A Practical Approach to Knee Pain

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Most Common Knee Problems:

- Ligament Injuries
- Meniscal Injuries
- Arthritis
- Patello-femoral (Knee Cap) Problems
- Tendonitis
ANATOMY: Building a Knee

Parts List:

4 Bones
2 Tendons
4 Ligaments
2 Types of Cartilage
The Extensor Mechanism

- Quad Muscle
- Quad Tendon
- Patella
- Patellar Tendon
Building a Knee
Ligament Injuries
Ligament Injuries: History

- High Energy Injuries
- Sometimes feel a “pop”
- Swelling (within an hour or two)
- Once the pain subsides: INSTABILITY
Ligaments: Physical Exam

- Varus
- Valgus
- Anterior Trans
- Posterior Trans
Physical Exam: MCL
Physical Exam: LCL
ACL Tests

Anterior Drawer Test
Iliotibial (IT) band
ACL Tests

Ilio-tibial band
Anterior Drawer
Lachman's
PCL Test

Posterior Drawer
PCL Test

“Sag Sign”
Studies

- X-ray: Yes *(mechanism)*
- MRI *(maybe)*
Treatment of Ligament Injuries

Collateral Ligaments heal without surgery.

Cruciate Ligaments require surgery.

Torn Collateral Ligaments heal without surgery.

Torn Cruciate Ligaments require surgery.
Rx = “Hinged Knee Brace”
ACL Tears

- Relatively Common
- Don’t Heal
- If untreated, result in arthritis
ACL Tears ➔ Instability ➔ Meniscus Tears ➔ Arthritis
Treatment Option #1: Brace

Rx = “ACL Performance Brace”
Treatment Option #2: Surgery

• End to End Repairs Don’t Work
• Ligament Must be Replaced with a Graft
Graft Options

- Synthetic (Gortex) Ligament
- Allograft (Cadaver) Ligament
- Autograft (patient’s own tissue)
  - Hamstrings
  - Patellar (knee cap) tendon
Autograft Options

Patellar tendon  Hamstrings
Implanting the Graft
ACL Reconstructive Surgery

- Over 90% Success for restoring stability
- 75-80% Success for returning to sports
- Significant (Predicted) decrease in Arthritis later in life
MENISCUS TEARS
Meniscus Tears: History

“Sided” pain

- Trauma +/-
- Mechanical symptoms +/-
- Swelling, other +/-
Meniscus Physical Exam

- Joint line tenderness
- Joint line pain with deep flexion
- McMurray’s test
Studies

- X-rays (If age over 40: YES)*
- MRI (Maybe)
Should I order an MRI?

- 50% of meniscus tears are asymptomatic in 6 weeks.

- If all signs and symptoms are positive after 6 weeks: SURGERY.
Surgical Treatment of Meniscus Tears

Repair
Whenever possible, your surgeon will try to repair your meniscus to maximize the shock absorption in your joint. This type of surgery may be an option if the tear is within an area supplied by blood, which allows for healing. Your meniscus is sutured together, possibly requiring an additional incision at the back or side of your knee.

Removal
If repair can’t be done, your doctor will remove as little of your meniscus as possible. Since the meniscus won’t completely grow back, the articular cartilage will now take over the role as shock absorber for your knee joint.
Arthroscopy for Meniscus Tears

- 45 minute Operation
- 80 – 90% Patient Satisfaction
- 80 – 90 % Return to Sports
- Good results for decreasing development of Arthritis
ARTHRITE
Arthritis History

- Age (High Mileage)
- Past trauma
- Rheumatic disease
- Previous surgery
Physical Exam
Making the Diagnosis

- History: Age ("high mileage" joints)
- Physical Exam
- X-RAYS
Meniscus Tear vs Arthritis?
Getting the right x-ray views

- Wt bearing AP
- Wt bearing 60 deg PA
- Lateral
- Merchant’s (aka “sunrise”) view
Treatment: Non-Surgical

- Anti-inflammatory Medicines
- Supplements
- Braces
- Cortisone Shots
- Viscosupplementation Shots
- Weight Loss
- Cane, Crutches, Walker
- Physical Therapy
Arthritis Treatment: Surgical

PAST: (Pre-1970)

- Knee Fusion
- Osteotomy
Treatment Options: Knee Fusion
Treatment Options: Osteotomy
Arthritis Treatment: Surgical

PRESENT:

- Unicompartmental Knee Replacement
- Total Knee Replacement
Treatment Options?
Unicompartmental Knee Replacement
Unicompartmental Knee Replacement

Pros:
- Smaller scar
- Faster recovery

Cons:
- Chance of incomplete pain relief
- Don’t last as long
Total Knee Replacement
**Minimal Incision Knee Replacement**

- **Pro:**
  - Smaller scar
  - Out of hospital sooner
  - Quicker recovery (weeks)

- **Cons:**
  - Higher chance for error
  - May fail sooner
Arthritis Treatment: Surgical

FUTURE:

- Cartilage Grafting/ Growth Procedures
Knee Joint Injections
Therapeutic Injections in your practice

A great choice for:

- Your Patients
- You
- Me
Therapeutic Injections

Me (Orthopedists)

- Decreases volume of non operative patients
Therapeutic Injections

You (Primary Care Providers)

- Satisfaction of rendering effective treatment
- $
Corticosteroid Injections

Patients

- Safe
- Effective
- Inexpensive (Cortisone shot = $6.00)

Corticosteroid Injections

Corticosteroid (Kenalog, Aristacort)

Lidocaine 1% without epi
Syringe and Needle

22 guage 1\(\frac{1}{2}\) inch needle

Syringe with Luer-Lock (screw-on) tip
Prep

- Betadine
- Alcohol
- Gloves
- Lidocaine
- Cold Spray (ethyl chloride)

Infection rate = 1:15,000

Clin Fam Pract Vol 7,2:2005
General Rules...

- No more than one injection per month
- No more than 3 injections per year
- Don’t inject infected areas

J Bone Joint Surg Am 1975;57:70-6
Curr Opin Rheumatol 1999;11:417-21
ACTA Orthop Scand 1997;132-4
Knee Joint Injection Technique

- Pt supine on table
- Knee extended
- Muscles relaxed
- Lateral approach
- Sub-patellar

1cc Steroid, 4cc Lidocaine

Physical Exam

SEATED

- Crepitation

SUPINE

- Patella mobility/ irritability
- Extension/ Flexion ROM
- Hip internal/ external ROM
- Joint line tenderness/ McMurray’s test
- ACL and Collateral exam