Synovial Impingement

as cause of anterior knee pain

Paulo Roberto Pires Rockett
Porto Alegre - Brazil
Synovial Impingement

Is characterized by a synovial hypertrophy protruding into the joint cavity.

Synovial Impingement

Entrapment of the hypertrophic synovium in the joint space.
Synovial Impingement

It is cause of meniscal and cartilaginous injuries on the anterior femoral condyle.

Synovial Impingement

We believe that the synovitis was the primary cause of symptoms and was not secondary to a cartilage injury.
Synovial Impingement

Material and Method

- Between 1986 and 1998
- 2032 knee arthroscopies
- 36 resections of hypertrophic synovitis causing anterior impingement (1.77%)
- Excluded: systemic diseases, widespread synovitis and other concomitant intra-articular diseases

Average age: 36 y.o.
Synovial Impingement

**material and method**

Duration of Symptoms (months)

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Average</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>21.4</td>
<td>180</td>
</tr>
</tbody>
</table>

Synovial Impingement

**mechanisms of injuries**

<table>
<thead>
<tr>
<th>Trauma Type</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indirect trauma</td>
<td>2</td>
</tr>
<tr>
<td>Twisting</td>
<td>4</td>
</tr>
<tr>
<td>Repetitive minor trauma</td>
<td>7</td>
</tr>
<tr>
<td>Direct trauma</td>
<td>8</td>
</tr>
<tr>
<td>No trauma</td>
<td>15</td>
</tr>
</tbody>
</table>
Synovial Impingement

clinical signs

- pain in the anterior joint line
- pseudo-locking
- giving way
- effusion
- swelling
- sensibility increase above the anterior horn of the meniscus.

Synovial Impingement

clinical signs

- No pain at rest
- Very localized symptoms (especially in the extension)
- Stroll with painless attitude of discreet flexion of the knee
- Avoid movements that need hyperextension (climbing or descending stairs)
Synovial Impingement

physical exam
Tests of strained hyperextension, causing acute pain, were accomplished and potentialized by the application of pressure above the anterosuperior border of the meniscus.

Synovial Impingement

Hipoechoic lesions of synovial and volume increase in the comparative exam of the contralateral knee

Normal
Arthroscopic surgery is indicated when there is no symptoms improvement after an adequate nonoperative therapy (up to 3 months).

Hypertrophic synovial (reddish or whitish):
- Projects beyond the superior margins of the meniscus and it is interposed between the femur and the anterior horn of the meniscus
Synovial Impingement

**Pathologic Findings**

- Hypertrophic synovial (reddish or whitish):
  - Projects beyond the superior margins of the meniscus and it is interposed between the femur and the anterior horn of the meniscus

---

Synovial Impingement

**Surgical Treatment**

- Anterior hypertrophic synovitis: partial synovectomy (full radius blade 3.5 mm)
Synovial Impingement

**surgical treatment**

- Anterior hypertrophic synovitis: partial synovectomy (full radius blade 3.5 mm)
Synovial Impingement

**pathologic findings**

- Cartilaginous injuries of femoral condyle
Synovial Impingement

Pathologic findings

- Meniscus marked by hemosiderin deposition: crushing of the synovial tissue against femoral condyle cartilage

Pathologic findings

- Anterior horn of the meniscus lesions: from discrete meniscal transverse tears to a true consume of inner margin
**Synovial Impingement**

**surgical treatment**
- Meniscal lesions: partial meniscectomy
- Must remove anterior synovites

*Image of synovitis*

**Synovial Impingement**

**classification of the lesions**

Type I: (2.7%)
- Swelling
- Synovial hypertrophy
- Redness
- Vascular hypertrophy
- Ecchymosis
- Fibrosis.
Synovial Impingement

*classification of the lesions*

Type II: (61.1%)

- Secondary alterations lesions in the articular cartilage of the femur.

Type III: (2.7%)

- Secondary lesions in the meniscus and/or tibial cartilage.
Synovial Impingement

classification of the lesions

Type IV: (33.5%)

- Secondary lesions in femoral cartilage and meniscus and/or tibial cartilage injuries.

Synovial Impingement

results

36 patients

- Biopsies confirmed synovial pathologies in all cases

Synovial membrane with inflammatory mononuclear cell infiltrates, vascular proliferation and fibrosis.
Synovial Impingement

results

<table>
<thead>
<tr>
<th>Excellent</th>
<th>No mechanical pain.</th>
<th>27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>Mild mechanical pain. Does not interfere with occupation nor activities of daily living.</td>
<td>7</td>
</tr>
<tr>
<td>Fair</td>
<td>Moderate mechanical pain. Partial interference with occupation or activities of daily living.</td>
<td>2</td>
</tr>
<tr>
<td>Poor</td>
<td>Severe mechanical pain. Interferes with occupation or activities of daily living.</td>
<td>0</td>
</tr>
</tbody>
</table>

Synovial Impingement

results

36 patients

- Pain recovery 2 months later
- 2 persisted with some limitation of the flexion
- 3 had pain crisis after efforts
Muchas Gracias