Surgical options in unicompartmental arthritis

Arthroscopic debridement; indication, technique and results

Defining knee OA

Plain radiography; emphasize on osteophytes formation and joint space narrowing (JSN)

Clinical and radiographic (American College of Rheumatology): Knee pain + at least 1/3:
- Age > 50 years
- Stiffness < 30 min (morning stiffness)
- Crepitus
- Osteophytes

Radiological classification systems

- Kellgren and Lawrence (1957)
- Atlas of Standard Radiographs (1963)
- Ahlbäck (1968)
- IKDC (1993)
- Altman 1995, 2007 (OARSI)
- Fairbank (1948)

Radiological positioning

- Weightbearing position
- Semi-flexion (15-45°) or extension of the knee joints
- Posterio-anterior or antero-posterior view
- Bilateral pictures

Kellgren and Lawrence (1957)

Grade 0: normal
Grade 1: minute osteophytes, unimpaired joint space (doubtful)
Grade 2: definite osteophytes, and possible joint space narrowing (JSN) (mild)
Grade 3: multiple osteophytes, definite JSN, and sclerosis, and possible deformity of bone ends (moderate)
Grade 4: joint space greatly impaired, large osteophytes, severe sclerosis, and definite deformity of bone ends (severe)

The correlation between radiographic signs of OA and symptoms is poor in the early phases of the disease
(Pollard et al. 2008, Dieppe and Lohmander 2005)
### Ahlback Radiographic Grading of Degenerative Arthritis

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
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<tbody>
<tr>
<td>Stage I</td>
<td>Joint space narrowing</td>
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<tr>
<td>Stage II</td>
<td>Joint space obliteration</td>
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<tr>
<td>Stage III</td>
<td>Minor bone attrition</td>
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<tr>
<td>Stage IV</td>
<td>Moderate bone attrition</td>
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<td>Stage V</td>
<td>Severe bone attrition</td>
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<tr>
<td>Stage VI</td>
<td>Subluxation</td>
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### Osteoarthritis (OA)

Developing the earlier diagnostics of cartilage degeneration important

The MRI can help the decision to operate, but.......

The scope will invariably be worse than the radiograph or MRI

### Treatment options:

#### Nonoperative options:

- **Analgesics**
- **NSAIDs (COX 1 & 2)**
  - hepatic, GI, renal monitoring when chronic
- **Nutritional supplements**
  - glucosamine, chondroitin
  - Mildly effective for pain relief (Adams 1999, Reginster 2001)
  - No long term studies showing benefit on articular cartilage of arthritic joints
Non surgical options:

- Intra-articular injections
  - Corticosteroid for acute exacerbations
  - Slower onset, more risk of inflammatory reaction & more expensive than steroid (Watterson 2000)

Nonoperative options:

- Weight Loss
  - Independent risk OA factor (van Saase 1988)
- Physiotherapy and exercise
- Walking aid
  - Contralateral cane reduces load by 30-60%
- Braces: sleeve, supportive, unloader
- Orthotics: well padded soles can absorb energy to decrease load across knee at heel strike
  - Correct foot deformity to correct limb malalignment

Surgical options

- Arthroscopic debridement
- Osteotomy
- Uni and TKA

Arthroscopic debridement:

- The efficacy of debridement of various tissue for the alteration of the course of OA or the improvement of the function of the joint has not been established by prospective, randomized studies

Arthroscopic debridement:

- Removal of meniscal and cartilage fragments that have caused specific mechanical disturbances has directly improved function and decreased symptoms
  - Buckwalter & Lohmander JBIS 1994
An Arthroscopic Treatment Regimen for Osteoarthritis of the Knee

- J. Richard Steadman, Arun J. Ramappa
  M.D. R. Brian Maxwell B.S. and Karen K. Briggs M.P.H.
- A Steadman Hawkins Research Foundation, Vail, Colorado, U.S.A.

- Focus on increasing joint volume with arthroscopy and maintaining it with rehab
- The theory is that contact pressures are decreased

- Expand the joint space with insufflation- joint volume in severe OA is 60-90 ml, normal 180 ml- fluid in under manual pressure
- Meniscus is trimmed to stable rim
- Anterior osteophytes (blocking extension) are removed
- General osteophytes (blocking flexion) are removed
- Hypertrophic synovium is ablated using a thermal device (low intensity)
- Infraapatellar and suprapatellar plicae are removed
- The anterior interval (between patellar tendon and tibia) is opened (by releasing the area just anterior to the intermeniscal ligament).
- 2 weeks touch toe weightbearing, 1 week CPM
- At 6 weeks program for functional strength

- 69 knees 2 years follow up, level IV study
- Lysholm from 49 (14-79) preop to 74 (37-100) postop
- 71% satisfactory after 1 surgery at 2 years
- HOWEVER.....

Conclusions

In this controlled trial involving patients with osteoarthritis of the knee, the outcomes after arthroscopic lavage or arthroscopic debridement were no better than those after a placebo procedure. (N Engl J Med 2002;347:381-8.)

Effect of Arthroscopic Debridement for Osteoarthritis of the Knee on Health-Related Quality of Life

Despite the lack of improvement in postoperative Lysholm scores, patients in the debridement group reported a significant improvement in health-related quality of life as measured by the SF-36 and the KCCS. These findings are consistent with previous studies that have demonstrated the benefits of arthroscopic debridement for the relief of pain and improvement in functional outcomes. However, the long-term benefits of arthroscopic debridement need to be further evaluated to determine its role in the management of osteoarthritis of the knee.
Conclusion:

Limited evidence base for arthroscopic debridement in patients with knee OA

Conclusion II:

- Do I do it?
- Yes; in patients with pain, swelling and locking with OA Kellgren-Lawrence 2 and 3
- I will then do « the package »