

ESSKA Meniscus Consensus Project:

Degenerative meniscus lesions



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Disclosure

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

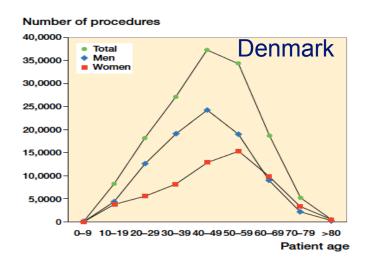
P. Beaufils – R. Becker





Why?

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



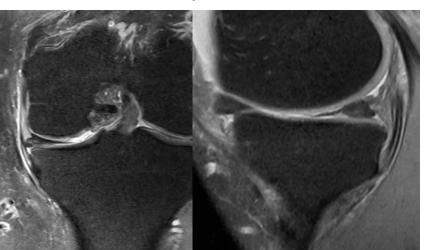
- Cullen et al. Nat health Stat rep 2009
- Thorlund et al. Acta Orthop 2014
- ATIH (French Agency for Hospital Information) 2016



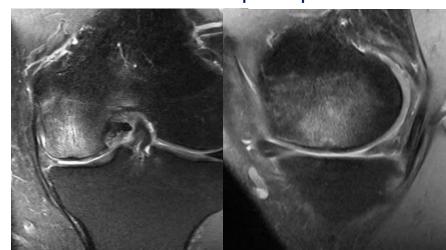
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- A lot of success!
- But some failures or complications

Preoperative



5 months postoperative



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Contrast!

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

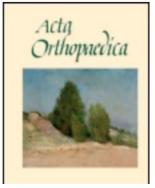
- Moseley et al. N Eng J Med 2002
- Kirkley et al. N Eng J Med 2008
- Herrlin et al. KSSTA 2013
- Katz et al. N Eng J Med 2013

- 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 Denmark

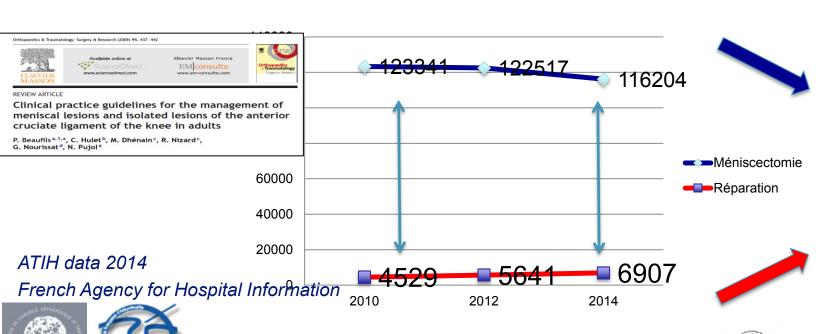
Large increase in arthroscopic meniscus surgery in the middleaged and older population in Denmark from 2000 to 2011

Jonas B Thorlund¹, Kristoffer B Hare^{1, 2}, and L Stefan Lohmander^{1, 3, 4}

The overall annual incidence of meniscal procedures per 100,000 persons in Denmark doubled from 164 in 2000 to 312 in 2011 (i.e. 8,750 procedures to 17,368 procedures). A 2-fold increase was found for patients aged between 35 and 55, and a 3-fold increase was found for those older than 55.

Gap between daily practice and "science"? Example of France

Slight decrease of procedures since Guidelines Publication in 2009



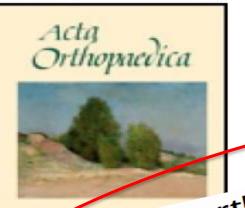
How to deal with this apparent contradiction between

« 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 Estefan Lohmander, Jonas B Thorlund & Ewa M Roos abandon ship

Lohmander et al. Acta Orthop 2016

Thorlund et al. Br J Sports Med 2015

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How to deal with it? The fight?

Could the New England Journal of Medicine Be Biased Against Arthroscop



I have personally always rhought of meraanalyses as a poor man's research – no original

El Attrache et al. Arthroscopy 2014

Lubowitz et al. Arthroscopy 2014

Rossi et al. Arthroscopy 2014

Bollen BJJ 2015 Copyright ©2016 ESSKA





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



or the Consensus?

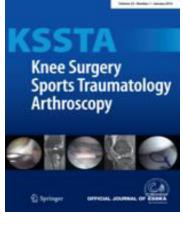


Knee Surg Sports Traumatol Arthrosc (2015) 23:3–7 DOI 10.1007/s00167-014-3471-x

EDITORIAL

Focusing on results after meniscus surgery

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

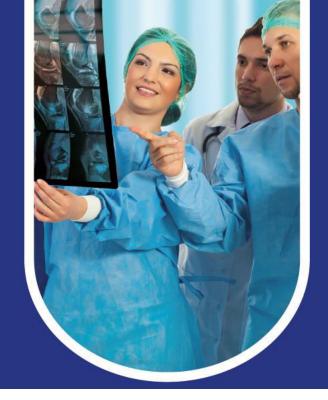


"The necessity of a consensual process becomes clear, founded on the independence of the organizers and with the participation of all interested parties ... Work of this kind will permit a probable reduction in the number of arthroscopic meniscal resections in our countries in favour of abstention ...









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What is a consensus?



2 Criteria

- 1. Independent authorities
 - National public authorities
 - National health care systems
 - Scientific societies

Beaufils et al. OTSR 2009 Mayr et al. Unfallchir 2010 AANA Committee 2011 Brown J Am Acad 2013

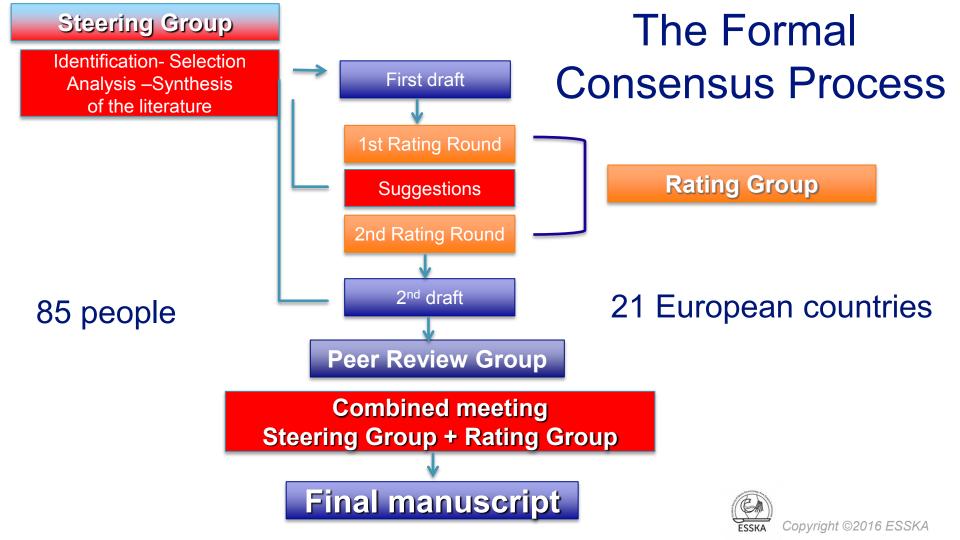




What is a consensus?

2. All specialties involved in the field must be represented to expect adoption.







Grading of the Answers Based on the Quality of the Available Literature

Grade A: high scientific level

Grade B: scientific presumption

Grade C: low scientific level

Grade D: expert opinion



Inclusion

- Degenerative meniscus lesions
- No Trauma
- > 35 years



Exclusion

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





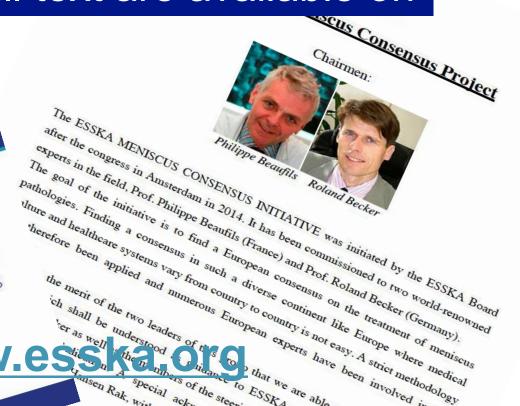
Presentation at the 17th ESSKA congress Barcelona

- Background: Martin Englund
- Imaging: Matthieu Ollivier & Philippe Beaufils
- Management: Sebastian Kopf
- Strength and Limitations: Roland Becker, Philippe Beaufils



Summary and full text are available on





ESSKA Meniscus Consensus Project: Degenerative meniscus lesions Deger 12 Philippe Beaufils, Roland WWW.ESE

Pathologies. Finding a consensus in such a diverse continent like Europe where medical municous European experts have been involved in this therefore been applied and numerous European experts have been involved in this the merit of the two leaders of

ESSKA Meniscus Consensus Project: Degenerative meniscus lesions



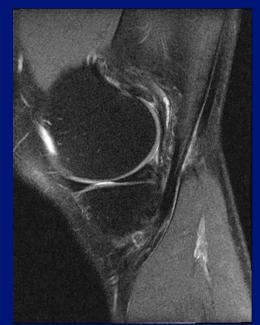
Background for the consensus of the degenerative meniscus lesion

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

Risk factors

- Knee malalignment (the more loaded compartment)
- Bony enlargement of finger nodes (Heberden's/Bouchard's nodes)
- Heavy occupational load (x-sectional)

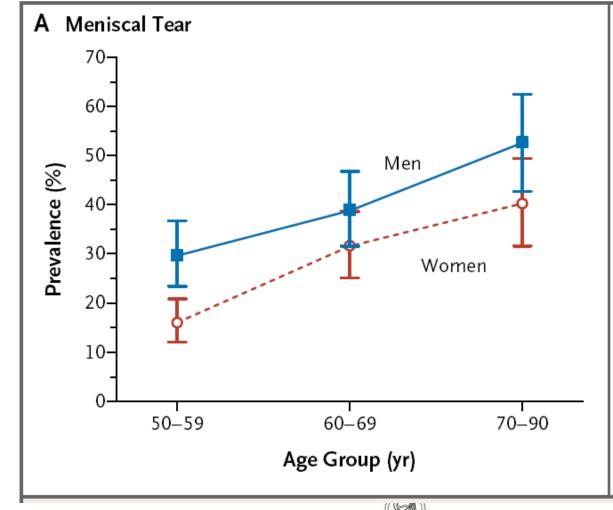
Englund et al. *Ann Rheum Dis.* 2011 Rytter et al. *J Pheumatology* 2009

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 Copyright ©2016 ESSKA

Knee symptoms?





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Clinical and autopsy studies

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

Clinical features of the degenerate meni with the results of meniscectomy

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."

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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).

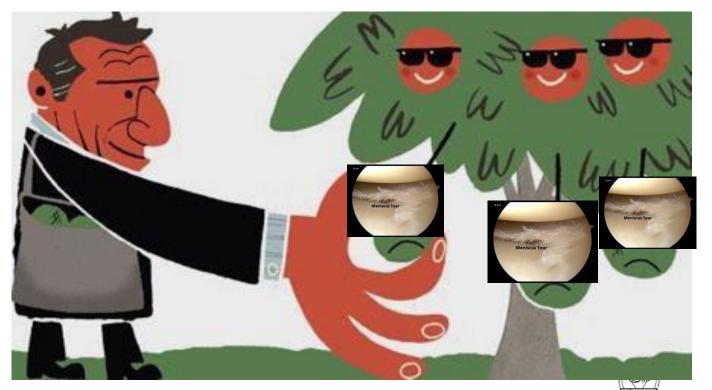
Zanettiet al. AJR 2003

Just because there is a meniscus tear in a patient with knee symptoms... does not necessarily imply it is a

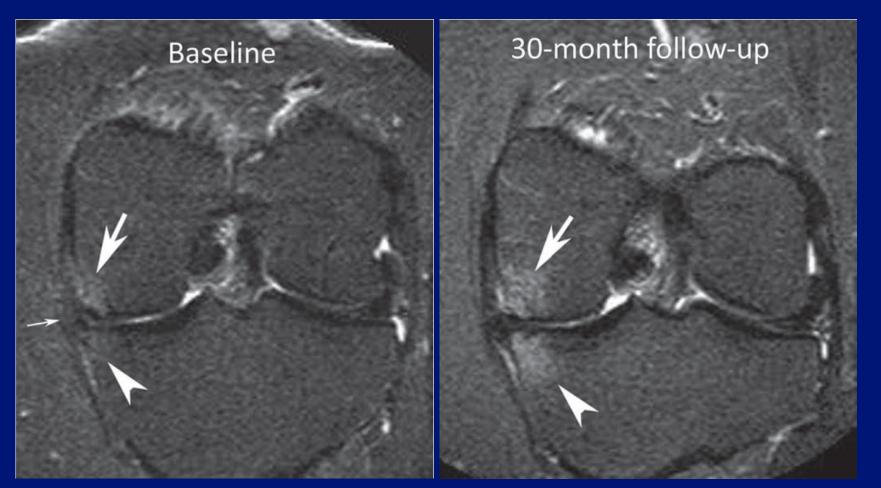
"symptomatic meniscus tear"!



Be careful with the temptation "to pick low-hanging fruit"



Causal chain of events to knee pain?



Englund et al. Ann Rheum Dis 2010

The relationship with osteoarthritis?



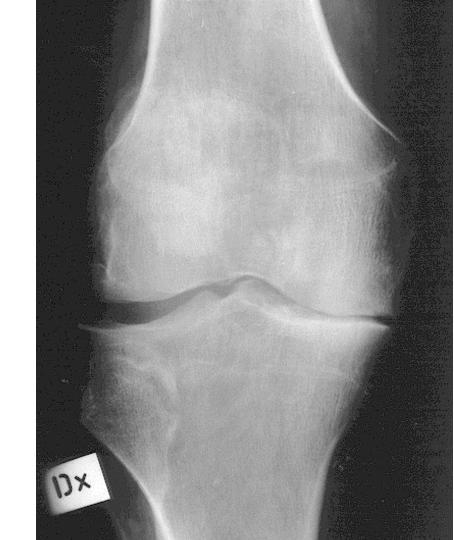
Risk of symptomatic osteoarthritis after meniscus tear and APM

Type of tear Risk ratio*

Traumatic 2.7

Degenerative 7.0

Englund et al. Arthritis Rheum. 2003



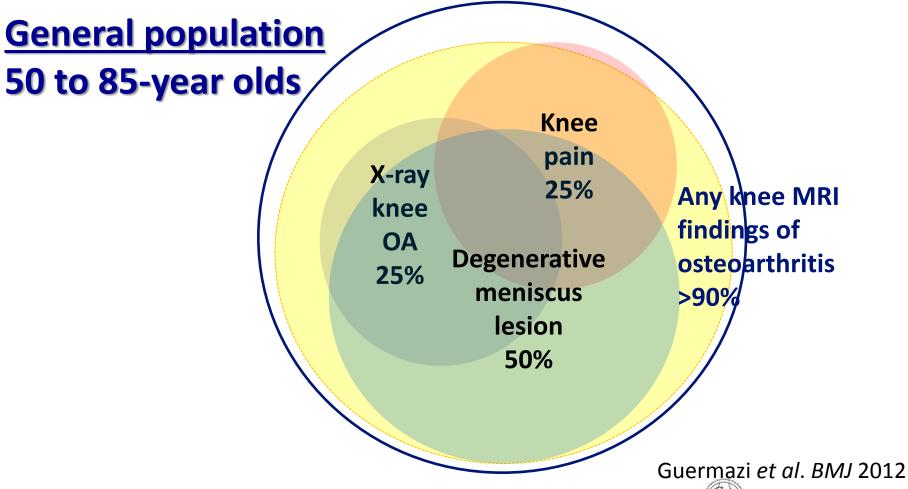
^{*}Compared to age, sex, and body mass index-matched populationbased reference subjects without known knee injury

Osteoarthritis development



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





Turkiewicz et al. Osteoartis Cartilage 2014

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





ESSKA Meniscus Consensus Project: Degenerative meniscus lesions



Management of Degenerative Meniscus Lesions

- Imaging -

Matthieu Ollivier, Philippe Beaufils





MRI overuse



Meniscectomy





Need for a standardized clinical and imaging exam

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Which MRI criteria characterize a degenerative meniscus lesion?

A degenerative meniscus lesion is usually characterized by linear intrameniscal MRI signal (including a component with horizontal pattern) often communicating with the inferior meniscal surface on at least two image slices. A more complex tear pattern in multiple configurations may also occur. The most common location of a degenerative meniscus lesion is the body and (or) posterior horn of the medial meniscus.



Grade B



High Frequency of

Meniscus Lesions

Knee Pain

Associated lesions



Do degenerative meniscus lesions cause knee symptoms?

There is very limited evidence that pain in the degenerative knee is directly attributable to a degenerative meniscus lesion even if the lesion is considered to be unstable. Great caution must be taken before arriving at the conclusion that the degenerative meniscus lesion is the direct cause to the patient's knee symptoms. Grade B

What is the role of knee radiographs in the assessment of middleaged or older patients with a painful knee?

Knee radiography should be used as a first line imaging tool to support a diagnosis of osteoarthritis or to detect certain rarer pathologies of the knee. Therefore, at least anteroposterior weight-bearing semi-flexed knee radiography including a lateral view should be included in the work up of the middle-aged or older patient with knee pain.

Grade B







Schuss view (or Rosenberg view or 45° view)



Weight bearing radiography in extension



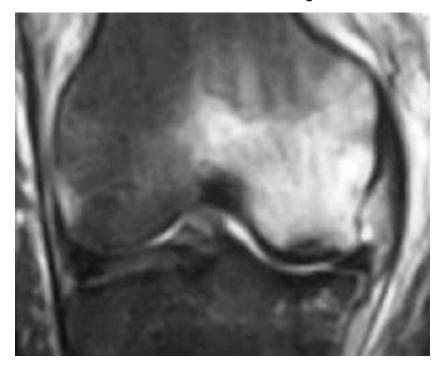
Rosenberg view

What is the role of knee MRI in the assessment of a middle-aged or older patient with a painful knee?

Knee MRI is typically <u>not</u> indicated in the first line work up of the middle-aged or older patients with knee joint symptoms. However, knee MRI may be indicated in selected patients with refractory symptoms or in the presence of 'warning flags' or localized symptoms indicating a rarer disease that needs to be ruled out, e.g., osteonecrosis...



For example



Diagnosis of osteonecrosis



Ischemia + Meniscus Lesion

61 Y old patient

medial knee pain



September 2010

asymptomatic



December 2000

0 ESSKA Copyright ©2016 ESSKA What is the role of knee MRI in the assessment of a middle-aged or older patient with a painful knee?

... Hence, if a surgical indication is considered, based on history, symptoms, clinical exam and knee radiography, knee MRI may be useful to identify structural knee pathologies that may (or may not) be relevant for the symptoms.



MRI does not only diagnose meniscus lesions



Grade 2



Grade 3



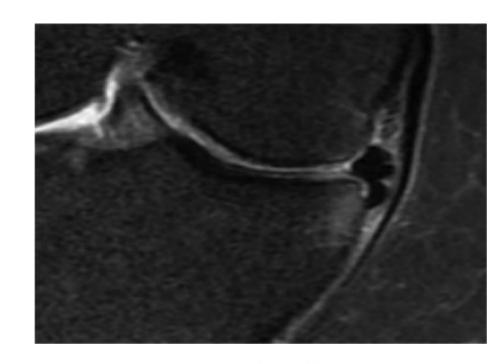
But also meniscus stability

Mechanical symptoms

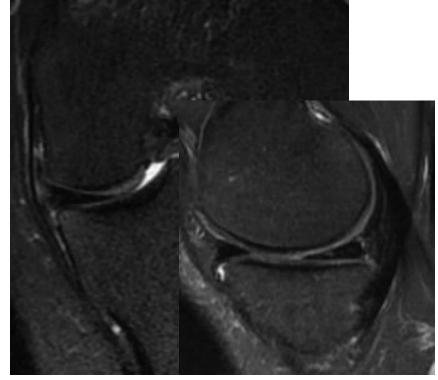
Displaced flap



Surgery?





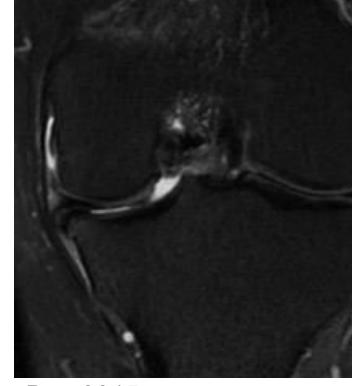


Aug 2015



Stable meniscus lesion

Non-operative treatment



Dec 2015

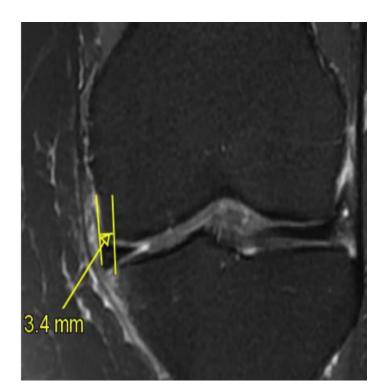


Unstable lesion Surgery?

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Early signs of osteoarthritis

Extrusion



Bone marrow oedema



To summarize

Knee pain compatible with degenerative meniscus lesion

X-rays: first line; MRI for special indications



 MRI when surgery is considered to confirm or exclude meniscus lesion and to evaluate further pathologies







Management of Degenerative Meniscus Lesions

- Treatment -

Sebastian Kopf





When should arthroscopic partial meniscectomy (APM) be proposed?





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*



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

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When should arthroscopic partial meniscectomy (APM) be proposed?

 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.





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.





What does non-operative treatment mean?





What does non-operative treatment mean?

- 1. No evidence of which time / type of non-operative treatment can be proposed.
- 2. In the current literature, RCTs proposed various rehabilitation protocols.

However, non-operative treatment could consist of NSAID (if no contraindication), intra-articular injection, physiotherapy and / or home exercises for 3 to 6 months.

Grade B

**Transport of NSAID (if no contraindication), intra-articular injection, physiotherapy and / or home exercises for 3 to 6 months.



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





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.





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

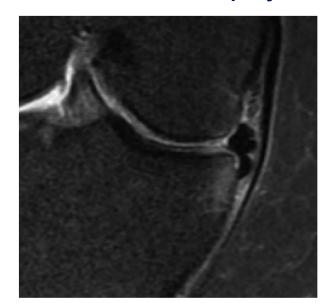




Is the concept of an unstable of an unstable meniscus useful for indicating meniscectomy (locking, clicking, MRI flap, etc...)?

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*







What outcomes can be expected after arthroscopic partial meniscectomy (APM)?



- 1. Improvement of functional outcomes can be expected after APM . *Grade A*
- 2. Most of the RCTs found no difference in terms of clinical outcomes after surgery compared to non-operative treatment. *Grade A*

3. APM after failed non-operative treatment will result in similar but not superior results compared to successful non-operative treatment . *Grade A*

4. Three to 6% of patients will require another surgical procedure in the year following APM. *Grade A*

5. Various predictive factors of poor results or treatment failures have been described in the current literature (increased BMI, lateral side, chondral damage, bone marrow edema, meniscal extrusion, total or subtotal meniscectomy. *Grade C*



What is the rate of surgical complications after APM?



What is the rate of surgical complications after APM?

The rate of surgical complications is low (0.27 to 2.8%). *Grade A* After APM, the rate of complications is dependent on side: i.e. a lateral meniscectomy is associated with a higher rate of complications than a medial one. *Grade A*





What is the risk of osteoarthritis after APM?





What is the risk of osteoarthritis after APM?

1. Patients treated with APM for a degenerative lesion present a higher risk for symptomatic knee osteoarthritis compared to patients with normal knee (healthy subjects). Risk of OA is higher after APM on the lateral side. *Grade C*





What is the risk of osteoarthritis after meniscus resection?

2. Patients with a total meniscectomy (removal of the peripheral rim) present a higher risk for symptomatic knee osteoarthritis compared to patients with partial meniscectomy. *Grade C*





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≥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*





The algorithm to work with

R. Verdonk

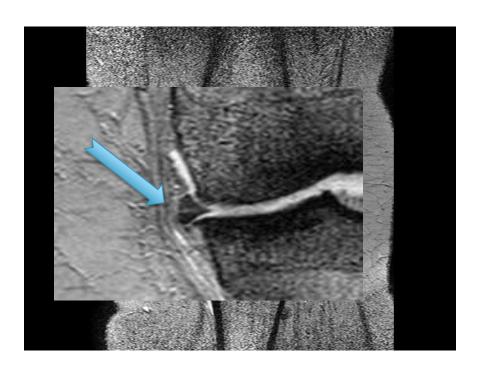


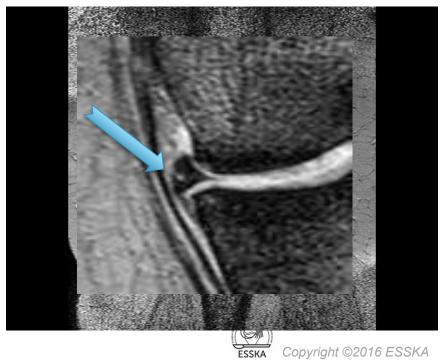
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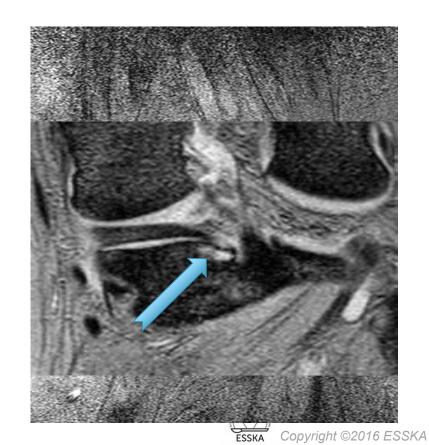
Let me tell you a story.....



















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)

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Treatment failure



Treatment success

MRI if not already done



No OA evidence on X-rays / MRI



Arthroscopic Partial Meniscectomy

Evidence of OA on X-rays / MRI

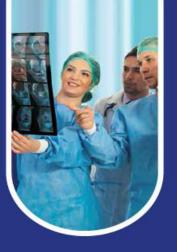


Treatment of early arthritis

No arthroscopic debridement

Except considerable mechanical symptoms





Chairmen: Philippe Beaufils, Roland Becker

Strengths and Limitations

R. Becker

P. Beaufils



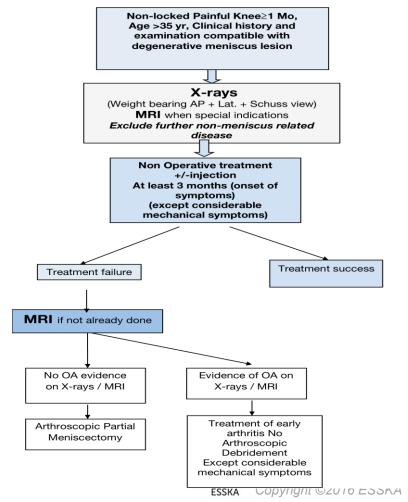




Chairmen: Philippe Beaufils, Roland Becker

ESSKA Meniscus Consensus algorithm

Degenerative Meniscus Lesion



Strengths

First European experience in this field

Strict independent process



Large amount of participants:



- 85 people
- 21 European countries



Strengths

Based on:

scientific evidence

clinical expertise









Strengths

Rather a « framework » than strict guidelines

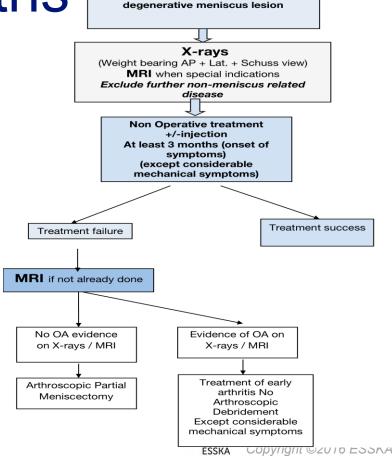




Strengths

 APM shouldn't be proposed as a first line treatment
 indication

 APM could be proposed provided a standardized clinical and imaging exam has been carried out = preoperative assessment



Non-locked Painful Knee≥1 Mo, Age >35 yr, Clinical history and examination compatible with

Limitations

1. Quality of the available studies

2. Practical constraints in daily practice

3. Evolution of techniques and indications with time



1. Quality of the available studies

- What is a scientific evidence?
- RCT's as good as they may be have their biases and weaknesses:
 - Selection of patients
 - SHAM surgery which doesn't correspond to daily practice
 - « Intention to treat » or « as treated »
 - Conclusion
 - **–** ...



- Chess et al. BMC Med Res Method 2013
- Clavien et al. Br J Surgent @2014

Two examples

- 1. Two RCTs with the same patients selection, and study design may have different conclusion
 - Gauffin et al.: in favor of APM
 - Katz et al.: non-operative treatment and AMP have similar outcomes

Osteoarthritis and Cartilage xxx (2014) 1-9

Knee arthroscopic surgery is beneficial to middle-aged patients with meniscal symptoms: a prospective, randomised, single-blinded study

H. Gauffin † *, S. Tagesson ‡, A. Meunier †, H. Magnusson ‡, J. Kvist ‡ † Orthopoedic Department, Unikūping, University, Linkūping, Sweden † Dibision of Physiotherup, Department of Medical and Health Sciences, Linkūping, University, Linkūping, Sweden



The NEW ENGLAND
JOURNAL of MEDICINE

Surgery versus Physical Therapy for a Meniscal Tear and Osteoarthritis MAY 2, 2013

Who is right?



Two examples

- 2. The conclusion must not exceed the content of the study
- « Non-operative treatment has similar outcome than APM »

is not the same as

 « Non-operative treatment is the first line treatment. APM should be considered as a second line treatment »





These studies must be read and interpretated with great care



Role of a consensus process including experts involved in daily practice of treating patients with meniscus lesions



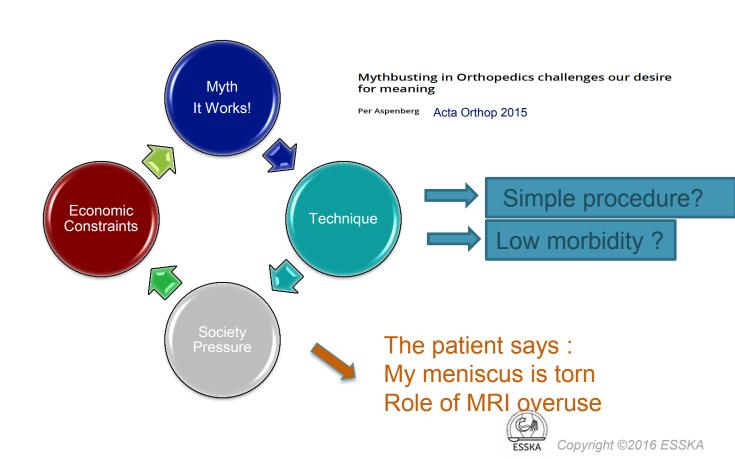
2. Practical constraints

 Is a consensus the only factor which may influence the decision of the surgeon and the patient?









Health care systems Myth It Works! are different among European countries **Economic** They influence the Constraints daily practice and are not always in line Society Pressure with the scientific data.

Limitations

Are guidelines definitive and strong evidence-based publications





Evolution with time! example of France

1995

Arthroscopy Guidelines in France

« There are no indications for meniscus repair in stable knees » 2009

Meniscus Guidelines in France

« Meniscus repair is recommended in vertical longitudinal peripheral traumatic tears independent of the status of the ACL »







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