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 at. 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 form 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

  - 24 pts with hook plate mean Constant score 91, 17 pts non-op mean Constant score 81, hook plate “better”

  - 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, FRCS(C)
Michael D. McKee MD, FRCS(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
- mechanism of injury similar
- no difference in degree of displacement

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

![Graph showing Constant Score change over Weeks. The graph compares Operative and Conservative methods. The Operative method starts at a lower score and increases rapidly, surpassing the Conservative method by the 24th week. Beyond this point, both methods converge, with the Operative method slightly higher than the Conservative method throughout the 60-week period.]
Joint Reduction

• Hook Plate Group (n=40):
  - 4 dislocated, 14 subluxated, 22 reduced

• Non-operative group (n=43):
  - 43 subluxated or dislocated

• $P=0.001$
19 mm
Over-reduction

• Leads to pain, stiffness, and early mechanical failure of the construct.
18 year old female, hit by streetcar isolated, open (5 cm superior laceration) distal clavicle fracture
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