

Surgical options in unicompartmental arthritis

Arthroscopic debridement; indication, technique and results



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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

(Altman et al. 1986, Arthritis Rheum 29:1039-1049)

//: Orthopaedic Centre

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)

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Radiological classification systems

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

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Radiological positioning

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



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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)

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Ahlback Radiographic Grading of Degenerative Arthritis

Stage I	Joint space narrowing
Stage II	Joint space obliteration
Stage III	Minor bone attrition
Stage IV	Moderate bone attrition
Stage V	Severe bone attrition
Stage VI	Subluxation




Osteoarthritis (OA)

Developing the earlier diagnostics of cartilage degeneration important



male, 34y, right knee



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





the scope will invariably be worse than the radiograph or MRI



male, 34y, right knee




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



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Non surgical options:

- **Intra-articular injections**
 - Corticosteroid for acute exacerbations
 - No benefit of viscosupplements over NSAIDs in short term (Cole 1999, Adams 1995, Lohmander 1996)
 - slower onset, more risk of inflammatory reaction & more expensive than steroid (Watterson 2000)

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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

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Surgical options


- **arthroscopic debridement**
- **Osteotomy**
- **Uni and TKA**



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Arthroscopic debridement:

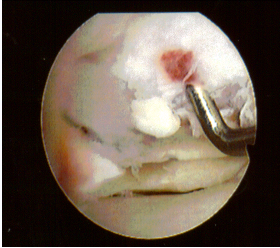
- The efficacy of debridement of various tissue for the alteration of the course of OA or the improvement of the function of the joint has not been established by prospective, randomized studies



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Arthroscopic debridement:

- Removal of meniscal and cartilage fragments that have caused specific mechanical disturbances has directly improved function and decreased symptoms
 - Buckwalter & Lohmander JBJS 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.

« The package »




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

« The package »



- 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)
- Infrapatellar 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

« The package »



- 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.....

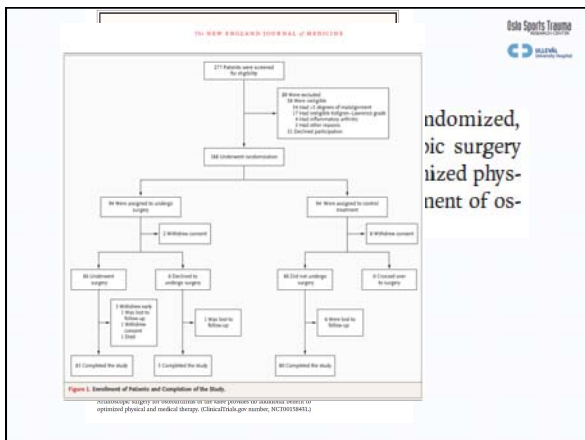
The New England Journal of Medicine

A CONTROLLED TRIAL OF ARTHROSCOPIC SURGERY FOR OSTEOARTHRITIS OF THE KNEE

Conclusions In this controlled trial involving patients with osteoarthritis of the knee, the outcomes after arthroscopic lavage or arthroscopic débridement were no better than those after a placebo procedure. (N Engl J Med 2002;347:81-8.)

EFFECT OF ARTHROSCOPIC DÉBRIDEMENT FOR OSTEOARTHRITIS OF THE KNEE ON HEALTH-RELATED QUALITY OF LIFE*

Conclusions: The prospectively evaluated quality-of-life benefit from arthroscopic débridement of the osteoarthritic knee is less than that reported in previous retrospective surveys on satisfaction. These results may serve as a baseline for comparison against more sophisticated procedures for resurfacing of the articular cartilage. Clinical variables were only partially helpful for predicting a successful result after arthroscopic débridement, and a search for other biologic markers (such as synovial fluid) may be of benefit.



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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 »

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