

Surgery for UNI compartmental Arthritis

*Arthroscopic debridement : technique
indication and results*

CCOS Group

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MERiSCIENCE



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CLINIQUE DU SPORT
BORDEAUX - MERIGNAC

Unicomparimental ARTHRITIS

Is there a room for arthroscopy before HTO / prosthesis in knee OA ?
Conflict between « personal experiences » & historical studies AND
more recent studies.
Large studies difficult to drive

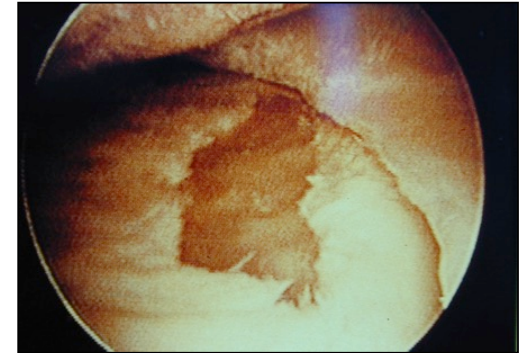
Background

Knee osteoarthritis (OA) is a progressive disease that initially affects the articular cartilage. **Observational studies** have shown **benefits** for arthroscopic debridement (AD) on the osteoarthritic knee, but other recent studies have yielded **conflicting results that suggest Arthroscopic Debridement may not be effective.**

How can we surgically treat knee OA ?

Arthroscopy

Lavage
Debridement
Stimulation



Repair of focal defect

Osteotomies

Prosthesis

UKA
TKA



SFA – French Arthroscopic Society background

- Symposium 1992 (Th. Boyer)
 - Knee Arthroscopy after 50 y (medial knee pain)
 - Degenerative meniscal tears vs DJD
 - SFA cartilaginous score (Dougados & Ayrar)
- National Healthcare Consensus Conference 1994 (F.Kelberine)
 - Place of Arthroscopy in Tibiofemoral Arthrosis
 - Meta analysis
 - Symptomatic : lavage, debridement
 - Attempt to repair : abrasion, drilling
- Symposium 2000 (G.Bellier, B.Moyen)
 - Retrospective multicentric study





ESSKA **Meniscus Consensus Project:** Degenerative meniscus lesions

Arthroscopic surgery for OA

- Largely used since 70 years
 - Lavage alone
 - Debridement
 - Microfracture (focal defect)
 - Abrasion arthroplasty (salvage procedure)
- Literature very controversial
 - Sometimes similar to medical treatment

Kirkley N Eng J Med 2008, 1097-1107

Herrlin Knee Surg Sports Traumatol Arthrosc 2012

Katz Best practice & Res, clin rheuma 2014, 143-156

Degenerative meniscal tears : 5 types w/o trauma

- Type 1

- Type 2

- Type 3

- Type 4

- Type 5



Boyer, Bonvarlet, Dorfman *J Med Lyon* 1983



40% of meniscal tears > 40 years
↗ Combined DJD > 50 years

SFA cartilaginous score

3 compartments

- Surface
- Depth
- Only for research use

Based upon arthroscopic findings

Dougados, Ayrar & SFA
Arthroscopy 1994

Literature

- Long term follow up (15y) > meniscectomy
 - 85% if cartilage intact
 - 50% if cartilage damages

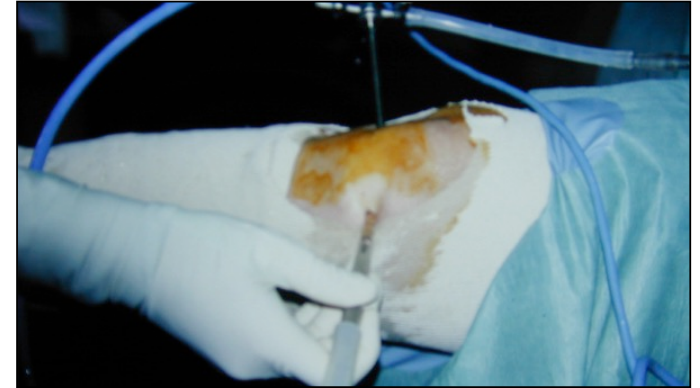
Maletius, Messner
Am J Sport Med 1996

- **Placebo** effect ?
 - Non arthroscopic lavage
 - Washout (lavage)
 - Debridement

Moseley & al *Am*
J Sport Med 1996

Arthroscopic lavage

To reduce level of Cytokines (IL1)
Debris removal



Arthroscopic lavage is a palliative procedure
Results are quite variable & limited @ long-term
Vary between 50% and 75% (Goldman 1997)

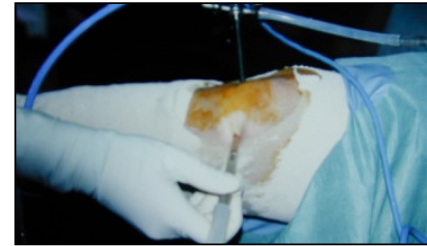
Placebo / Lavage non arthroscopic lavage /
Lavage / Débridement
Amount of irrigation (3000 ml vs 250 ml) NS

Moseley & al

*Am J Sport Med 1996
& 2003*

(Kalunian 2000)

Literature : Lavage



	VS	FU	
Dawes (1987)	puncture	3 m	=
Livesley (1991)	rehab	3-6 m	+
Ike (1992)	rehab + NSAI	3 m	+
Raveau & al (1999)	Steroid Injection	6m	+
Hubbard (1988)	Debridement	48 m	-
Chang (1993)	Debridement	12 m	+

Short term efficiency
No predictive factors
Swelling? Chondrocalcinosis?

Ayral & SFA & SFR
Perspective en Arthroscopie
2002

Debridement

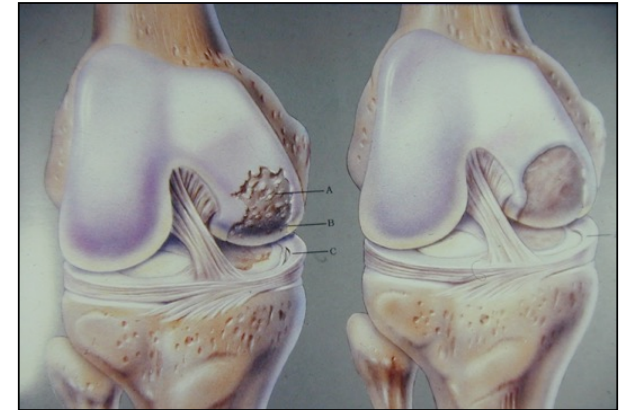
- ✓ Remove loose bodies
- ✓ Smoothen joint surface
- ✓ Resect meniscal fraying
- ✓ Resect osteophytes



Debridement

Moseley (2003)

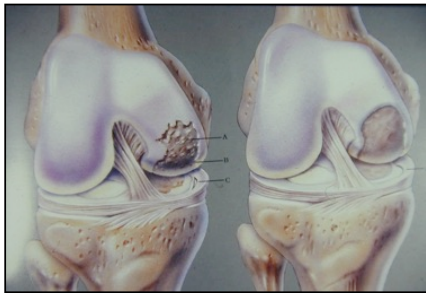
- Randomized clinical trial 180 pts with OA
 - ✓ arthroscopic debridement
 - ✓ arthroscopic lavage
 - ✓ placebo surgery.
- No difference at one & two year
- Bias
 - ✓ flawed criteriae
 - ✓ poor power analysis
 - ✓ nonvalidated outcome measures



Stuart & Lubowitz (2006)

- ✓ Debridement is suitable for appropriately selected patients (AANA)

Literature : debridement : procedures?



Worsening / time : initial lavage
effect ?

Mechanical factors (laxity,
alignment) ++

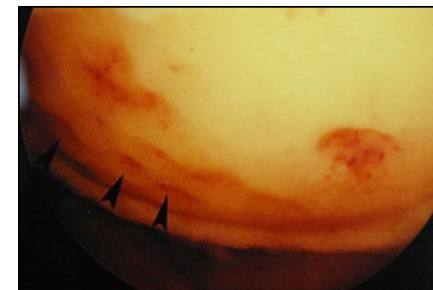
		FU	% improvement
Del Pizzo (1980)	37	1	32
Sprague (1981)	78	1	75
Salisbury (1985)	48	2	32 (94 /axis)
Jennings (1986)	51	2	71
MacLaren (1991)	171	2	78
Jackson (1988)	137	3	68
Baumgartner (1990)	49	3	40
Merchan (1993)	80	3	67
Timoney (1990)	111	4	45
Oggilvie-Harris (1991)	441	4	68
Patel (1996)	276	4	75
Bert (1989)	126	5	66
Rand (1991)	131	5	67

Literature : «reconstructive» treatment

		FU	Results (%)
Friedman (1982)	41	1	good 53
Johnson (1986)	423	5	failures 14
Bert (1989)	51	5	good 51
Singh (1991)	52	2	good 51, worth 26
Rand (1991)	28	4	good 39, TKA 50
Oggilvie-Harris (1991)	32	4	good 54
Steadman (1997, 2002)	298	7	good 75, worse 5
Passler (2000)	351	4	good 78, worse 4

Abrasion to avoid
Microfractures to
be assessed

Unpredictable



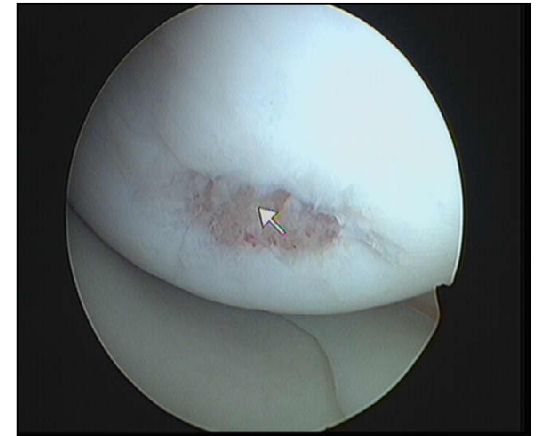
Other treatments

- ✓ Osteochondral transplantation
- ✓ Autologous chondrocyte implantation

Are arthroscopically feasible in localized traumatic lesion, not recommended for OA

✓ Combined osteotomy?

- ✓ Improvement of results Salisbury (1985), Johnson (1988), Tipett (1991)
- ✓ But... excellent results of isolated osteotomies
- ✓ Pre HTO arthroscopy useless Keene (1983), Dorfmann (1990)
= Risk of modified treatment
- ✓ Acute intraarticular event can justify both



SFA 2000 Study

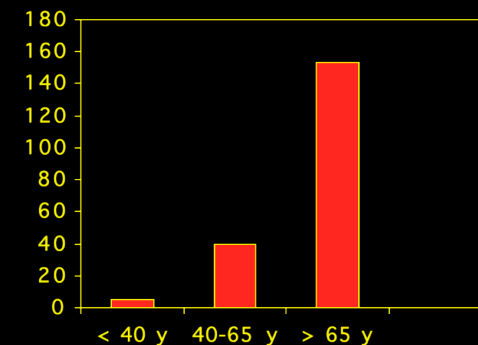
Multicentric & Retrospective

- Tibio femoral arthrosis treated arthroscopically
- Inclusion criteria
 - 25% reduced joint line on AP shuss X-ray
- Exclusion criteriae
 - Necrosis
 - Isolated FP arthritis
 - Inflammatory arthritis

257 cases (out of 298 files)

Population

- 232 primary
 - 25 chondrocalcinosis
- 25 secondary
 - 20 with laxity
 - 5 post fracture
- Preop treatment
 - Medical 194
 - Previous surgery 15
- 65 y (range : 30-90)
- 11 hip disease
- 51 contralateral knee disease



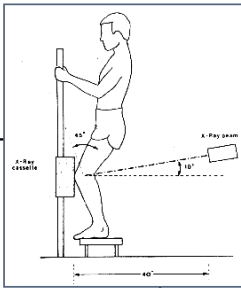
Assessment

Lequesne 's Score

- Pain
 - At night
 - First steps awaking
 - Standing
 - Walking
 - Getting up from chair
- Walking range
- Miscellaneous
 - Go upstairs one floor
 - Go downstairs one floor
 - Bend on knee
 - Walk on an irregular ground

X-Rays

- AP shuss 30° weight bearing
- Axial view
- Lateral view 30°



From 0 = normal to 24 = highly pathological

Global Results

- 25 months FU (mini 22)
- Lequesne's score = + 25%
 - Preop $12,5 \pm 3,3$ Postop $9,5 \pm 3,5$ $p < 0,0001$
 - Pain at night $p = 0,005$
 - Pain first steps $p = 0,009$
 - Pain at walk $p = 0,04$
 - Walking range, stairs $p < 0,0001$
 - Bending $p = 0,003$
 - Irregular ground $p = 0,004$
- 70% patients satisfied
- 19,4% re-op (50 cases) : within 2 y for 70%

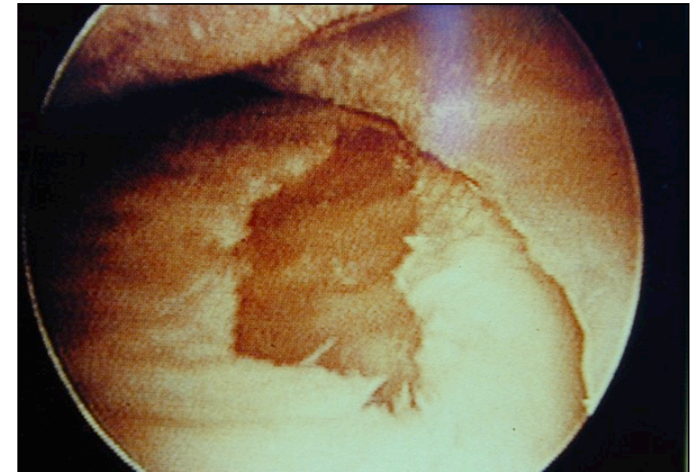
Analytic results

- **Ætiology**
 - Primary arthritis > post trauma $p < 0,0001$
- **Arthritis**
 - Alignment
 - Varus / Ortho improved $p = 0,003 / 0,009$
 - Valgus not improved $p = 0,7$
 - Radiological stage **only on AP shuss X ray**
 - Narrowing < 25% better than > 25% $p = 0,002$
- **Clinical preop status**
 - Age, sexe, BMI, activity level, swelling NS
 - Preop pain type (snapping, locking) $p = 0,01$
 - Preop pain level = meniscal tear $p = 0.01$



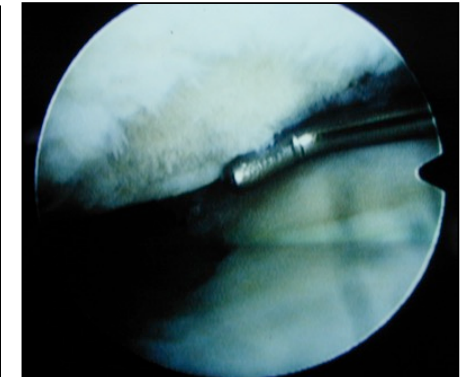
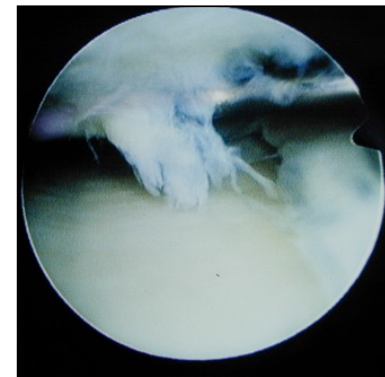
Analytic results

- Arthroscopic findings
 - Cartilage lesions
 - Medial or lateral condyle > 50% $p < 0,05$
 - FP, medial or lateral tibial plateau NS
 - Meniscal status
 - Tear size NS
 - Traumatic > Degenerative $p < 0,05$
- Surgical procedures
 - Meniscectomy NS
 - Cartilage abrasion detrimental $p < 0,001$
= main factor of bad clinical results and re op
- Postop swelling $p = 0,004$



Conclusions

- Preop Swelling = washout effect : arthroscopy?
- Acute event
 - Catching / cartilage flap, meniscus flap, loose body +
 - Meniscal tear (degenerative, combined w arthritis)
 - Subchondral impaction? (MRI?)
Arthroscopy in the old knee might increase the risk of osteonecrosis
- Surgical procedure
 - No cartilage resection
 - Only remove mechanical aggressive lesions



BUT ...

Arthroscopic debridement for knee osteoarthritis (Review)

Laupattarakasem W, Laopaiboon M, Laupattarakasem P, Sumananont C



Cochrane Database of Systematic Reviews

Results from recent studies suggest that **AD may not be effective**. Some studies have reported AD as having no clinically meaningful difference from placebo surgery (Moseley 1996; Moseley 2002). In comparison to arthroscopic lavage, some improvement in quadriceps isokinetic torque at 6 and 12 weeks was observed after joint lavage but not after AD (Gibson 1992). A systematic review was therefore needed to evaluate the effectiveness of this procedure.

OBJECTIVES

The main objective of this review was to estimate the **effectiveness of AD on knee OA** on pain reduction (reduced use of relevant medications) and/or functional improvement.

Arthroscopic debridement for knee osteoarthritis (Review)

Laupattarakasem W, Laopaiboon M, Laupattarakasem P, Sumananont C



Cochrane
Library

Cochrane Database of Systematic Reviews

Implications for practice

Based on the results of this review, we conclude that there is gold level evidence (Moseley 2002) that AD has no significant benefit for knee OA of undiscriminated cause. Debatable areas remain to be addressed, for example, there may be groups of patients or levels of severity of disease for which the intervention may be effective.

Hubbard 1996 found that AD provides more successful results for localised lesion on the medial femoral condyle than arthroscopic washout, but the study was of lower methodological quality.

Arthroscopic debridement for knee osteoarthritis (Review)

Laupattarakasem W, Laopaiboon M, Laupattarakasem P, Sumananont C



Cochrane
Library

Cochrane Database of Systematic Reviews

Implications for research

New, high quality research on larger numbers of participants should be conducted to investigate the effects of AD, in particular comparing groups of people with different levels of disease severity and other disease characteristics. Outcomes measured should include survival data on the time to subsequent interventions such as rescue NSAIDs or analgesics or other surgical interventions.

Different techniques for AD should be compared. It would also be interesting to investigate the strength of placebo effects of sham surgery over no intervention or conservative treatments on pain and dysfunction of the knee.



ESSKA **Meniscus Consensus Project:** Degenerative meniscus lesions



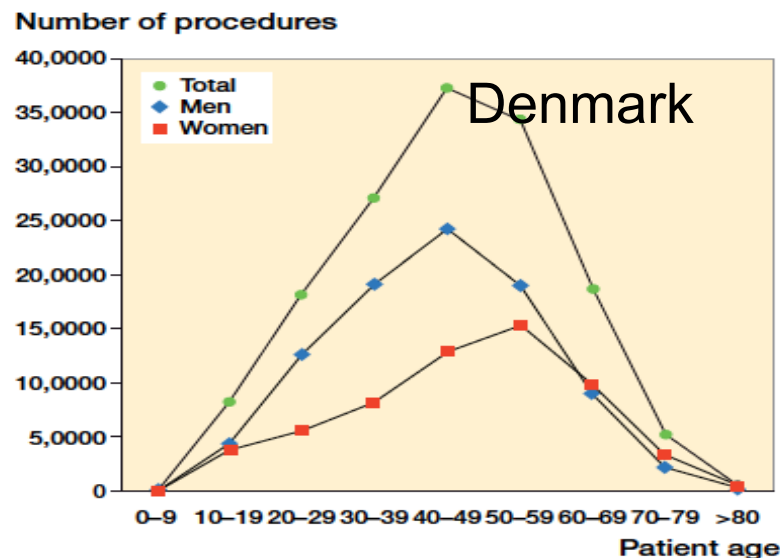
- Philippe Beaufils, *Versailles, France*
- Roland Becker, *Brandenburg, Germany*
- Martin Englund, *Lund, Sweden*
- Sebastian Kopf, *Berlin, Germany*
- Matthieu Ollivier, *Marseille, France*
- René Verdonk, *Ghent, Belgium*

European Meniscus Consensus



Why?

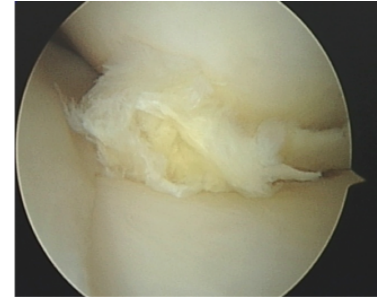
Arthroscopic Partial Meniscectomy (APM) is one of the most frequent procedures especially in the field of degenerative meniscus lesions.



- Cullen et al. Nat health Stat rep 2009
- Thorlund et al. Acta Orthop 2014
- ATIH (French Agency for Hospital Information) 2016



ESSKA Meniscus Consensus Project:
Degenerative meniscus lesions



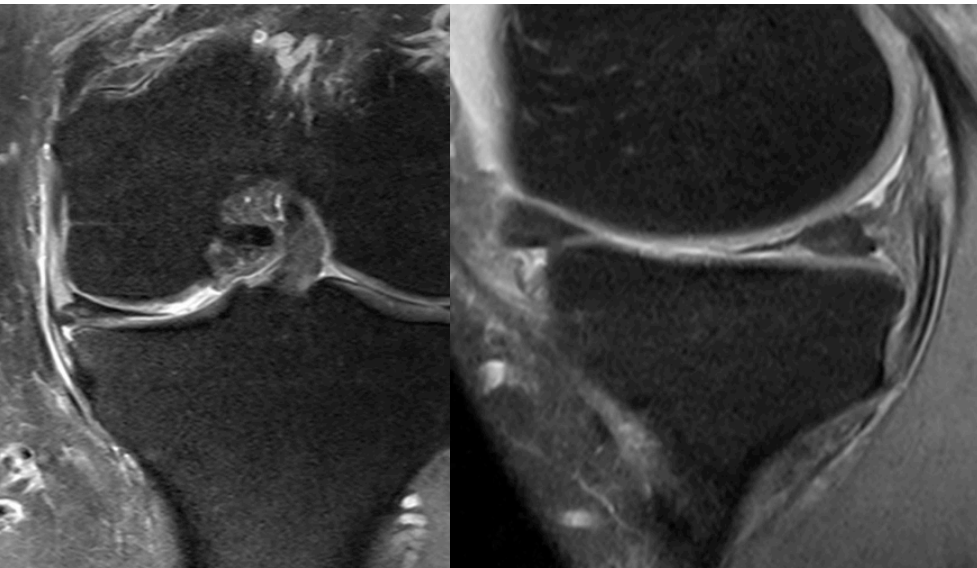
Why there is a Need for a Consensus about the Treatment of Degenerative Meniscus Lesions?

P. Beaufils – R. Becker

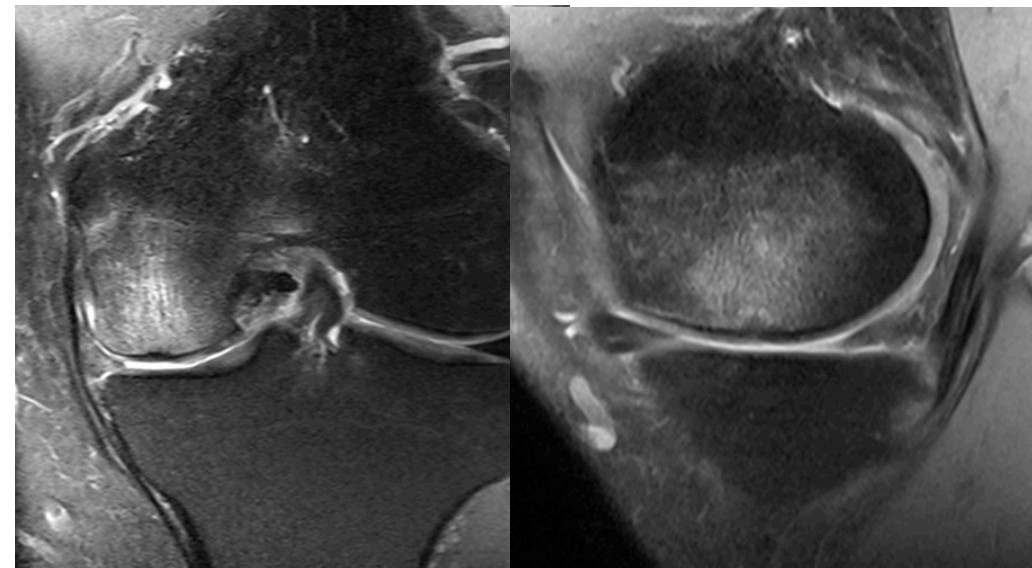
European Meniscus Consensus

- A lot of success!
- But some failures or complications

Preoperative



5 months postoperative



Contrast !

Several RCT's seemed to demonstrate no additional benefit of APM compared to non-operative treatment.

- *Moseley et al. N Eng J Med 2002*
- *Kirkley et al. N Eng J Med 2008*
- *Herrlin et al. KSSTA 2013*
- *Katz et al. N Eng J Med 2013*
- *Yim et al. Am J Sports Med 2013*
- *Sihvonen et al. N Eng J Med 2013*
- *Sihvonen et al. Ann Intern Med 2016*

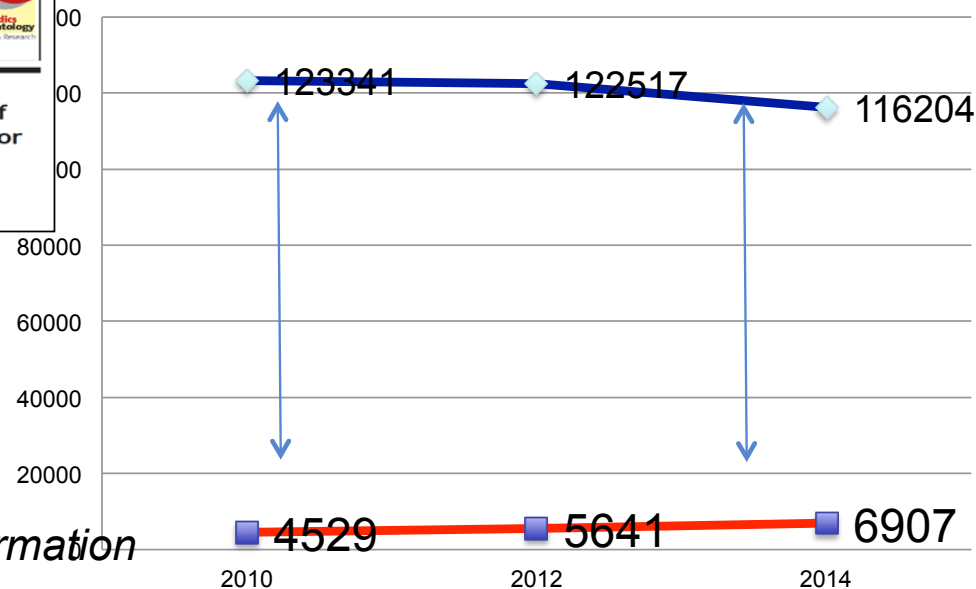


- There is considerable gap between the scientific publications and the daily practice.
- The Purpose of scientific publications is to “scientifically” demonstrate the efficacy, or sometimes the lack of it (!), of a given procedure.
- But RCT’s and meta-analyses, as good as they may be, have their biases and weaknesses and cannot be considered as guidelines per se.
 - *Chess et al. BMC Med Res Method 2013*
 - *Clavien et al. Br J Surg 2014*

Gap between daily practice and “science”?

Example of France

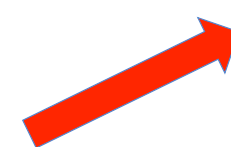
Slight decrease of procedures since Guidelines Publication in 2009



MENISECTOMY



REPAIR

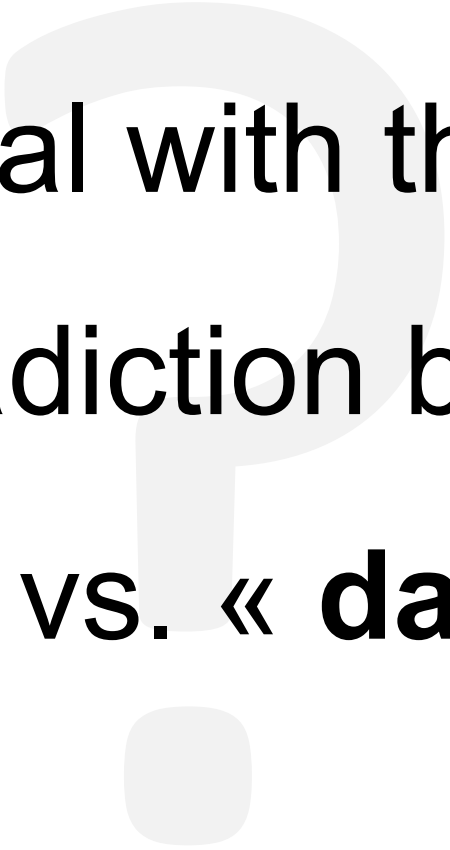


ATIH data 2014

French Agency for Hospital Information



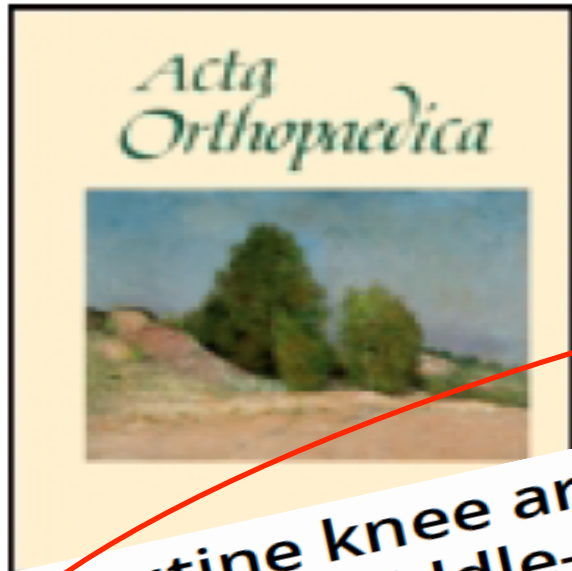
P. Beaufils, B. Sonnery-Cottet SOFCOT 2015



How to deal with this apparent
contradiction between
« **science** » vs. « **daily practice** »

How to deal with it? The fight?

Pro non-operative treatment



Routine knee arthroscopic surgery for the painful knee in middle-aged and old patients—time to abandon ship

L Stefan Lohmander, Jonas B Thorlund & Ewa M Roos

- *Lohmander et al. Acta Orthop 2016*
- *Thorlund et al. Br J Sports Med 2015*

How to deal with it? The fight?

Pro APM

Could the New England Journal of Medicine Be Biased Against Arthroscopic Knee Surgery?

EDITORIALS

ARTHROSCOPY
THE JOURNAL OF ARTHROSCOPIC AND RELATED SURGERY

THE BONE & JOINT JOURNAL

■ PERSONAL VIEW
**Is arthroscopy of the knee comp-
useless?**

META-ANALYSIS - A REVIEWER'S NIGHTMARE

I have personally always thought of meta-analyses as a poor man's research – no original

the paper by Thorlund et al and although anecdotal, in my immediate peer group we have

S. R. Bollen

- El Attrache et al. Arthroscopy 2014
- Lubowitz et al. Arthroscopy 2014
- Rossi et al. Arthroscopy 2014
- Bollen BJJ 2015

European Meniscus Consensus



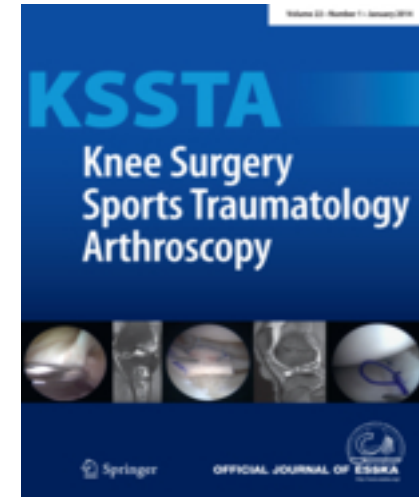
These statements are confusing and have not been useful to the clinician in making treatment decisions

or the Consensus ?



Focusing on results after meniscus surgery

Philippe Beaufils · Roland Becker · Rene Verdonk ·
Henrik Aagaard · Jon Karlsson



“The necessity of a consensual process becomes clear, founded on the **independence** of the organizers and with the participation of **all interested parties** ... Work of this kind will permit a probable **reduction in the number of arthroscopic meniscal resections** in our countries in favour of abstention ...





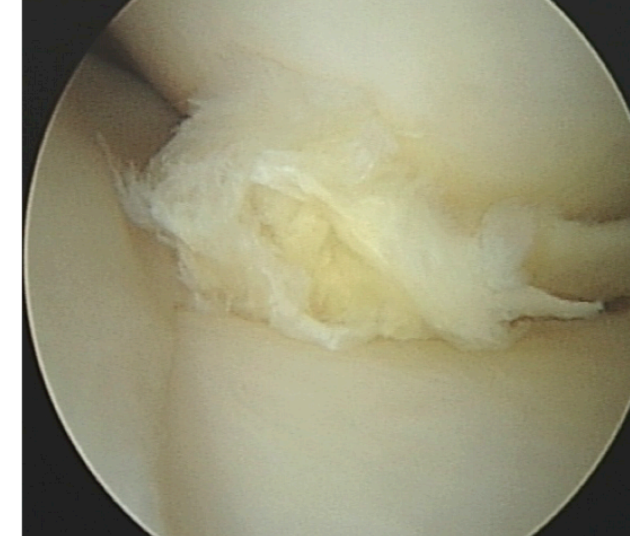
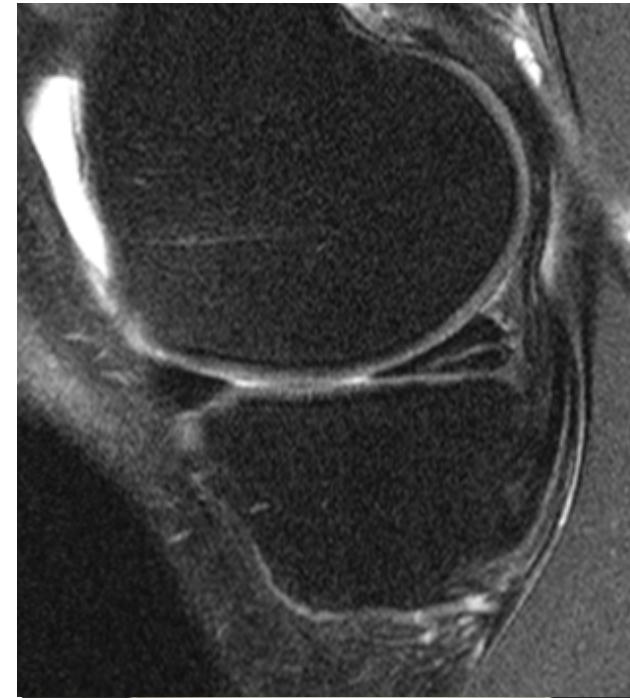
ESSKA **Meniscus Consensus Project:** Degenerative meniscus lesions

Inclusion

- Degenerative meniscus lesions
- No Trauma
- > 35 years

Exclusion

- Congenital lesions
- Traumatic tears
- Horizontal cleavage in young patients



Summary and full text are available on



ESSKA Meniscus Consensus Project: Degenerative meniscus lesions

Chairmen: Philippe Beaufils, Roland Becker

www.esska.org

Meniscus Consensus Project

Chairmen:



Philippe Beaufils

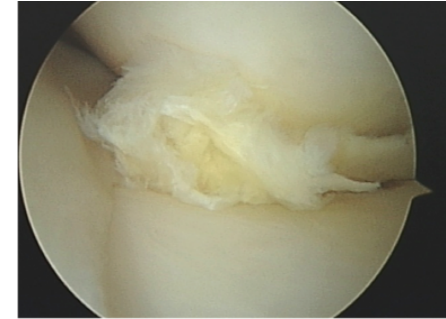
Roland Becker

The ESSKA MENISCUS CONSENSUS INITIATIVE was initiated by the ESSKA Board after the congress in Amsterdam in 2014. It has been commissioned to two world-renowned experts in the field, Prof. Philippe Beaufils (France) and Prof. Roland Becker (Germany). The goal of the initiative is to find a European consensus on the treatment of meniscus pathologies. Finding a consensus in such a diverse continent like Europe where medical culture and healthcare systems vary from country to country is not easy. A strict methodology therefore been applied and numerous European experts have been involved in this.

The merit of the two leaders of this group that we are able to come up with this initiative as well as the guidance to ESSKA members. We thank all the members of the steering, rating and peer review group. A special acknowledgement also goes to Hans Henrik Hansen Rak, without whom this would not have been possible.



ESSKA Meniscus Consensus Project:
Degenerative meniscus lesions



Background for the consensus of the degenerative meniscus lesion

Martin Englund

Lund University, Faculty of Medicine, Department
of Clinical Sciences Lund, Orthopaedics, Lund,
SWEDEN

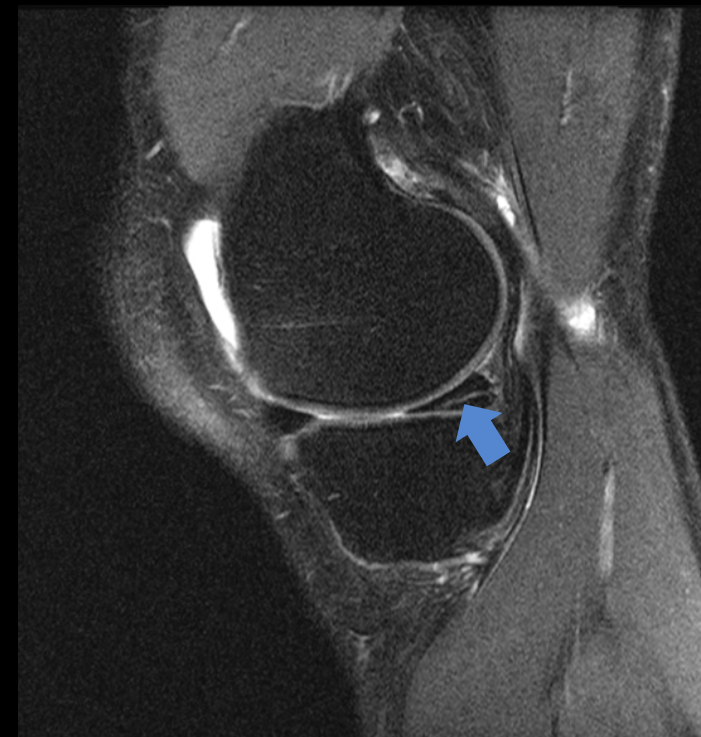
How do degenerative meniscus lesions develop?



Baseline



2 years



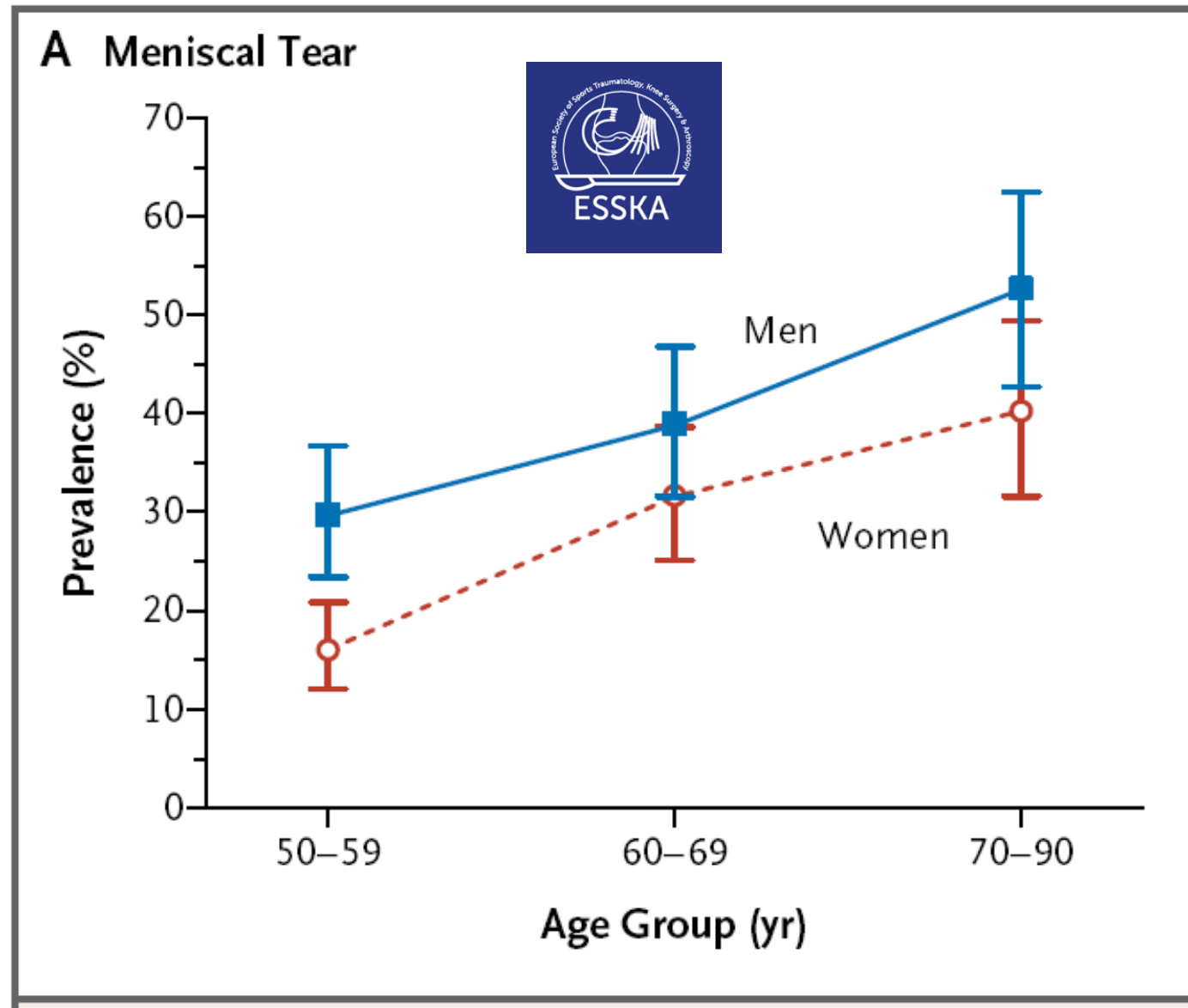
4 years



How common are
meniscus lesion ?

Prevalence of meniscus tear

n=991 knees
from general
population,
Framingham,
Massachusetts,
USA



Englund et al. *New Engl J Med* 2008



Knee symptoms?

Clinical and autopsy studies

Br. J. Surg. Vol. 62 (1975) 977-981



**Clinical features of the degenerate meniscus
with the results of meniscectomy**

JONATHAN NOBLE*

IN DEFENCE OF THE MENISCUS

A PROSPECTIVE STUDY OF 200 MENISCECTOMY PATIENTS

J. NOBLE, K. ERAT

From The Princess Margaret Rose Orthopaedic Hospital, Edinburgh

“The horizontal cleavage lesion probably exists much more commonly than symptoms arising from it. Therefore, other factors must be involved in the production of symptoms.”

Noble J. Br J Surg 1975

Most meniscus tears are asymptomatic

61% of meniscus tears were found in persons without *any* knee pain, aching or stiffness

CONCLUSIONS

Incidental meniscal findings on MRI of the knee are common in the general population and increase with increasing age.

Englund et al. *New Engl J Med* 2008

In patients with meniscus tear in a symptomatic knee,
63% had a tear in their asymptomatic knee (mostly degenerative).

Zanetti et al. *AJR* 2003



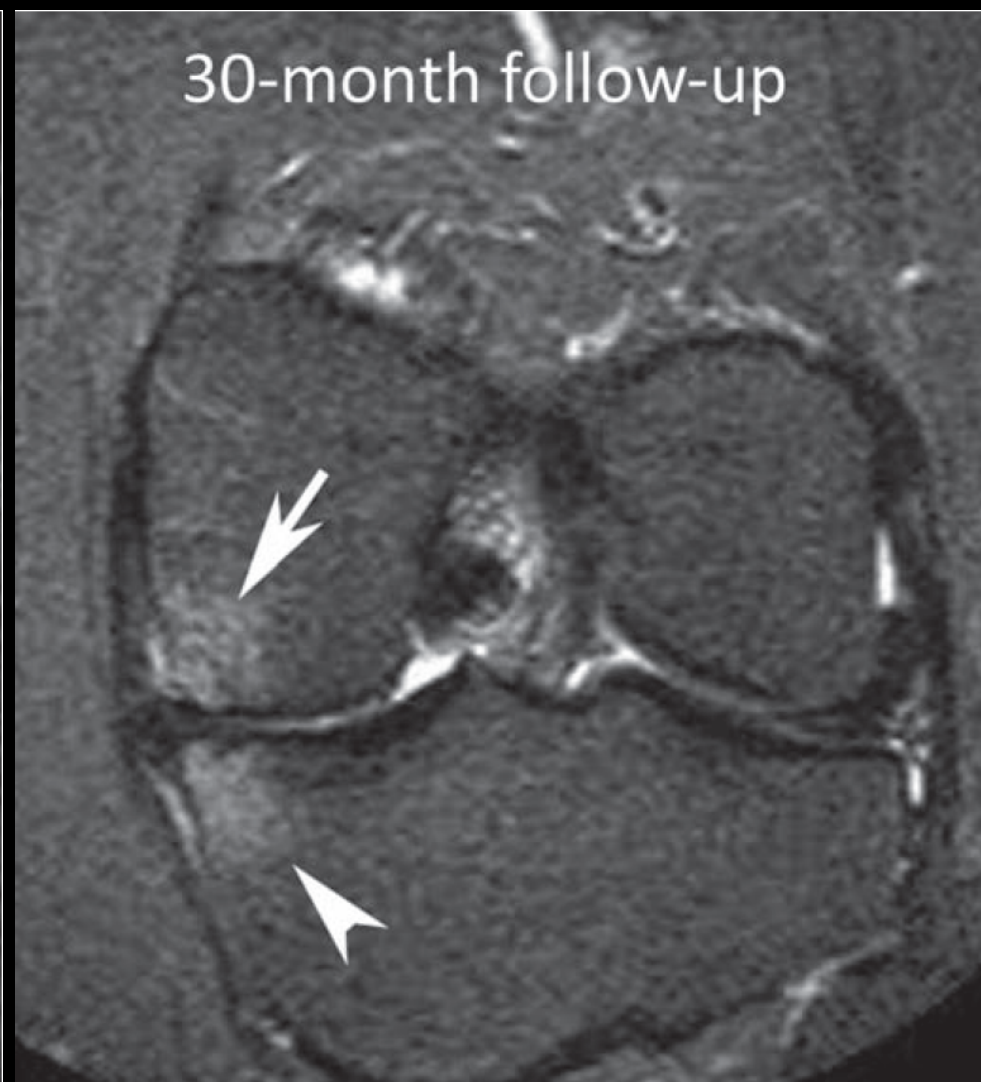
Just because there is a meniscus tear
in a patient *with* knee symptoms...

does *not* necessarily imply it is a

"symptomatic meniscus tear"!



Causal chain of events
to knee pain?



Englund *et al.* *Ann Rheum Dis* 2010



The relationship with osteoarthritis?

Risk of symptomatic osteoarthritis after meniscus tear and APM

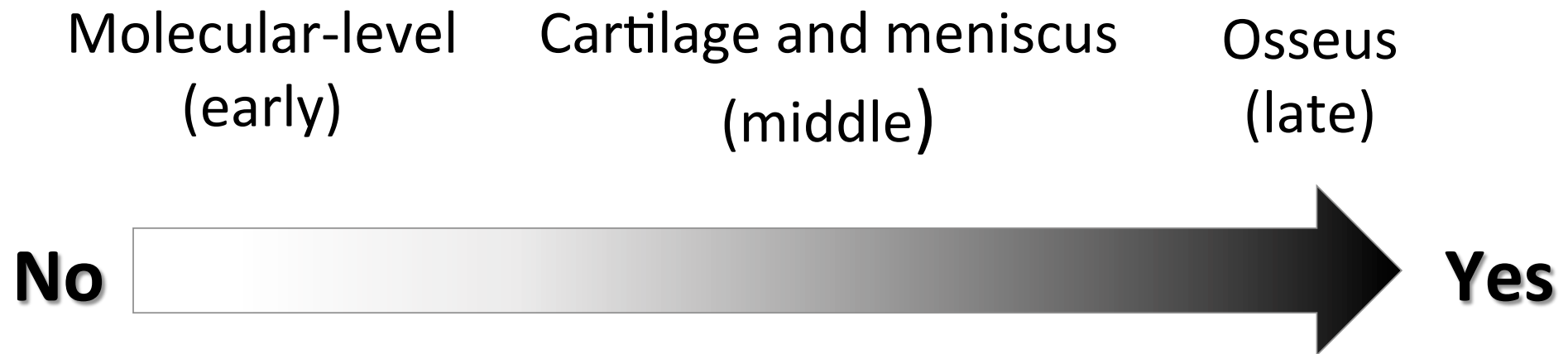
Type of tear	Risk ratio*
Traumatic	2.7
Degenerative	7.0

*Compared to age, sex, and body mass index-matched population-based reference subjects without known knee injury

Englund et al. *Arthritis Rheum.* 2003



Osteoarthritis development



Symptoms may come early, in the middle, late, or not at all!

Challenge to separate pathologies from ageing



- People do age
- What about our knees?
- **Over diagnosis & over treatment**





ESSKA Meniscus Consensus Project: Degenerative meniscus lesions

Key points to background

- ✓ Caused by (or part) of “osteoarthritic-alike” or other slow degenerative processes, and (or) ageing
- ✓ Highly prevalent in general population
- ✓ The lesion *per se* is often not painful (use the term “*symptomatic meniscus tear*” with care)
- ✓ More likely an incidental finding



Management of Degenerative Meniscus Lesions - Treatment -

Sebastian Kopf

European Meniscus Consensus



***When should arthroscopic partial meniscectomy (APM)
be proposed?***

European Meniscus Consensus



When should arthroscopic partial meniscectomy (APM) be proposed?

1. Surgery **shouldn't be proposed as a FIRST line** of treatment of degenerative meniscus lesions. *Grade A*

European Meniscus Consensus



2. **After 3 months** with non-operative treatment and persistent pain / mechanical symptoms, **arthroscopic partial meniscectomy (APM)** may be proposed.

Grade B

European Meniscus Consensus



When should arthroscopic partial meniscectomy (APM) be proposed?

3. Surgery can be proposed **earlier** for patients presenting **considerable mechanical symptoms**. The patient has to be informed of chances and risks of either methods. *Grade D*

However, the steering group wants to state that mechanical symptoms cannot be clearly defined according to the current literature.

European Meniscus Consensus



When should arthroscopic partial meniscectomy (APM) be proposed?

4. **No arthroscopic surgery** should be proposed for a **degenerative meniscus lesion with advanced OA on weight bearing radiographs** . *Grade A*

Exception should be discussed for young patient with considerable symptoms.

European Meniscus Consensus



What is the rate of conversion to surgery in those patients undergoing non operative treatment?

Non-operative treatment is **converted to surgery** (cross-over) **in 0 to 35 %** of the patients. *Grade A*

This cross-over rate has to be compared to the rate of arthroscopic treatment failure.

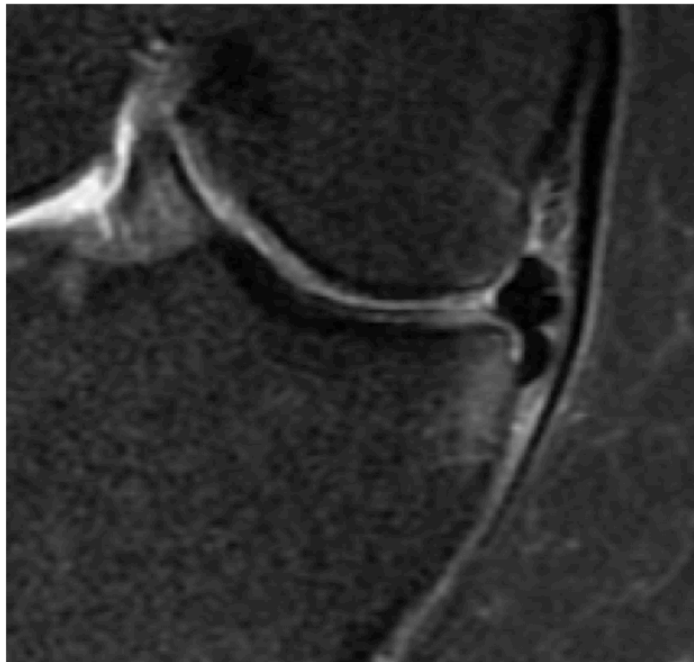
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Is the concept of an unstable of an unstable meniscus useful for indicating meniscectomy (locking, clicking, MRI flap, etc...)?

A recent study [Sihvonen et al. NEJM 2013] did not find any benefits over sham surgery to relieve knee catching or occasional locking. *Grade A*

Indication for early APM depends on intensity, frequency of mechanical symptoms, and clear physical exam. *Grade D*



European Meniscus Consensus



Is there a place for arthroscopic lavage (or lavage-debridement: arthroscopic procedure including degenerative (meniscal/chondral) and/or synovial tissue debridement?) for OA knees?

Is there a place for arthroscopic lavage (or lavage-debridement: arthroscopic procedure including degenerative (meniscal/chondral) and/or synovial tissue debridement?) for OA knees?

There is no place for arthroscopic lavage (or lavage debridement) for painful knees with **osteoarthritis** (K/L \geq 2). RCT's have showed that debridement/lavage has little, if any, effect on patients short-terms reported outcomes, satisfaction, or pain compared to non-operative treatment. *Grade A*

ESSKA Meniscus Consensus Project: Degenerative meniscus lesions



**Non-locked painful knee ≥ 1 Mo,
Age >35 yr, clinical history and
examination compatible with
degenerative meniscus lesion**



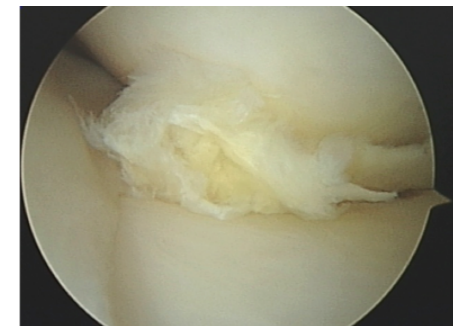
X-rays
(Weight bearing AP + lateral + Schuss view)
MRI when special indications



**Non-operative treatment
+/-injection**
At least 3 months (onset of symptoms)
(except considerable mechanical symptoms)



ESSKA Meniscus Consensus Project: Degenerative meniscus lesions



Treatment failure

Treatment success

MRI if not already done

No OA evidence
on X-rays / MRI

Evidence of OA on X-rays / MRI

Arthroscopic Partial Meniscectomy

Treatment of early arthritis
No arthroscopic debridement
Except considerable mechanical symptoms

Conclusion a place for arthroscopy in OA of medial compartment ?

- In young population (hight demanding)
- Complaining from an **"symptomatic meniscus tear"**!
- Without main deformity
- This treatment is sometimes adapted after failed medical treatment
- Expectation : no early resurgery
- Do not be too aggressive

SFA



2018

STRASBOURG

PALAIS DES CONGRÈS

13>15 DÉCEMBRE

PRÉSIDENT DU CONGRÈS :
PHILIPPE CLAVERT



Rupture du LCA après 50 ans. *S. Lustig (Lyon) , JC Panisset (Echirolles)*

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Thank you

