First-time
Patellofemoral Dislocations

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First-time Dislocation: Incidence

• 2-23 per 100,000 patients
  • Highest incidence:
    • Adolescents
    • Women

Risk Factors

• Personal factors
  • History
  • Family History

• Anatomical factors
Trochlear Dysplasia

- Crossing sign
- Double contour sign
- Supratrochlear spur
Trochlear Dysplasia

- Sulcus angle
- Trochlear depth

Shen Exp Ther Med 2017

Patella Alta

- Caton Deschamps = B/A
  - Patella alta >1.2

Biedert ASSTA 2006

Patella Alta

- Patellotrochlear Index
  - Normal ≥ 50%
Patella Alta

- More knee flexion required to engage patella
- Compounded in setting of trochlear dysplasia?
- Increases working arc of soft tissue restraints

Coronal Malalignment (add patient picture)

- Valgus
Rotational Malalignment

Others

- Ligamentous laxity
- Neuromuscular control

Associated Injuries

- Medial patellofemoral ligament/complex
  - Askenberger AJSM 2015: 99%

- Chondral/osteochondral injuries
  - Stanitski and Paletta AJSM 1998: 71%
Rates of Recurrence

- 17%-88%
- 17% Fithian: all comers
- 88% Parikh: pediatric patients with multiple risk factors

Risk Factors

- Palmu et al JBJS 2008: 71% recurrence
  - Positive family history
- Balcarek et al KSSTA 2013: 66% recurrence
  - 4+ points: odds ratio 4.88 compared to ≤ 3 points
Risk Factors

• Jaquith and Parikh JPO 2015: 35% recurrence (pediatric)

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Odds Ratio</th>
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<tbody>
<tr>
<td>Trochlear dysplasia</td>
<td>3.56</td>
</tr>
<tr>
<td>History of contralateral dislocation</td>
<td>3.05</td>
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<tr>
<td>Skeletal immaturity</td>
<td>2.23</td>
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<tr>
<td>Caisson-Deshamps index &gt; 1.45</td>
<td>2.06</td>
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<table>
<thead>
<tr>
<th>No. Risk Factors</th>
<th>Average (%)</th>
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<tr>
<td>0</td>
<td>13.8</td>
</tr>
<tr>
<td>1</td>
<td>30.1</td>
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<tr>
<td>2</td>
<td>53.6</td>
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<td>3</td>
<td>74.8</td>
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<td>4</td>
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Risk Factors

• Lewallen et al J Knee Surg 2015: 31% recurrence

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<tr>
<th>Trochlear Dysplasia</th>
<th>Younger Than 25 Years</th>
<th>Same Risk Of Recurrence</th>
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<tbody>
<tr>
<td>Y</td>
<td>Y</td>
<td>30%</td>
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<tr>
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<td>Y</td>
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<td>11%</td>
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<tr>
<td>Y</td>
<td></td>
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Magnussen et al KSSTA 2017

• Mean 3-year follow-up of first-time dislocators treated nonoperatively

• 26.4% returned to activities without limitations
  • 86.8% cited their patellar dislocation
Surgical Intervention

- Indications:
  - Osteochondral fracture fragment
  - Symptomatic
  - Amenable to fixation

BUT...

Surgical Intervention

- Acute MPFL repair does NOT reduce recurrence
  - Christiansen *Arthroscopy* 2009
  - Sillanpaa *AJSM* 2008
  - Hing *Cochrane Data Rev* 2011
MPFL Repair vs Reconstruction

- Acute MPFL repair
  - Zone of injury clearly localized to femur or patella (avulsion)
  - No associated anatomic risk factors (ie TD, patella alta)

  - Camanho et al Arthroscopy 2009
  - Ahmad et al AJSM 2000

MPFL Repair vs Reconstruction

- MPFL reconstruction
  - Bitar AJSM 2012: MPFL reconstruction reduces recurrence (35% vs 0%)

The “a la carte” Approach

- Address the anatomy
  - Patella alta
  - Coronal plane malalignment
  - Excessive anteversion
  - Trochlear dysplasia
Conclusions

• Patellofemoral instability is multifactorial.

• Initial management is typically nonoperative.

• Surgery should be undertaken for patients with loose chondral/osteochondral fragments.

• Consider surgical intervention for patients at high risk of recurrence.

Thank You