OTA 2017 Complex Knee Dislocations

Objectives:

1) Understand emergent treatment and associated injuries
2) Review acute, staged, and delayed treatment options for knee dislocation
3) Understand complications and long-term results of knee dislocations

Description:

Participants will understand emergent management as well as options of acute staged and delayed treatment of this complex injury. We will also review complications and expected long-term outcomes.

Outline:

1) Emergent treatment – Frank Avilucea – 15 min Incidence and associated injuries
   NV status – ABIs, when to get CTA
   Compartment Syndrome
   Irreducible and open

2) Acute Treatment – Bill Obremskey 15 minutes

   Indications
   Associated injuries

   Technique and results of acute repair and reconstruction

3) Early Treatment – JD Adams – 15 minutes

   Repair sides and scope reconstruction of ACL/PCL Technique Indications and results

4) Staged Treatment – Jim Stannard – 15 minutes

   Initial treatment
I. Why treat knee dislocation different than an elbow dislocation?
   a. Stabilize the bone
   b. Repair the ligaments
   c. Move the joint

II. AAOS KD Study Group 2009 - Recommendations
   a. **Arthroscopic reconstruction of the ACL and PCL should be done, rather than repair**
   b. **Primary open reconstruction rather than repair of the LCL/PLC should be done**
   c. **Based on:**
      ii. Stannard. AOS for Sports Med, 2005
      iv. Surgeries were staged and delayed – Levy et al. mean 132 days

III. Repair Works
e. Owens et al. *J. of Orthopedic Trauma* Feb. 2007

IV. Owens et al. *J. of Orthopedic Trauma* Feb. 2007
a. 25 patients w/ multiligament tears
b. all repaired, even midsubstance tears
c. 5/25 (20%) needed MUA or lysis of adhesions
d. No late loosening

V. Vanderbilt data
a. 47 pts (81% male, average age 33 years, range 19 to 56) 12 months F/U
b. 26 KD III – 55%, 14 KD IV – 30%, 7 KD V - 15%
c. IKDC mean 63.5 points (range 28-100)
d. 90% “normal or near normal”
e. ROM mean 124 degrees
f. KT-1000 > 5 mm 7 (33%) patients
g. No revision for loosening
h. 48% patients Tegner Score ≥ 7/10

VI. Complications
a. Stiffness 4/47 - 8.5%
   i. MUA – 2/47 – 2.25%
   ii. Lysis of Adhesions - 2/47 - 2.25%
b. Infection – 2/47- 4.25%
   i. One with I&D and antibiotics
   ii. One due to rotational flap failure
c. HO with surgery – 2/47 – 4.25%
d. Late loosening and instability w/ Reoperation - 0%

VII. Predictors of IKDC < 50
a. 6/8 medial and lateral meniscal injuries
b. Not ISS
c. 28 IKDC score had isolated injury
d. One pt w/ 100 IKDC score had ISS > 40

VIII. Delayed or Scope treatment cannot treat all associated injuries
a. PT avulsion
b. Fractures
c. Bucket handle meniscus
d. Extruded meniscus
e. MCL “flipped” avulsions
f. Menisco-capsular rim tears

Staged Treatment: Treatment of Complex Knee Dislocations Symposium

John D. Adams, Jr. MD

OTA Annual Meeting 2017

1. Staged Treatment Approach Outline
   • Why consider a staged approach
   • Benefits and downsides to a staged protocol
   • Compass Hinge External Fixation
   • Static External Fixation

2. Common Complications to Consider
   • Infection Rate- reported to be as high as 12.5%
   • Arthrofibrosis- 40% need treatment
   • Continued instability- 40%

3. Typical Staged Protocol
   • Early Stage- 3-4 weeks after injury
     o Reconstruct PCL and Corners
     o Treat Menisci
     o Hinged Ex-Fix
   • Late Stage- 6-8 weeks later
     o ACL Reconstruction
     o Removal of Hinged Ex-fix
     o MUA

4. Why Consider a Staged Approach?
   • Early Stage
     o Allows soft tissue recovery
5. Staged Approach: addresses complications

- Infection Rate
  - Allows soft tissue to recover and shortens OR time
- Arthrofibrosis
  - MUA at 6 weeks
- Instability
  - Specific Rehab and Hinged Exfix

6. Compass Hinge Exfix

- When to use it?
- Results - Stannard et al. JBJS 2014

7. Static Spanning External Fixation

- When to apply?

---

**Summary**

- Severe Injury
- Neurovascular assessment
  - ABIs and CTA
- Seek Disease
- Document vascular status and repeat exams
  - Algorithm
  - Achieve vascularized limb
- Ex fix grossly unstable or open