Options on How to Treat PF Chondrosis: In Background of Instability

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Introduction

• Cartilage injury common sequelae of patella instability

• 39-95% incidence in acute dislocation
  – Rarely symptomatic

• Can make the easy instability case more complex

• Will outline pearls and pitfalls of treating cartilage along with instability using case examples
My Decision Making Process in PF Instability

Instability Episode(s)

• First time?
• Recurrent (episodic), Habitual, Permanent?
• Traumatic or Atraumatic?
• Genetic Predisposition?

Presentation

• Swelling?
• Pain?
• Imaging – X-ray/CT/MRI

Risk Factors

• Core stability/conditioning
• Cortical Alignment
• Kneel Alignment
• Patella Altai
• Patellar Dysplasia
• Patellar Tendinitis/Tendinopathy
• Etc.
• Etc.
Pain and Poor Conditioning

- **What is pain?**
  - Pain is the central/psychosocial perception of a peripheral noxious stimulation
  - Being subjective, it is often difficult to assign a single cause
  - Rehabilitation often is a major component of PF pain: not an operative solution

- **Majority of PF Pain Patients Respond to Non-operative Management**

- **Core strengthening**
  - TA, Gluteus, abductors, external rotators

Where does pain originate in the PFJ?

- **Chondral Lesion ≠ Pain**
- **Pain ≠ Chondral Lesion**

- **Articular Cartilage is aneural**

- **Pain therefore originates from**
  - Bone (Local or Remote, subchondral bML, referred hip)
  - Soft tissue (Synovium, capsule, tendons and ligaments)
  - Nerves (Local or Remote, e.g., saphenous, neuroma)

Chondrosis pain is therefore a diagnosis of exclusion...
Common patterns of injury

- **Post patellar instability**
  - Distal medial patella
  - Proximal Lateral femoral condyle

- **Chronic patellar subluxation**
  - Lateral facet patella/trochlea

- **Post Direct Impact Trauma**: superior pole

- **Osteochondritis dissecans**

- **First site of genetically programmed OA**

Chondrosis Mapping

- Few PF chondral lesions need restoration

- Inferior Pole and Lateral facet: 87% G/E
- Medial facet: 55% G/E
- Proximal Pole and Diffuse: 20% G/E
- Concomitant Central trochlear involvement: All Poor

Pedoriano & Fulkerson Classification 1997

My Decision Making Process in PF Instability

- Presentation
  - Swelling?
  - Pain?
  - Imaging – X-ray/CT/MRI

- Risk Factors
  - Core stability/conditioning
  - Coronal Alignment
  - Axial Alignment
  - Patello-femoral dysplasia
  - Patello-femoral instability
  - Patellar MPFL
  - Patello-femoral arthritis
  - Bicipital
  - Lateral soft tissue contracture

- Instability Episode(s)
  - First time?
  - Recurrent (episode(s), Habitual, Permanent?)
  - Traumatic or Atraumatic?
  - Genetic Predisposition?
My Decision Making Process in PF Instability

Instability Episode(s)

- First time?
- Recurrent (Episodic), Habitual, Permanent?
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Presentation

- Swelling?
- Pain?
- Imaging - X-ray/CT/MRI

Risk Factors

- Traumatic event with normal alignment 2.5x risk of chondral injury (Stankiew CL AJSM 1996)

Risk Factors

- Core stability/conditioning
- Coronal Alignment
- Axial Alignment
- Patella Alta
- Trochlea Dysplasia
- Increased TT-TG/TT-PCL
- GLL
- Supra-lateral soft tissue contracture

Pain: understand cause
Exclude neuropathic pain, chronic opioid use etc

Address dehabilitation
Correct underlying biomechanical deficiencies and Rehabilitate
Treat residual symptoms - standard cartilage repair techniques
Case 1: The First Time Dislocator

- Non-operative treatment
- BUT……
  - Traumatic dislocation
  - Difficult reduction
  - Painful, swollen knee (haemarthrosis)

16 yr old Male

Instability Episode
- Landed a jump playing volleyball
- Felt the Left kneecap dislocate and experienced significant swelling and pain
- No previous hx of knee injuries/dislocations
- Otherwise healthy

Presentation
- Significant effusion
- Tenderness +++ on palpation around the patella
- Patellar apprehension +ve
- Neutral alignment

Plain XR
MRI

- Chondral injury associated with loose body following patellar dislocation
  - Diagnostic scope
  - Lateral parapatellar approach
  - Patella subluxated medially
  - Defect debrided and loose fragment reduced
  - Secured with bio-compression screws, tissue, 5-0 vicryl
  - MPFL imbrication

OR

19/05/17
Rehabilitation

- NWB in tracker in extension x 2 wks
- Started motion (0-90) at 2 wks, NWB
- At 6 weeks, start progressing WB

Do they heal?

Large Osteochondral Fractures of the Lateral Femoral Condyle in the Adolescent: Outcome of Bioabsorbable Pin Fixation

- 8 patients
- Large LFC OC lesions (>4cm², up to 4cm in diameter)
- Used bioabsorbable pins
- F/U 9 years
- Outcomes:
  - Full healing of lesions (on MR/arthroscopy) at 3-5 months (7/8 patients)
  - Good functional outcomes in all patients (9 years)

Case 2: Lateral patella facet chondrosis with instability

- 38 yr old mother of two
- Recurrent patella instability
- Pain
- Failed non-operative treatment
MRI

• TT-TG 16mm
• MPFL deficiency
• Tight lateral retinaculum
• Full thickness chondral defect lateral facet with subchondral bone changes

Surgery

• Lateral Retinacular lengthening
• Tibial Tubercle Anteromedialization
• MPFL reconstruction with gracilis autograft
• No cartilage repair procedure
• 2 years out, back to full function with no pain or instability

Case 3: Medial Patella Facet/Pan Patellar Chondrosis with instability

• 20 x 22 distal medial patellar chondrosis
• Recurrent lateral patellar dislocations
• Static lateral position of patella
• Tight lateral retinaculum
• TT-PCL 30; TT-TG 24
• Caton Deschamps 50/33
• Dejour A Trochlear Dysplasia

Courtesy of Dr. Jack Farr MD
Take home messages

• High index of suspicion for chondral injury in acute, traumatic first time dislocator with normal anatomy
• Try and differentiate pain from instability
• Majority of patients with PF pain respond well to rehabilitation
• Understand the pathology and determine best way to treat it
• Start with correcting mechanics
• Not all chondral defects need to undergo restoration procedure

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