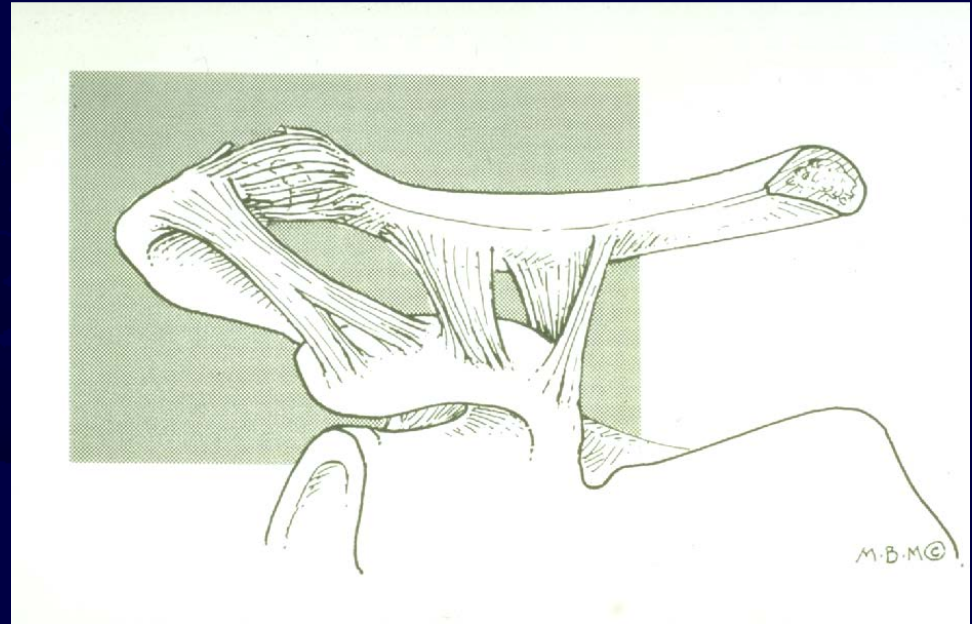




Grade V AC joint separation

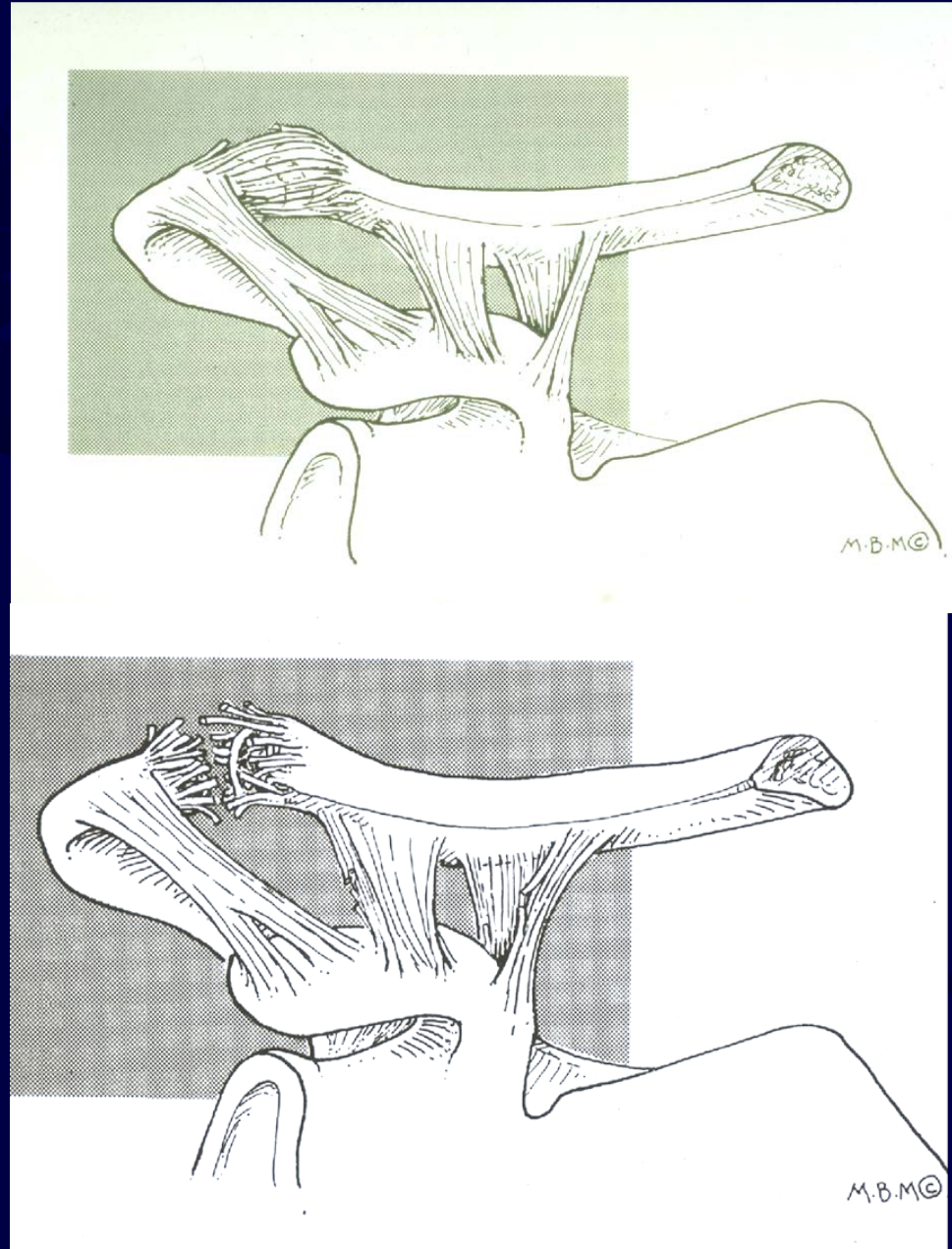
Classification - Rockwood

- Grade I
- Grade II
- Grade III
- Grade IV
- Grade V
- Grade VI

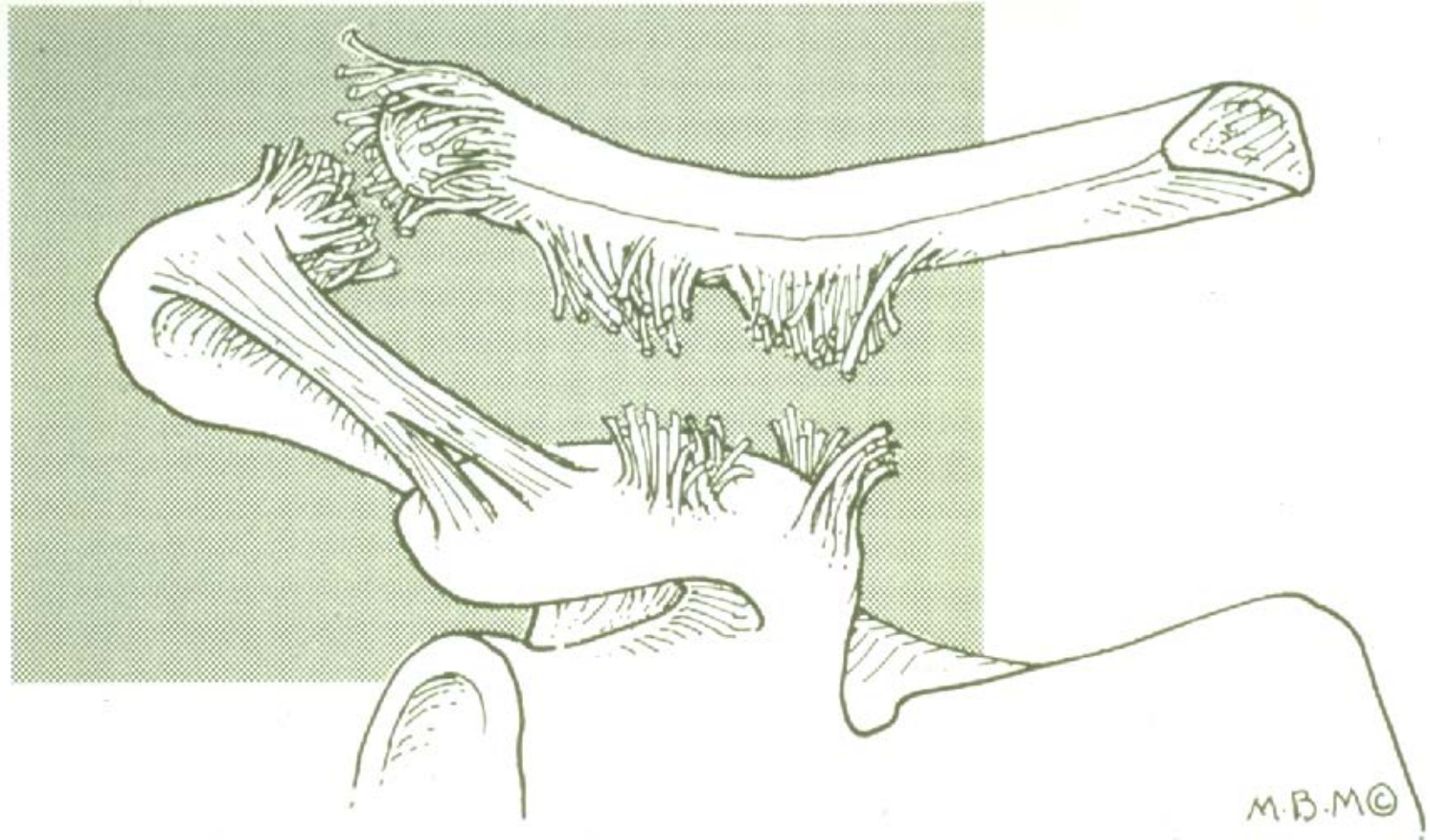


AC sprains with no dislocation

- Grade I - strain AC ligaments
- Grade II - torn AC ligaments, strain CC ligaments

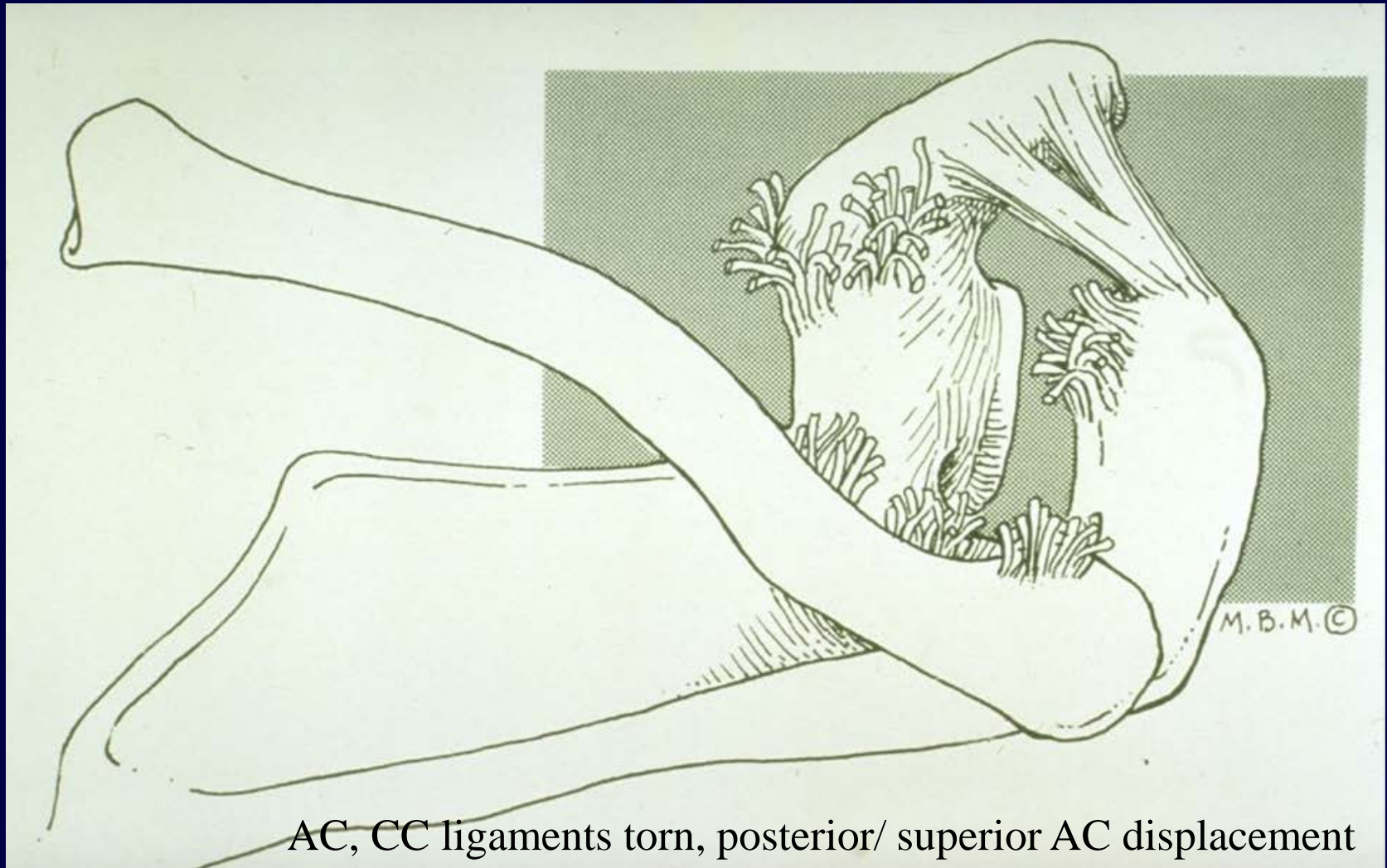


Grade III



AC dislocation, AC and CC ligaments torn

Grade IV injuries



AC, CC ligaments torn, posterior/ superior AC displacement

Grade IV injuries

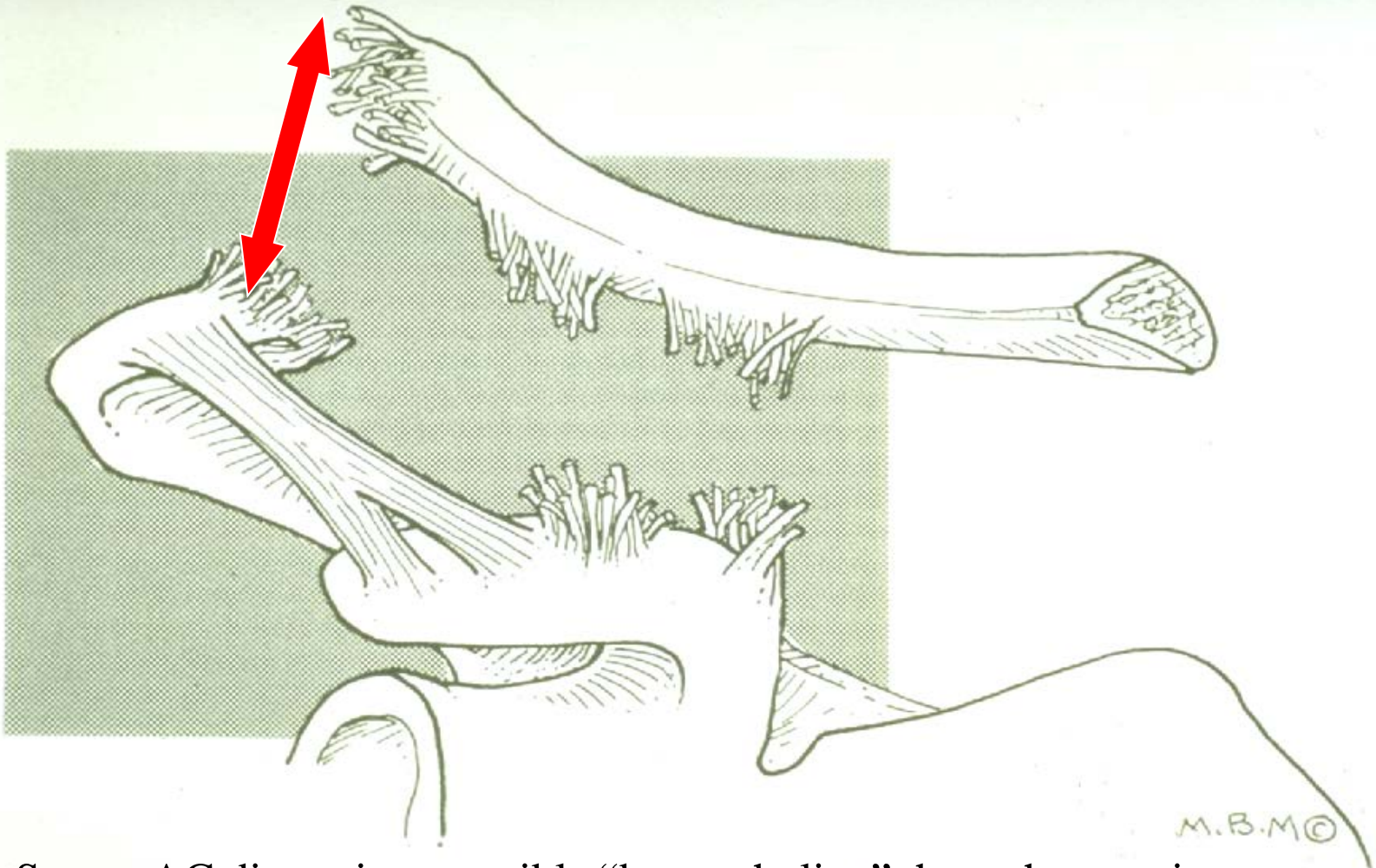
- Recognition is key



Grade IV separation



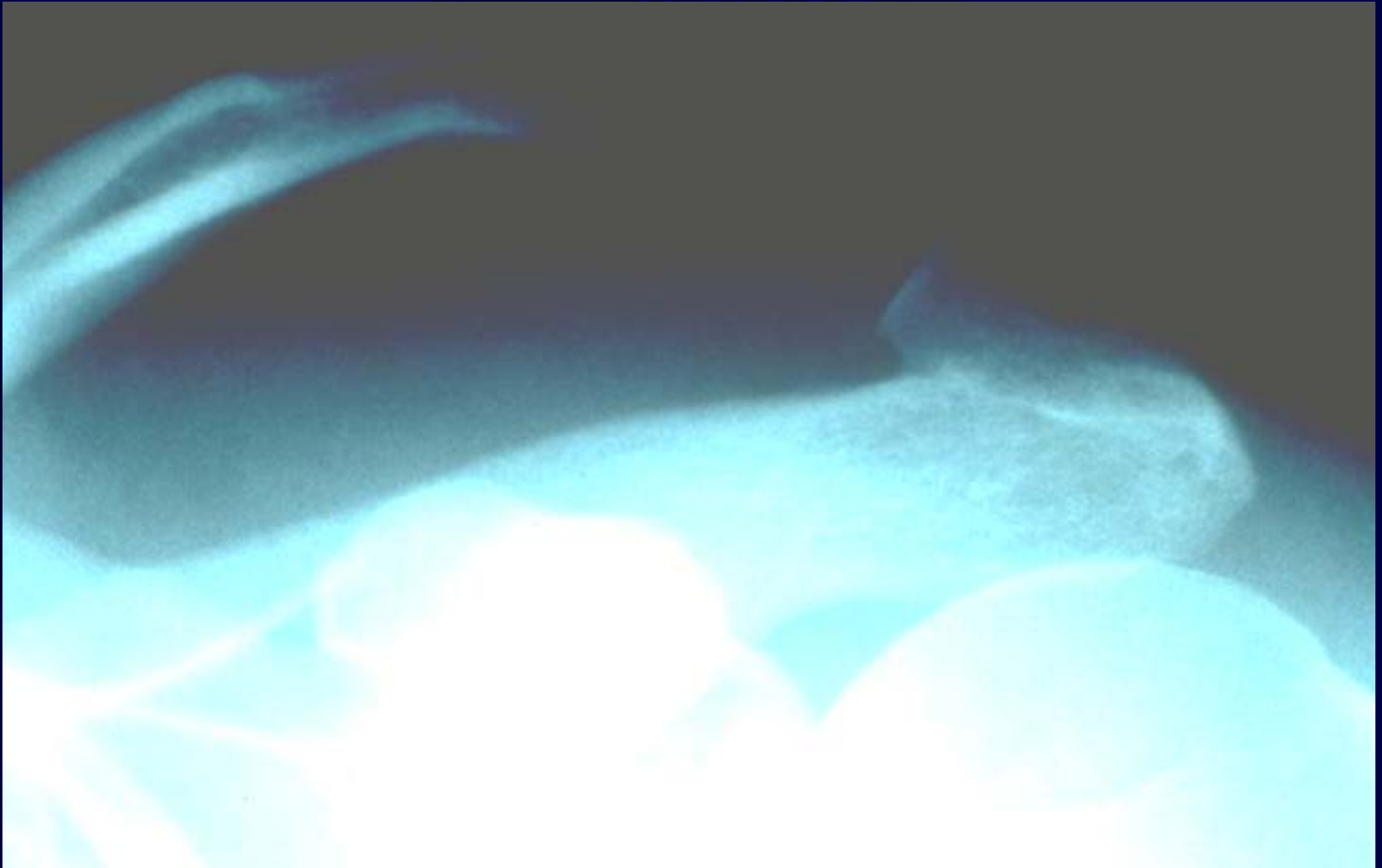
Grade V injury



Severe AC disruption, possible “button-holing” through trapezius

“Ear ticklers”

- Grade V injuries



Grade I or Grade III?



- Same patient
- Same day
- After analgesics
- And relaxation
- Grade looks different

Prospective studies - Grade III injuries

- Larsen et al. “Conservative or surgical treatment of acromioclavicular dislocation” JBJS (A) 1986
- 84 patients (trans-acromial K-wires: 41, sling 43)
- Surgery results = non-surgical treatment
- However, authors recommend surgical Rx in patients who perform heavy or overhead work
- Bannister 1989 JBJS: “Conservative management is best for most acute dislocations, but younger patients with severe displacement may benefit from early reduction and stabilization”

Is AC dislocation a problem?

- Pubmed search “reconstruction chronic AC joint dislocation” = 18 papers 2008-2009
- Regular referral problem
U/E practice
- RCT’s mean score ~ 80
non-op care



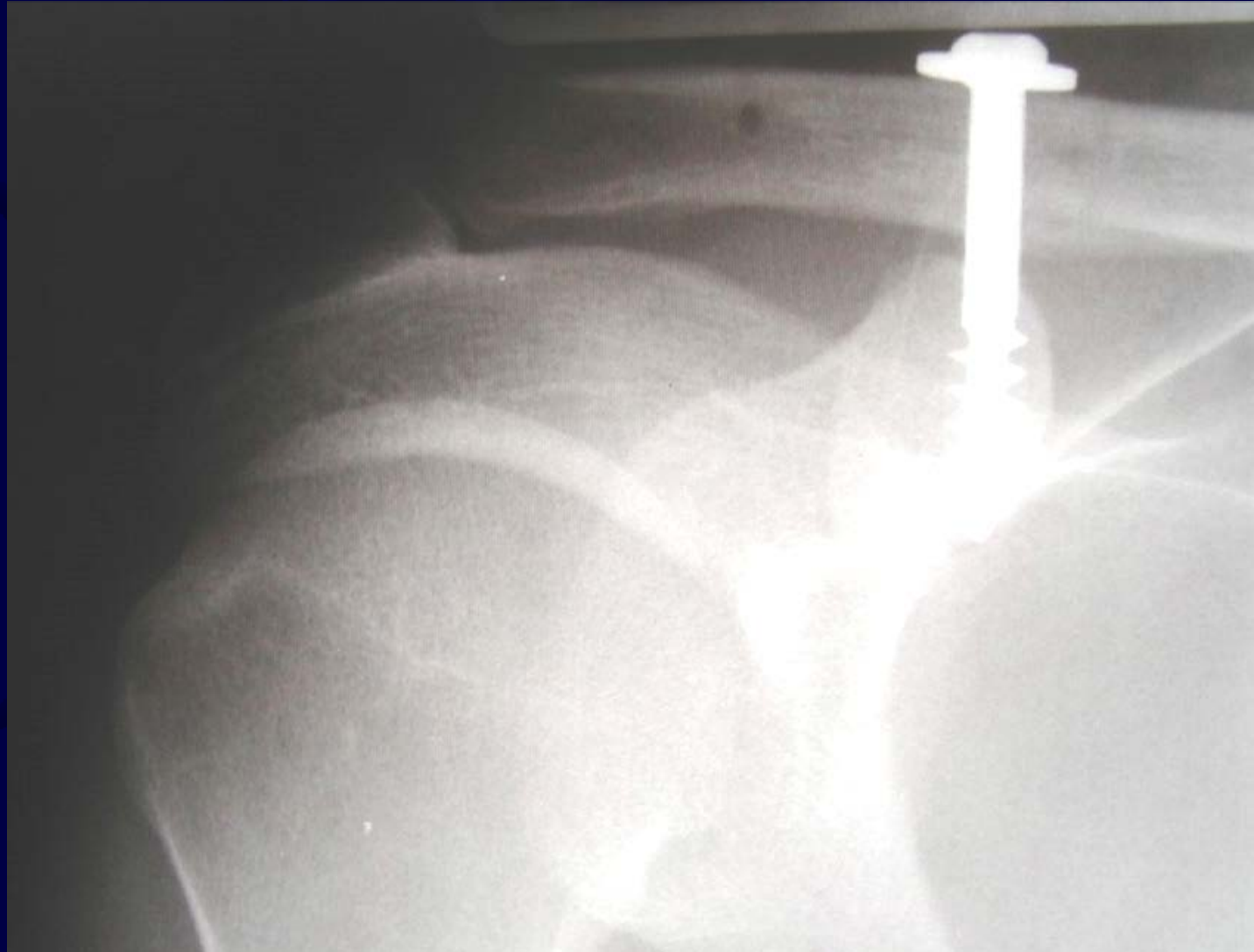
Indications for AC fixation - 2013

- Select Grade III injuries
- Grade IV, V, VI injuries
- Scapulo-thoracic dissociation
- Poly-trauma patients
- “Floating shoulder”
- AC Equivalents

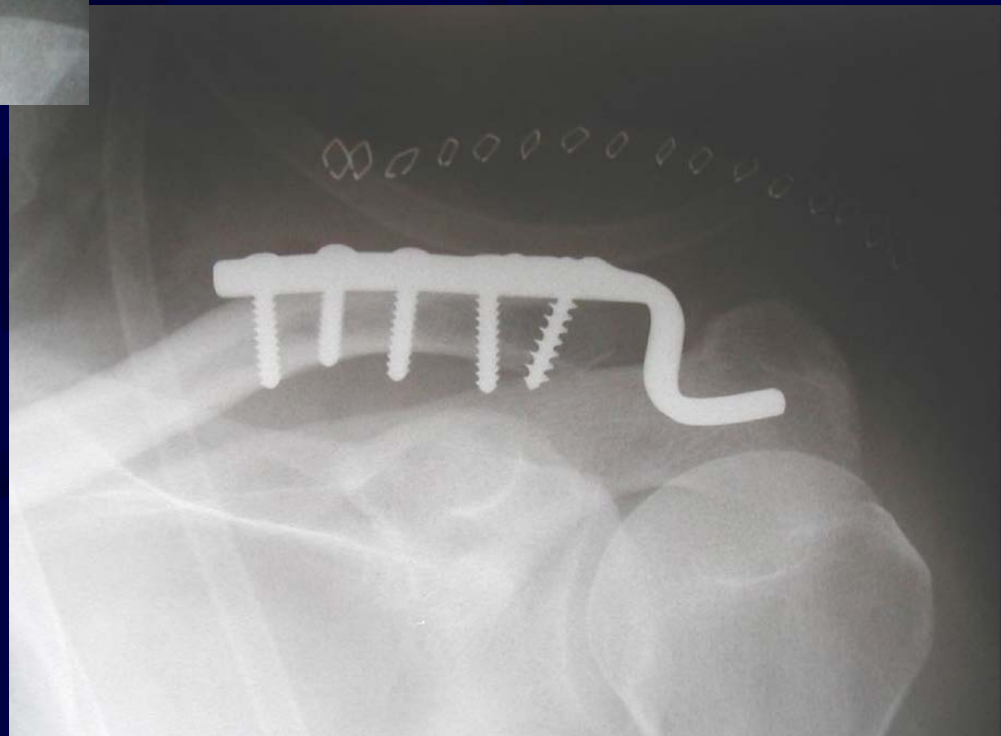


Fixation techniques

Bosworth screw



Revision with hook plate



Endobutton technique







“Tightrope” failure

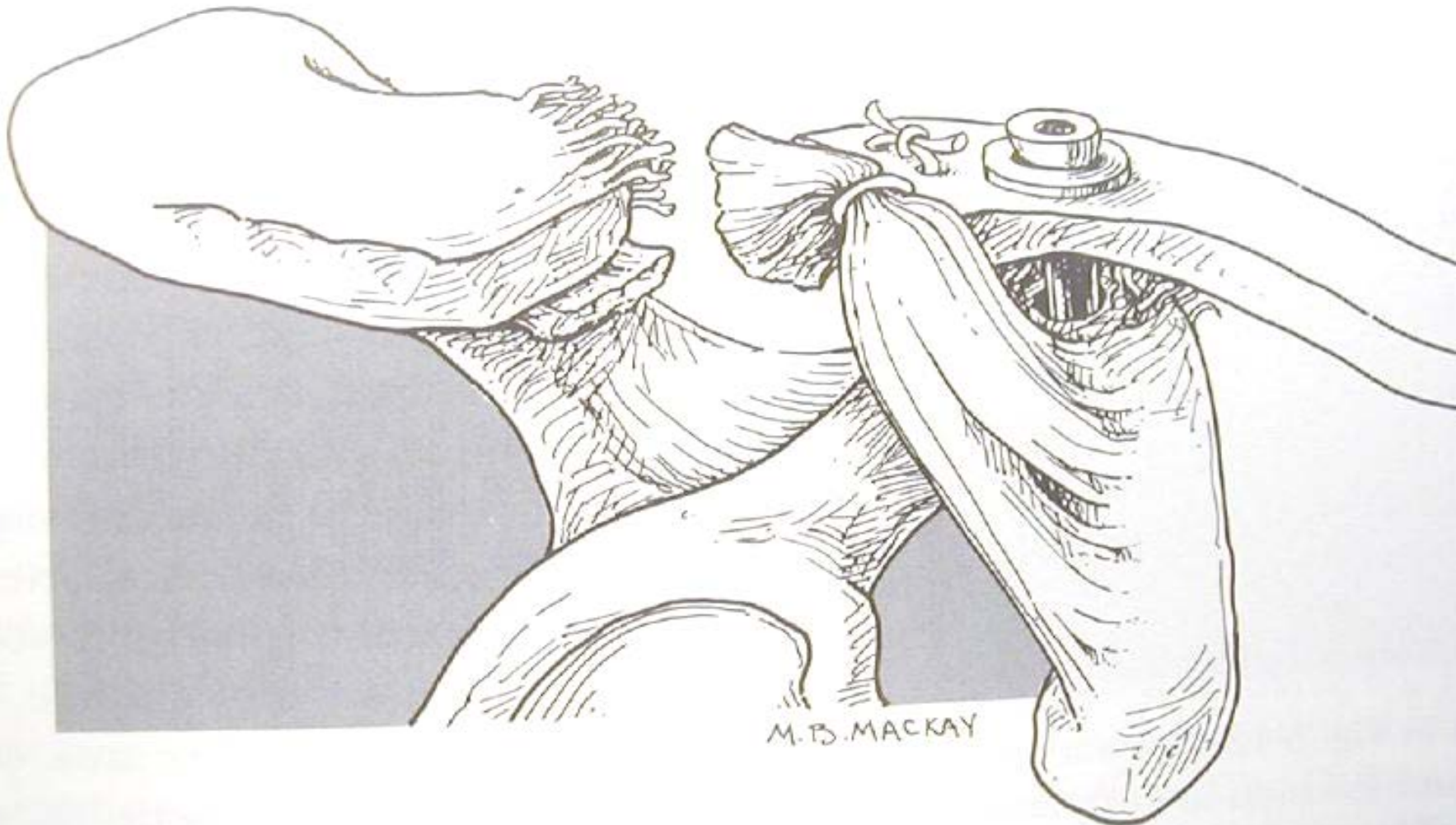
- Cook JB et. al. “Early failures with single clavicular transosseous coracoclavicular ligament reconstruction”

JSES 2012, vol 21, 1746-1752

- 10 cases acute AC joint dislocation
- Treated by Graftrope CC repair (Arthrex)
- 8 / 10 (80%) failed a mean of 7 weeks post-op
- Tunnel widening and holding suture failure
- Do not recommend this technique

Fixation Techniques

Weaver Dunn ligament substitution



Hook plate - Results

- Gstettner et. al. “Rockwood type III AC dislocation: Surgical versus conservative treatment” *JSES* 2008, 17(2): 220-225
 - 24 pts with hook plate mean Constant score 91, 17 pts non-op mean Constant score 81, hook plate “better”
- Folwaczny et. al. “The Balsler plate with ligament suture” *Unfallchirurg.* 2000 103(9):731-740
 - 68 patients treated with hook plate and suture compared to other surgical methods: hook plate superior (ROM, pain, strength, satisfaction rate)

Operative versus Non-operative Treatment of Acute Dislocations of the Acromio-Clavicular Joint: Results of a Randomized, Prospective Clinical Trial



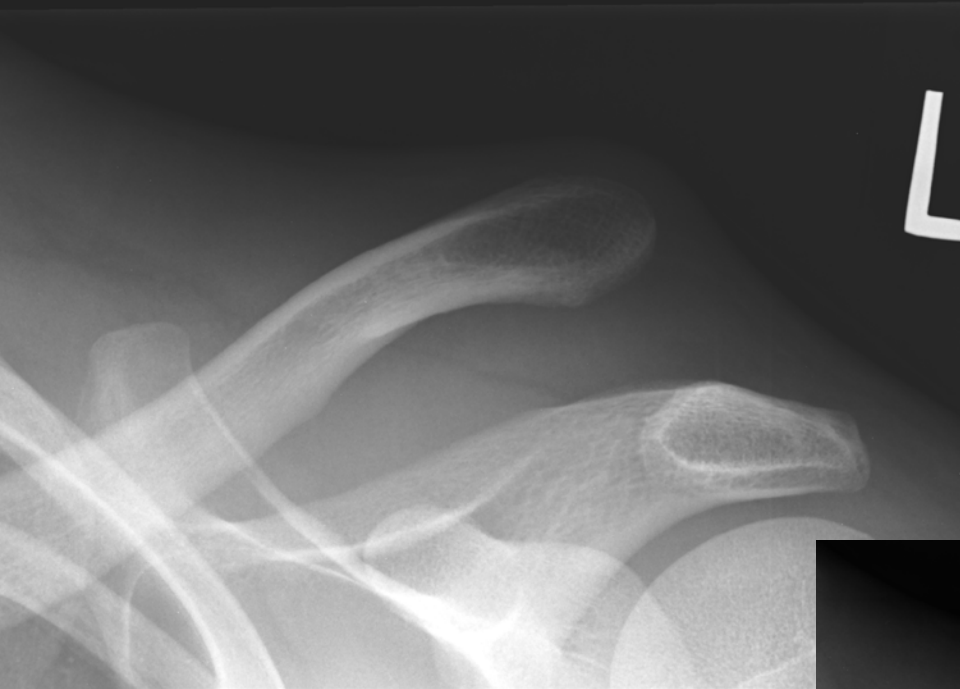
Stephane Pelet, MD, FRCSC(C)

Michael D. McKee MD, FRCSC(C), and the

Canadian Orthopaedic Trauma Society

RCT - Acute AC Dislocations

- Multicenter RCT (COTS, 8 centers)
- OTA, AIOD funded
- Acute (< 3 weeks) AC dislocations (III, IV, V)
- Age 16 to 60, medically well
- Randomized to sling versus hook plate
- Comprehensive 2 year follow-up



RESULTS N= 83

Hook plate

- n = 40
- 36 male, 4 female
- mean age 38.7 yrs

Sling

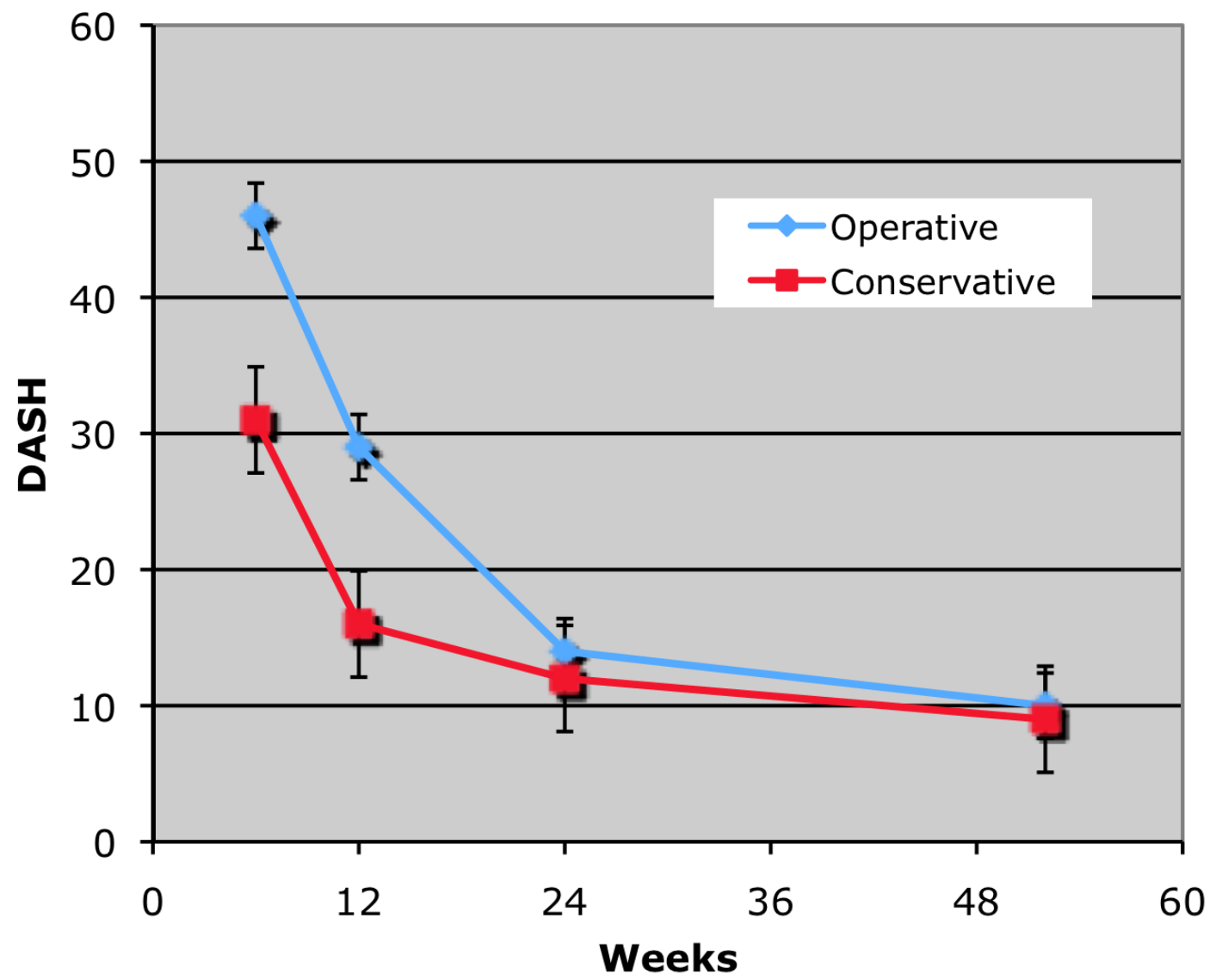
- n = 43
- 42 male, 1 female
- mean age 37.3 yrs

- mechanism of injury similar
- no difference in degree of displacement

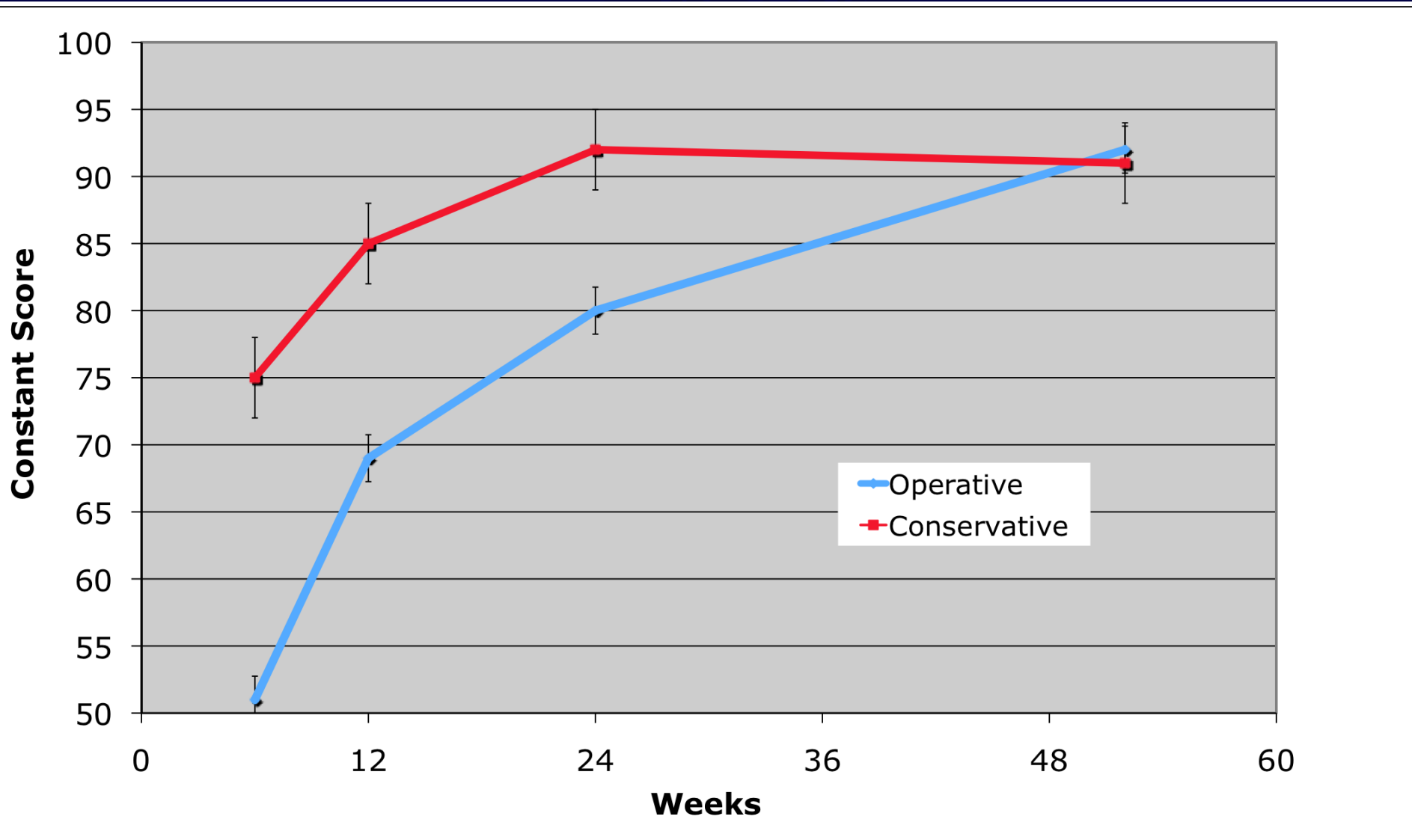
Time to hardware removal

- 0-3 months: 2
 - 3-6 months: 8
 - 6-12 months: 16
 - 12-24 months: 4
 - Left in situ: 8
 - Unknown: 2
-
- Mean time to removal: 8.2 months

DASH Score



Constant Score



Joint Reduction

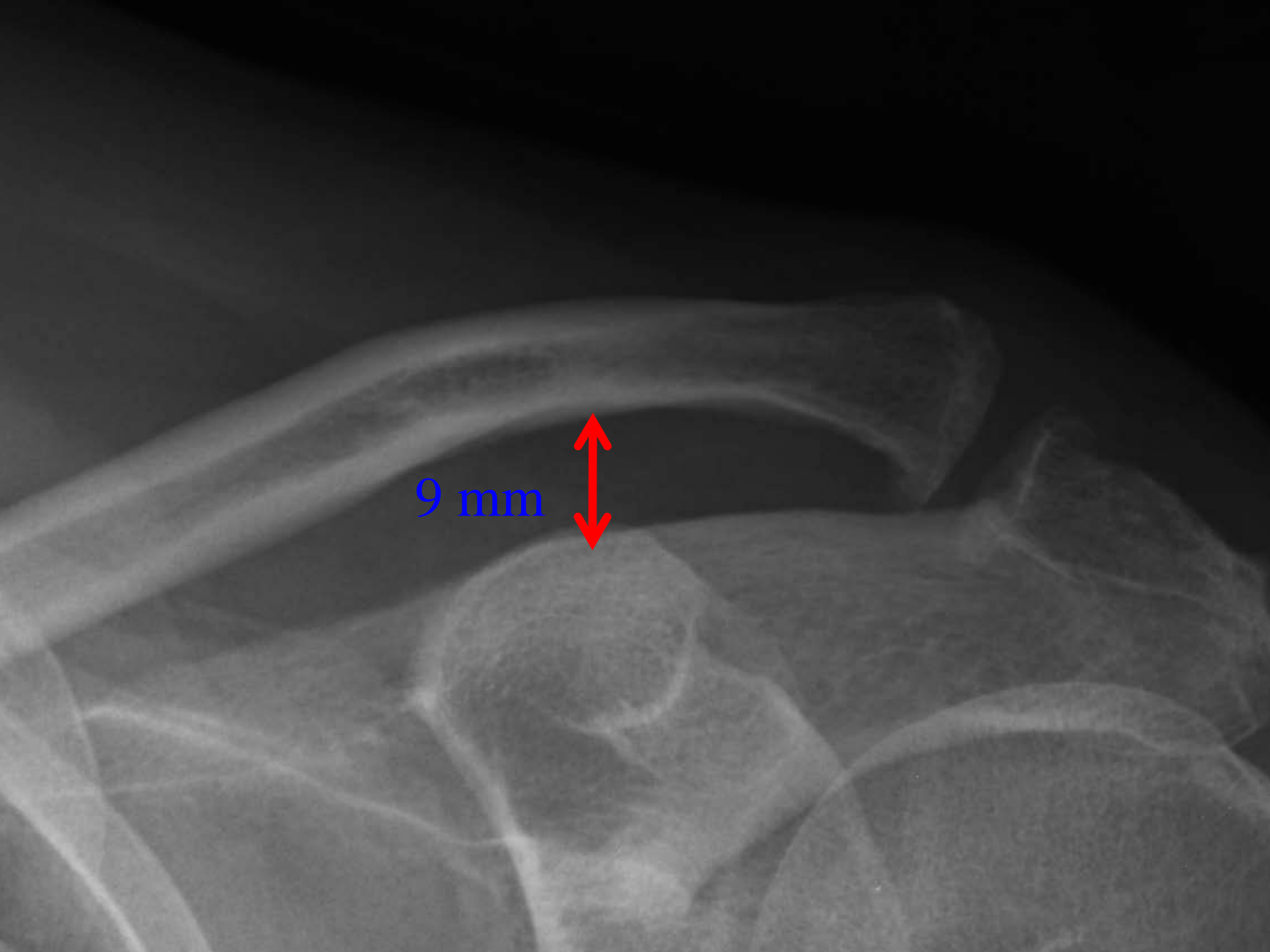
- Hook Plate Group (n=40):
 - 4 dislocated, 14 subluxated, 22 reduced
- Non-operative group (n=43) :
 - 43 subluxated or dislocated
- P=0.001

R

50 cm

19 mm



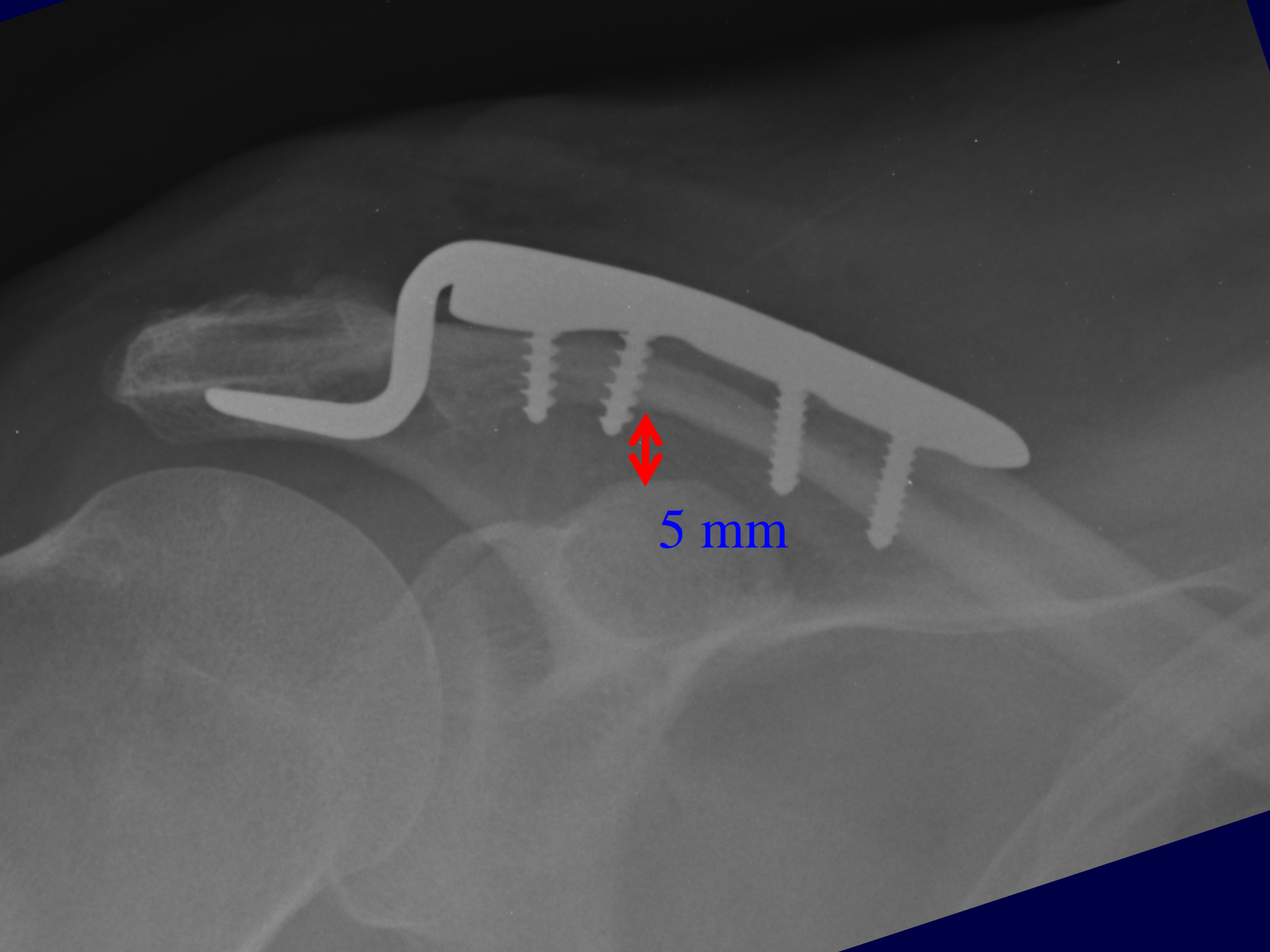


9 mm

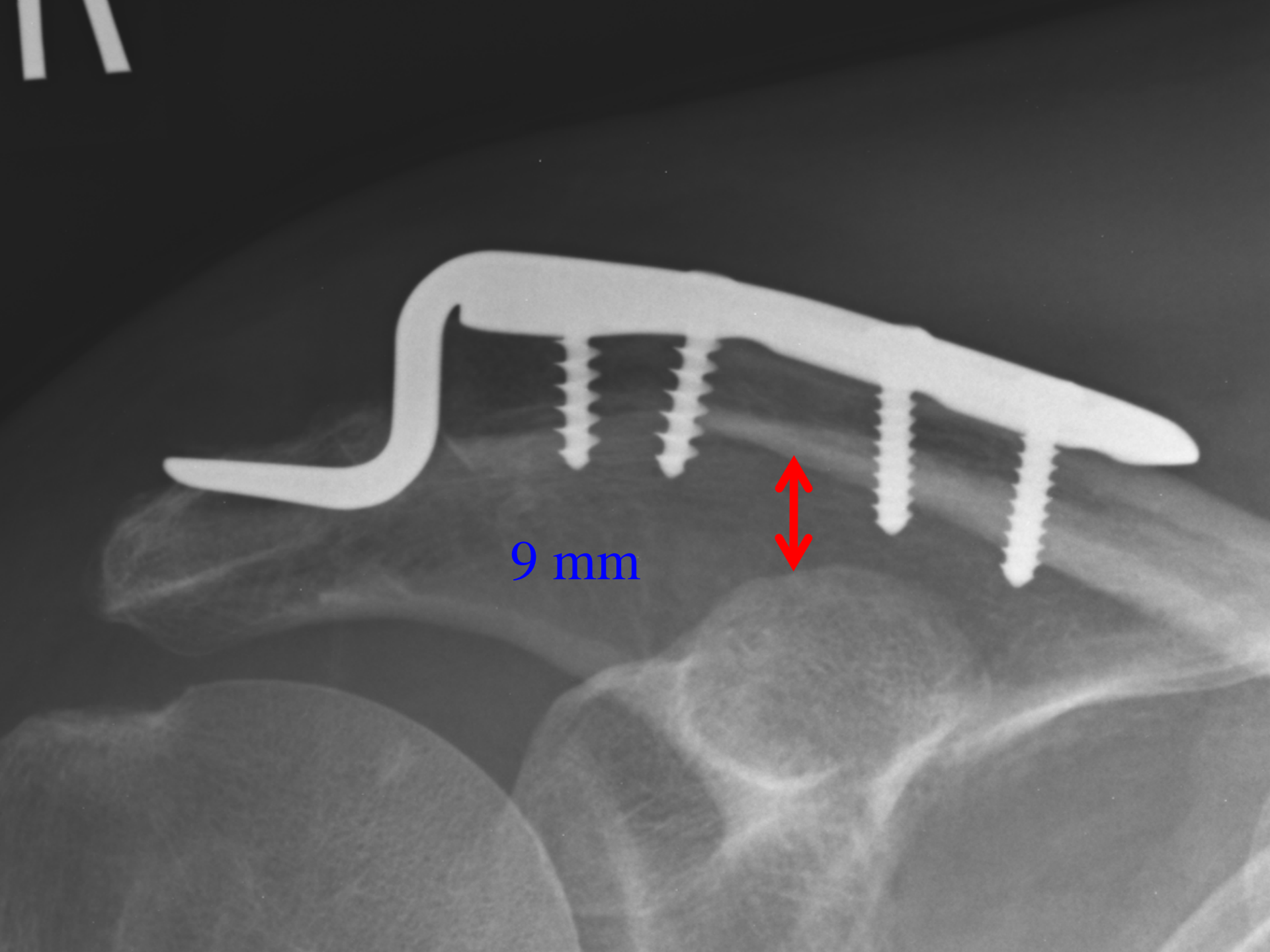
Over-reduction

- Leads to pain, stiffness, and early mechanical failure of the construct.





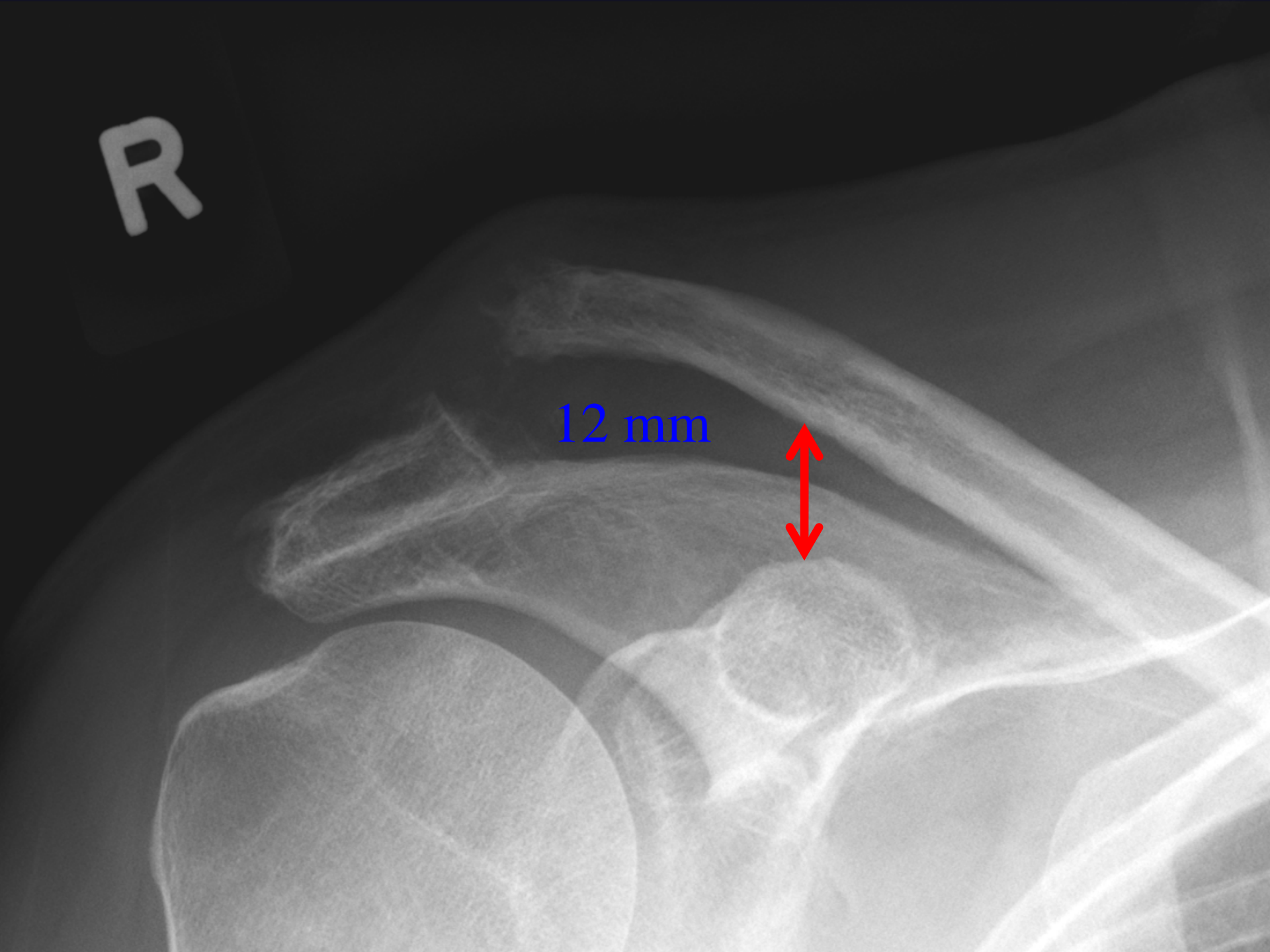
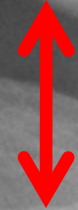
5 mm



9 mm

R

12 mm



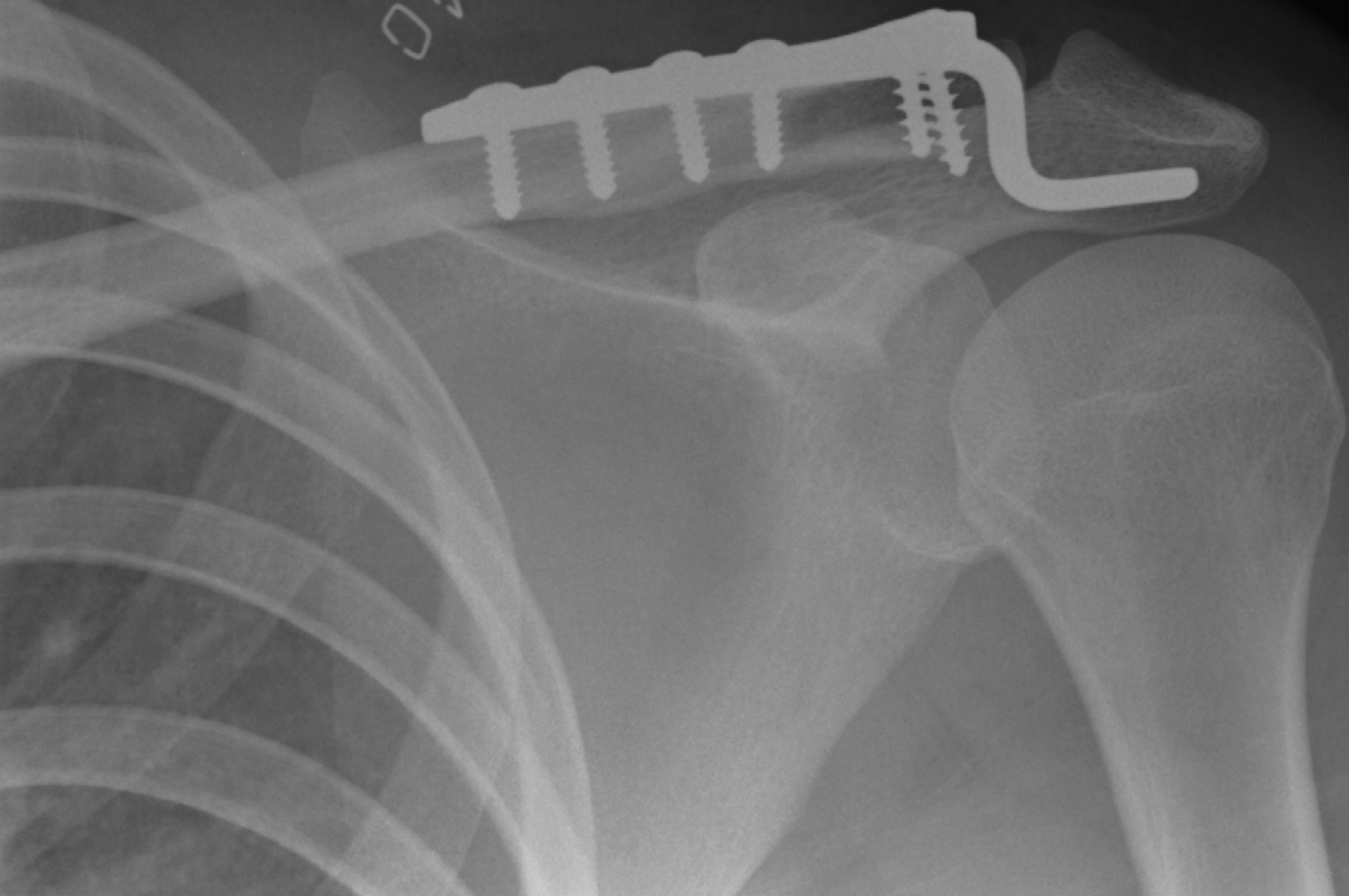
18 year old female, hit by streetcar
isolated, open (5 cm
superior laceration)distal clavicle
fracture



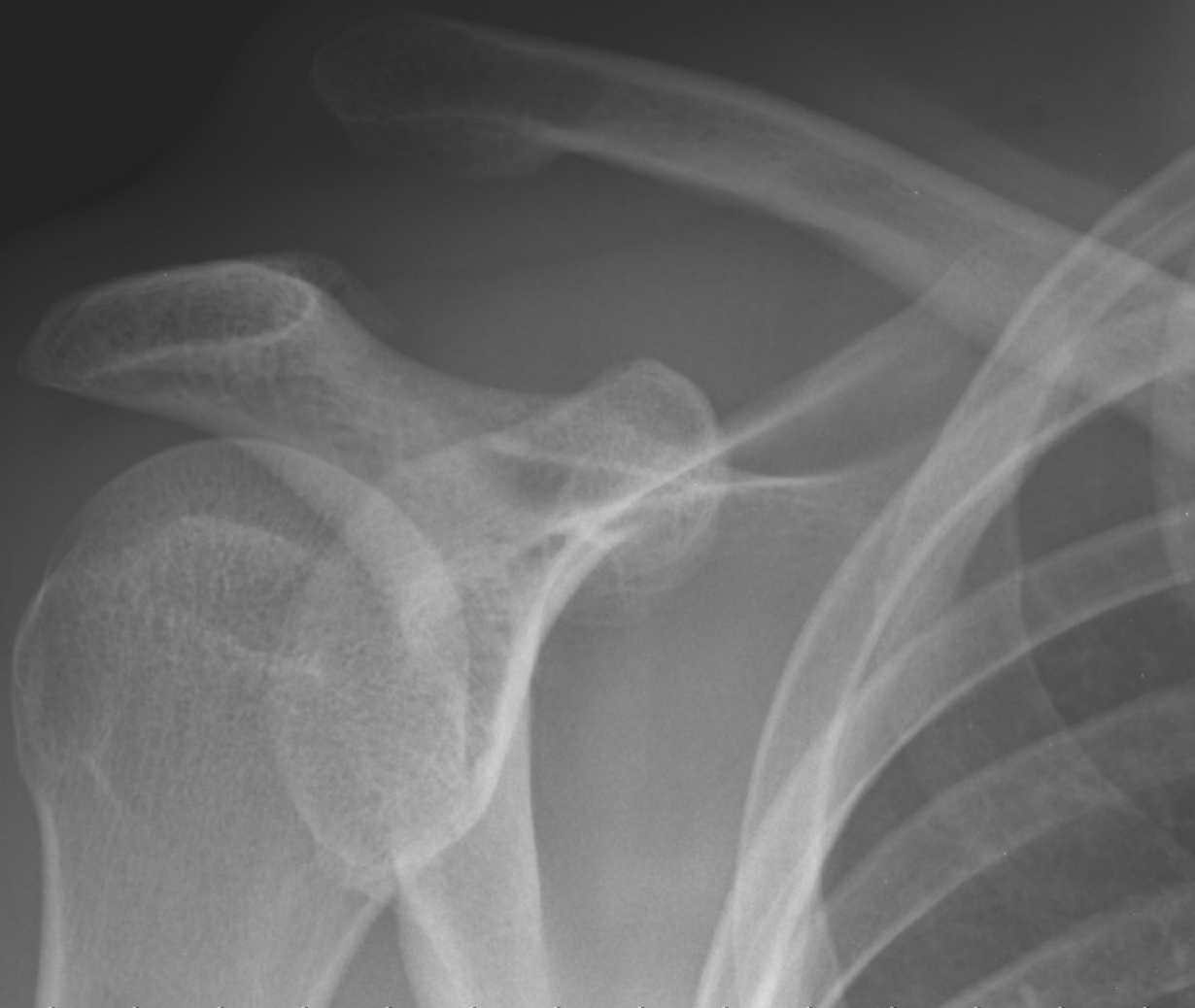


PORTABLE

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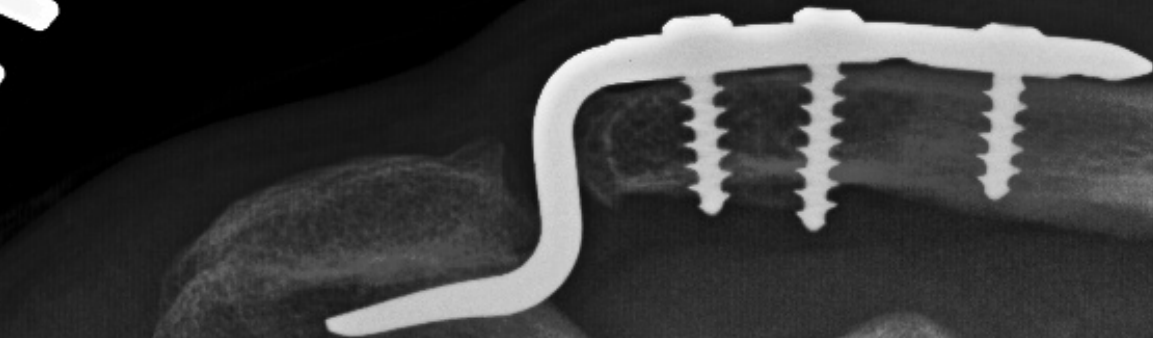


(R)





R



R



Summary

- AC joint injuries are common
- Most (Grade I, II, III) can be treated non-operatively
- Some specific patterns benefit from operative intervention (IV, V, III's in patients who perform repetitive overhead work)
- Ideal fixation method remains elusive
- Learn a technique well and stick to it
- Use evidence based medicine

- For questions or comments, please send to ota@ota.org