



Outcome of MMPRT's repair

Medial Meniscus Posterior Root Tear

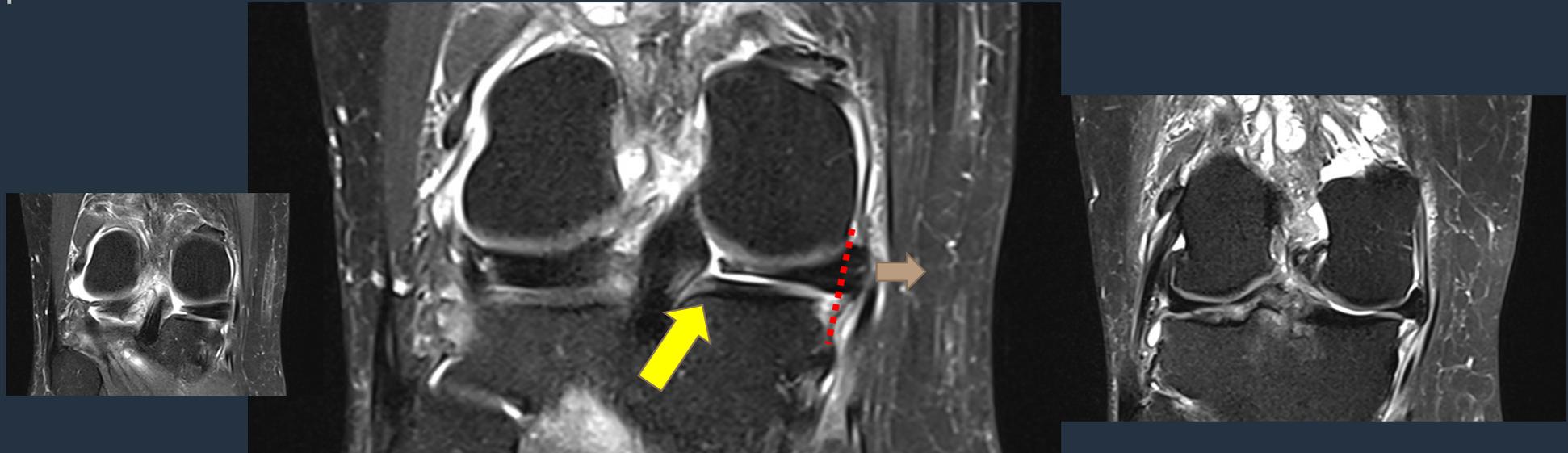
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YOU NOW

- Epidemiology
- How you repair it (technique)
- Relation ship with arthritis

What is the best treatment ?



TWO CLEAR DIFFERENT SITUATIONS

MMPRTs in middle age patients (around 50 y.o.)

- Symptomatic
- Clearly DEGENERATIVE
- Take in account the associated factors : BMI, OA, Varus, Extrusion
- Debate around the best treatment

Traumatic MMPRT, in young athletes

- Rare
- Traumatic (jump / pop / swollen knee / pain)
- REPAIR ASAP because avec long term consequences
- Back to sport quite long ... 6 months
- Sometime associated to ACL rec. : 4/ 550 ACLR (2 revisions)

WHAT IS THE OPTIMAL TREATMENT ?

To date, the optimal treatment for degenerative MMPRTs remains controversial:

- is it better to (try to) achieve complete meniscal healing?
- or is it better to restore normal mechanical alignment of the lower limb

WHAT IS THE OPTIMAL TREATMENT ?

Conservative

Partial menisectomy

Repair

HTO

Combined treatment?

Staged treatment

Treatment options

Conservative medical treatment

Faucett, Chahla et al (AJSM 2019)

Meniscus root repair vs meniscectomy or nonoperative management to prevent knee osteoarthritis after medial meniscus root tears: clinical and economic effectiveness.

Cohort of 55-year-old patients presenting with a meniscus root tear without osteoarthritis at baseline Over 10 years

Compare meniscus repair, meniscectomy, and nonoperative treatment approaches

- Meniscus repair : 53.0%, OA, 33.5%, TKR, \$22,590
- Meniscectomy : 99.3% OA, 51.5% TKR, \$31,528
- nonoperative treatment : 95.1% OA , 45.5% TKR, \$25,006

Krych et al. (KSSTA 2017) **Non-operative management** of MMPRTs is associated with worsening arthritis and poor clinical outcome at 5-year follow-up.

Retrospective review , 52 patients (21M:31F) with a mean age of 58 ± 10 years FU = 62 ± 30 months.

31% of TKR after 30 months / OA progression / Mean IKDC scores were 61.2 ± 21 , lower scores in females compared to males

Overall, 87 % of patients failed non-operative treatment

Poor clinical outcome, worsening arthritis, and a relatively high rate of arthroplasty at 5-year follow-up. 52 patients

Treatment options

Partial meniscectomy

Kim and AI - KSSTA 2020

Progression of radiographic osteoarthritis after partial meniscectomy in degenerative medial meniscal posterior root tears was greater in varus- than in neutral-aligned knees: a minimum 5-year follow-up. The progression of radiographic osteoarthritis after PM for degenerative MMPRTs was greater in varus-aligned knees than in neutral-aligned knees. **PM should be considered cautiously in patients with varus-aligned knees.**

Kim and AI - KSSTA 2020

Partial meniscectomy provides the favorable outcomes for symptomatic medial meniscus tear with an intact posterior root. Kim

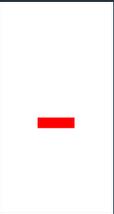
165 patients who underwent partial meniscectomy for medial meniscus tear with intact posterior root with a minimum 5-year follow-up were included

Partial meniscectomy offers pain relief and functional improvement for medial meniscus tear with intact posterior root. Preoperative joint space narrowing and higher chondral wear at surgery were significant risk factors of treatment failure.

Treatment options

Partial meniscectomy

[Krych and Al-KSSTA 2018](#)



Partial meniscectomy provides no benefit for symptomatic degenerative complete MMPRT
Efficacy of partial meniscectomy to treat MMPRTs compared to a matched group of non-operatively treated MMPRTs. 52 patient , minimal FU 2 years, mean age 55
Risk factors for worse clinical and radiographic outcome.
Partial meniscectomy provides no benefit in halting arthritic progression.
Patients who undergo PMM for MMPRTs still progress to significant arthritis, poor clinical outcomes and a high arthroplasty rate (54%) at over 5-year follow-up.
Female gender, increased BMI, and meniscus extrusion were associated with worse outcome

[Lee an Al - AJSM 2019](#)



Partial Meniscectomy for Degenerative MMPRT shows Favorable Outcomes in Well-Aligned, Nonarthritic Knees.

288 patients (24 male and 264 female), followed for at least 5 years after arthroscopic meniscectomy for degenerative MMPRTs ,58.9 years (range, 43-78 years)
Arthroscopic meniscectomy is an effective treatment for degenerative MMPRTs, with favorable long-term survival in well-aligned nonarthritic knees.
However, meniscectomy should be undertaken cautiously in patients with varus alignment and preoperative radiographic osteoarthritis.

Best treatment : repair / healing ?

Bernard (2020) Medial meniscus posterior root tear treatment: a matched cohort comparison of nonoperative management, partial meniscectomy, and repair. Am J Sports Med

Treatment failure, clinical outcome scores, and radiographic findings for a matched cohort of nonoperative management (15), partial meniscectomy (15), or transtibial pull-through repair (15) for an MMPRT

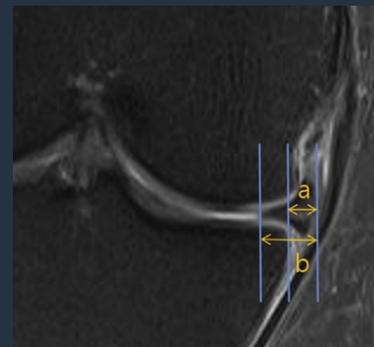
Meniscus root repair leads to significantly less arthritis progression and subsequent knee arthroplasty

Kim (2019) Clinical and Radiologic Outcomes of Patients With Lax Healing After Medial Meniscal Root Repair: Comparison With Subtotal Meniscectomy.

Arthroscopy.

(MMPRT) repair (21) v. subtotal meniscectomy (24) : subsequently classified as having lax healing based on second-look arthroscopy.

No clinical difference. the repair/lax healing group showed better radiologic outcomes than the meniscectomy group, despite lax healing of the repair site



Alignment effect & HTO

[Lee and Al - AJSM 2019](#)

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Progression of radiographic osteoarthritis after partial meniscectomy in degenerative medial meniscal posterior root tears was greater in varus- than in neutral-aligned knees: a minimum 5-year follow-up. Kim Records of 114 patients with degenerative MMPRTs and Kellgren-Lawrence (KL) grade ≤ 2 osteoarthritis, who underwent PM, had preoperative weight-bearing hip-to-ankle radiographs from 2004 to 2014. The mean follow-up period was 8.3 ± 2.8 years.

The progression of radiographic osteoarthritis after PM for degenerative MMPRTs was greater in varus-aligned knees than in neutral-aligned knees. PM should be considered cautiously in patients with varus-aligned knees.

HTO + repair in association ?

KNEE

Concurrent arthroscopic meniscal repair during open-wedge high tibial osteotomy is not clinically beneficial for medial meniscus posterior root tears

Xiurong Ke¹ · Jiandi Qiu¹ · Shanxi Chen² · Xiaoliang Sun¹ · Fanghui Wu¹ · Guojing Yang¹ · Lei Zhang¹ 

Table 2 General characteristics of the patients included in the final cohort (n=90)

	Group A HTO+Repair (n=30)	Group B HTO (n=36)	Group C Meniscectomy (n=34)	<i>p</i> -value
Age (years)				0.370
Mean (SD) [range]	55.4 (7.2) [47–70]	55.2 (7.9) [46–76]	57.8 (7.6) [49–65]	
Gender, no. (Female/male)	26/4	26/8	20/6	0.535
BMI (kg/m ²)				0.099
Mean (SD) [range]	23.1 (2.9) [18.3–28.9]	23.8 (2.8) [19.2–32.3]	24.8 (3.1) [19.6–27.6]	
Onset of symptoms (months)				0.106
Mean (SD) [range]	13.7 (2.8) [8–19]	15.9 (5.0) [8–25]	15.7 (5.2) [8–25]	
Follow-up (months)				0.192
Mean (SD) [range]	29.0 (3.2) [24–36]	30.4 (3.0) [24–36]	29.7 (3.0) [24–36]	

Clinical, radiological, and second-look arthroscopic outcomes
 Concurrent arthroscopic meniscal repair during OWHTO
 did not lead to significant clinical benefits in the treatment
 of MMPRTs, except for an increased rate of meniscal
 healing, which was not associated with clinical outcomes.

	Group A HTO+Repair (n=30)	Group B HTO (n=36)	Group C Meniscectomy (n=34)	<i>p</i> -value
HKA (°)				
Preoperative	176.7 (1.2) [175–179]	176.7 (1.3) [175–179]	177.4 (1.4) [175–179]	0.088
Final follow-up ^a	183.9 (0.9) [182–185]	183.8 (1.1) [182–187]	177.4 (1.4) [175–179]	<0.001



Prognosis factor associated with worse outcome

Age

Female gender

Increased BMI

Meniscus extrusion

Varus alignment

Level of knee arthritis

Previous partial meniscectomy

[Kawada & Al \(2023\)](#) Time-Dependent Increase in Medial Meniscus Extrusion Predicts the Need for Meniscal Repair in Patients with Partial Medial Meniscus Posterior Root Tears (37 patients)

Patients with partial MMPRTs requiring surgical treatment had greater MME progression in a shorter time and a time-dependent increase in medial meniscus extrusion (MME)

CONCLUSION

My practice :

- Mainly conservative treatment ... before HTO
- Difficult to propose repair in degenerative meniscal pathology
- Varus knee ... HTO
- No Varus : conservative treatment ... if it fail = UNI

BUT /

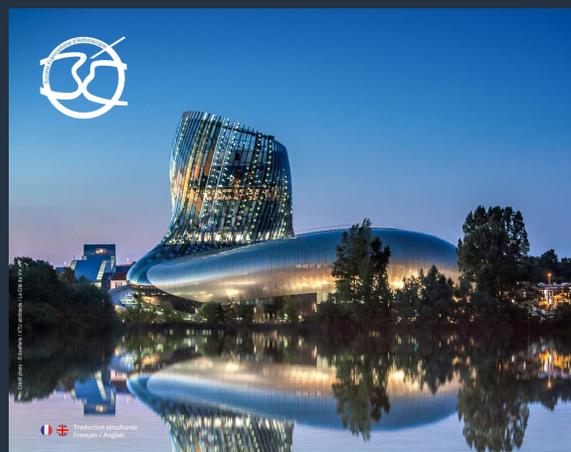
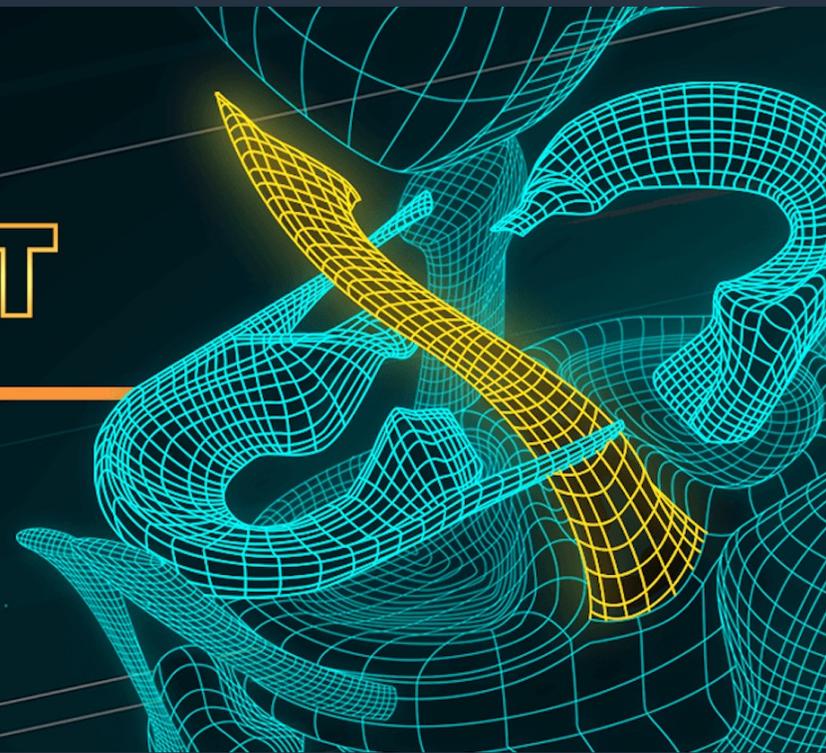
Asian colleagues now more about that and they use their knee in FLEXION ...

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