Elbow Instability

Dr. K. Alsaleh

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Pathophysiology

- **Static constraints:**
  - **Primary:** Ulno-humeral articulation, Ant. Band of MCL, LUCL
  - **Secondary:** Radio-capitellar articulation, common flex/ext origins, capsule

- **Dynamic constraints:**
  - Flexors & extensors across elbow
  - Anconeus
Posterior Lateral Rotatory Instability (PLRI)

- Common
- Axial load + varus + supination
- MCL + LUCL tear
- Non-operative treatment:
  - Hinged brace for 4-6 weeks
  - Activity modifications
PLRI

Indications for reconstruction/repair:

- Symptomatic, chronic tear that failed conservative treatment
- High-demand person/athlete
Operative techniques:

- Open:
  - Modified Kocher approach
  - Auto/Allograft through ulnar tunnels and humeral (isometric point) tunnels
  - Alternative: the “Docking technique”
  - Plication of ant./post. Capsule

- Arthroscopic:
  - Plication & repair is possible, not reconstruction
PLRI: stages

0 Reduced
1 PLRI
2 Perched
3 Dislocated
PLRI: pivot shift test
“Posterolateral Rotatory Instability of the Elbow Following Radial Head resection”

Hall et al. JBJ S-A 2005

42 patients reviewed for elbow pain following radial head resection

7 diagnosed with PLRI (17%)

Observational study, no follow-up post-op for most patients, small number
“Ligamentous repair and reconstruction for posterolateral rotatory instability of the elbow”

Sanchez-Sotelo et al. J BJ S-B 2005

- 12 repairs and 33 reconstructions
- 89% success rate with reconstructions
- 7 recurrences after reconstruction
- Higher mayo scores in reconstructions and if no pervious surgery
- Retrospective, different techniques, small numbers
“Single-strand reconstruction of the lateral ulnar collateral ligament restores varus and posterolateral rotatory stability of the elbow”

King et al. J BJ S 2002

Both single and double strand reconstruction gives a stable elbow

Biomechanical (cadaveric) study
“Surgical reconstruction for posterolateral rotatory instability of the elbow”

Brien et al. J shoul elbow surg 2003

11 patients, different procedures (repair, reconstructions)

Outcomes where stability on pivot shift as well as overall result

All 10 cases successful, but only 3 excellent results, 5 good & 3 fair
MCL tears

- Valgus injury (thrower)
- Also part of lig. Injury in dislocations
- Coronoid # and LUCL rupture common associations
- Pain-not instability- is primary symptom
- Ulnar nerve symptoms
- Valgus stress X-rays, MRI
Isometric point
MCL tears

- Indications for surgery:
  - Elite level athletes
  - Patients not responding to non-operative treatment (ROM, stretching, strengthening..)

- Techniques:
  - Jobe: figure of 8 autograft through drill holes
  - Docking technique: sutures tied over humeral bone bridge.
  - Non-muscle (FCU) splitting techniques: no ulnar n. transposition required
“Ulnar collateral ligament reconstruction in athletes: Muscle-splitting approach without transposition of the ulnar nerve”


116 MUCL reconstructions
93% of athletes who didn’t have previous surgery had an excellent result
All returned to their sport
No validated outcome measure, authors own method used
Operative treatment of ulnar collateral ligament injuries of the elbow in athletes


- 91 elbows, Jobe technique.
- Follow-up of 35 months
- Success (returning to sports) rate: 79%
- 10 had ulnar nerve symptoms
- 9.8 months to return to competitive sports
“Medial Collateral Ligament Reconstruction of the Elbow using the Docking Technique”

Rohrbough et al. Am J sports med 2002

36 elite throwers

Docking method used

F/U of 3 years

92% returned to competitive sports

No ulnar nerve dysfunction