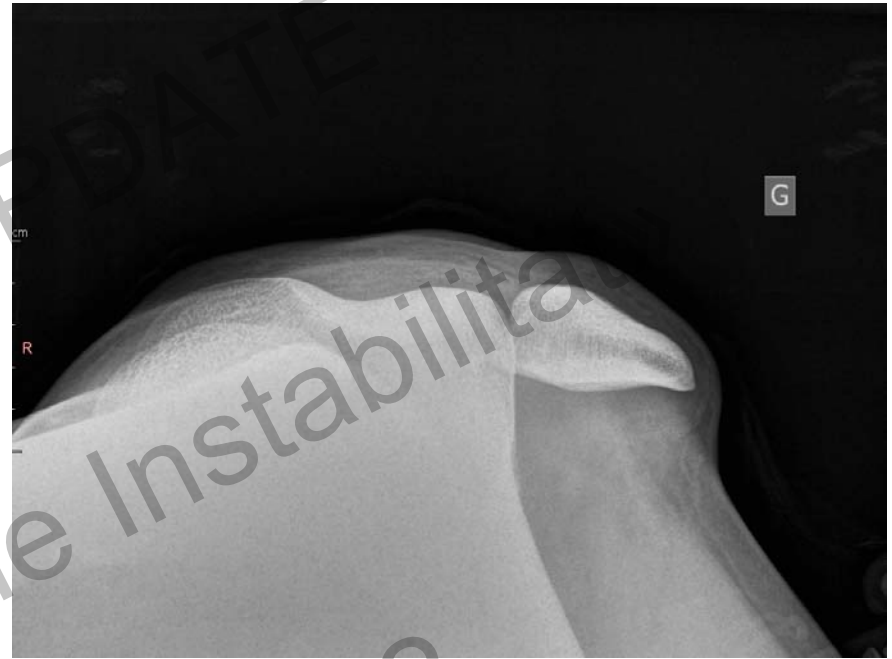


Acute patellar dislocation: conservative or surgical treatment



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University Hospital of Geneva,

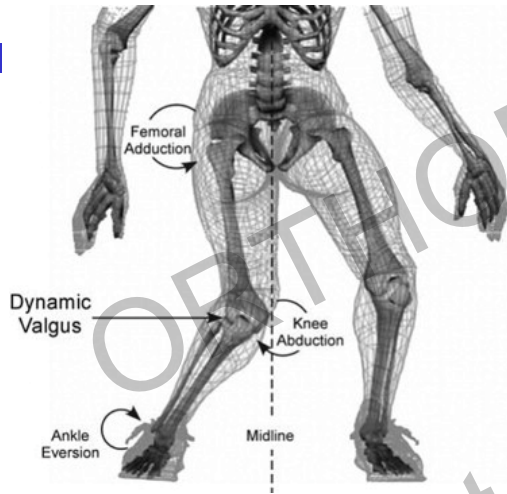
Geneva Switzerland

Epidemiology

- Incidence of primary patella dislocation:
 - 6 to 112/100'000 persons
 - Depending upon the age of the population

Nietosvaara et al *J Pediatr Orthop* 1994
Fithian et al *Am J Sports Med* 2004
Sillanpaa et al *Med Sci Sports Exerc* 2008
Colvin *J Bone Joint Surg* 2008
Hsiao et al *Am J Sports Med* 2010

Mechanism of injury



Knee valgus stress and internal rotation of the femur with the foot fixed on the ground

Sillanpaa et al *Med Sci Sports Exerc* 2008
Colvin *J Bone Joint Surg* 2008
Nikku et al *Acta Orthop* 2009

Risk factors:

- Tall height and excess weight

Sillanpaa et al *Med Sci Sports Exerc* 2008

Challenge

- 44% to 70% recurrent dislocations
 - Depending upon the patient cohort

Stefancin et al *COOR* 2007

Smith et al *KSSTA* 2011

Hing et al *Cochrane Database Syst Rev* 2011

- Results in a partial or complete MPFL disruption
 - 50-60% of the restraining force against lateral patellar displacement

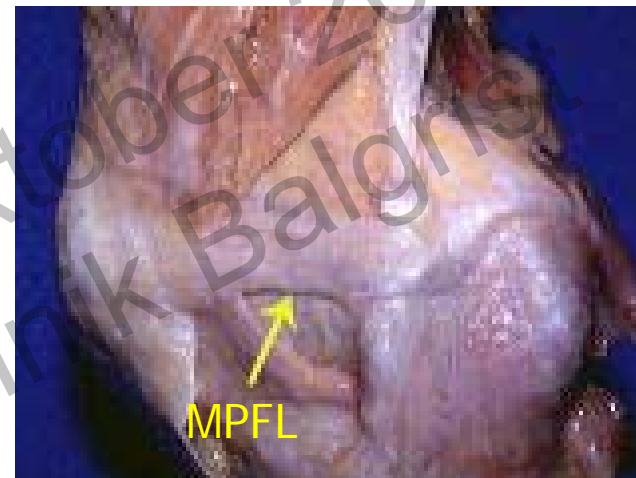
Conplan et al *J Bone Joint Surg* 1993

Desio et al *Am J Sports Med* 1998

Hautamaa et al *Clin Orthop* 1998

MPFL

- Medial PatelloFemoral Ligament (MPFL)
- 50-60% of the restraining force against lateral patellar displacement (Primary stabiliser)
- Passive restrainer



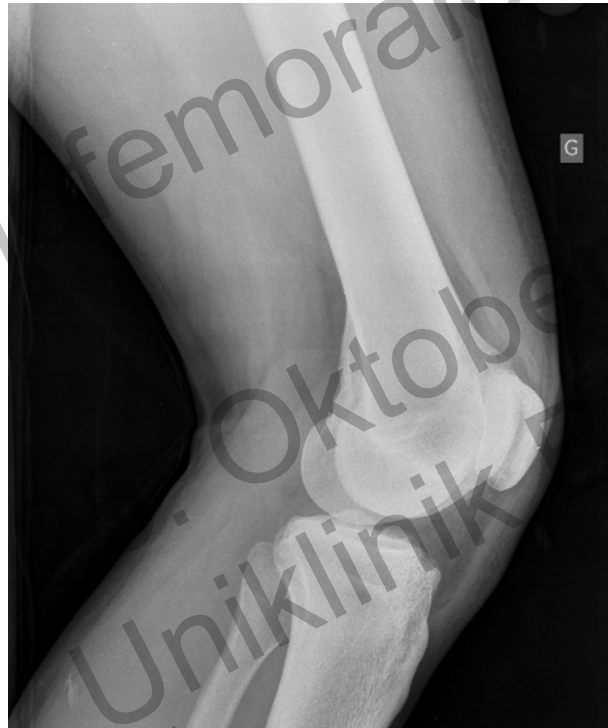
Clinical presentation

- Most of the time, come in reduced!
- Pertinent history
- If not...



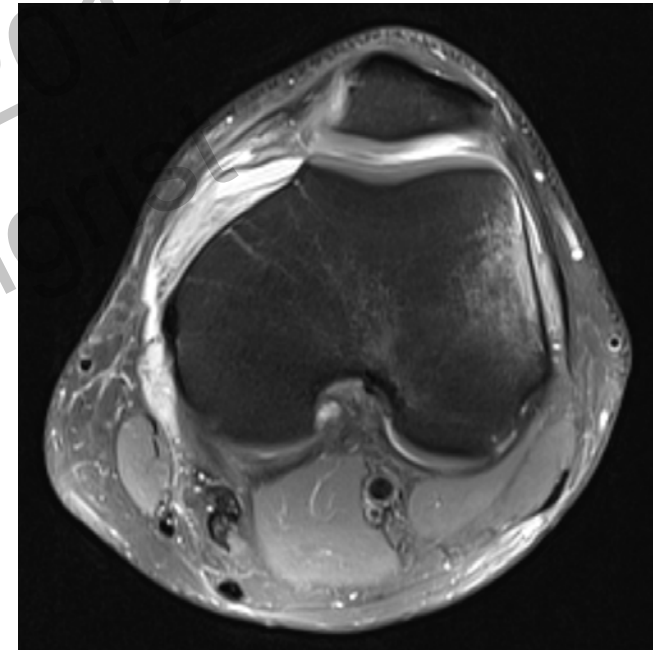
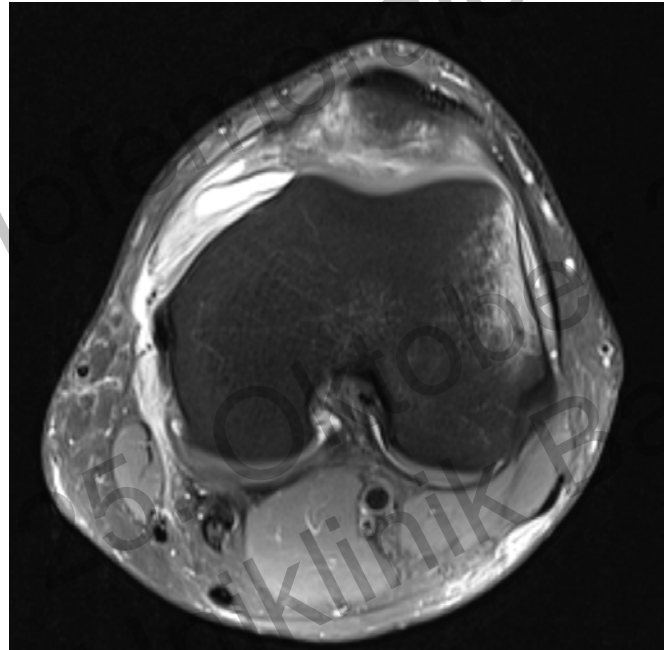
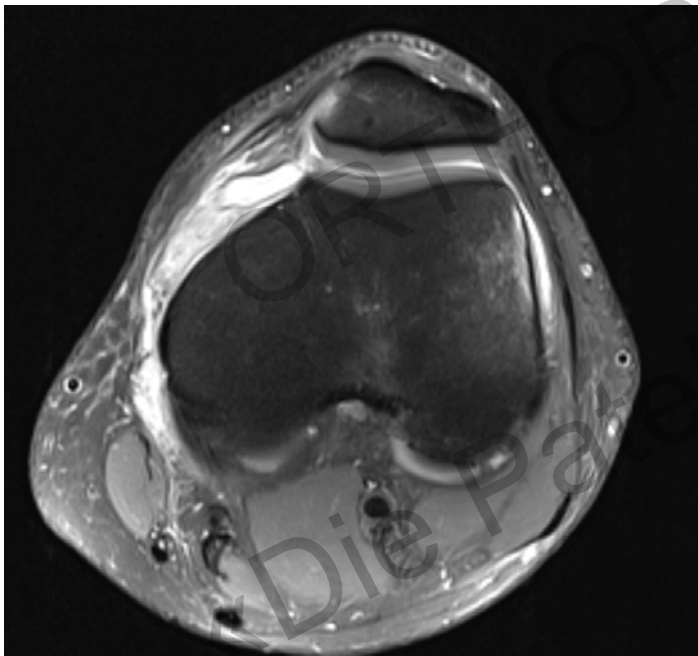
Investigations

- Radiographs: ALWAYS !

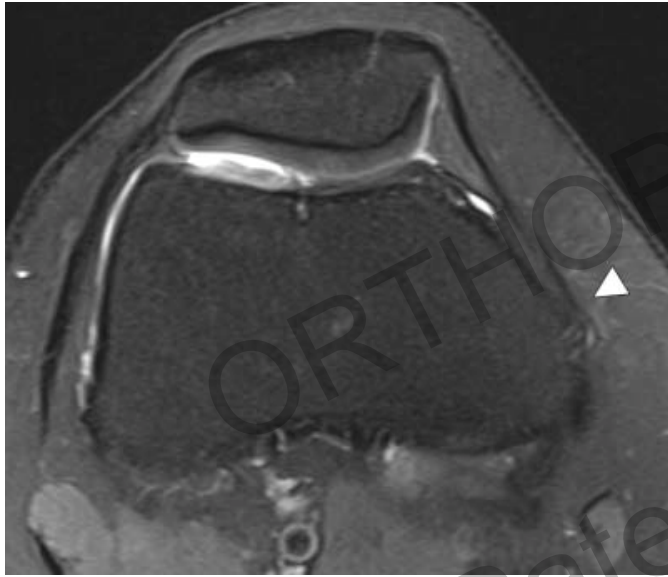


Investigations

- MRI



Definitions of t

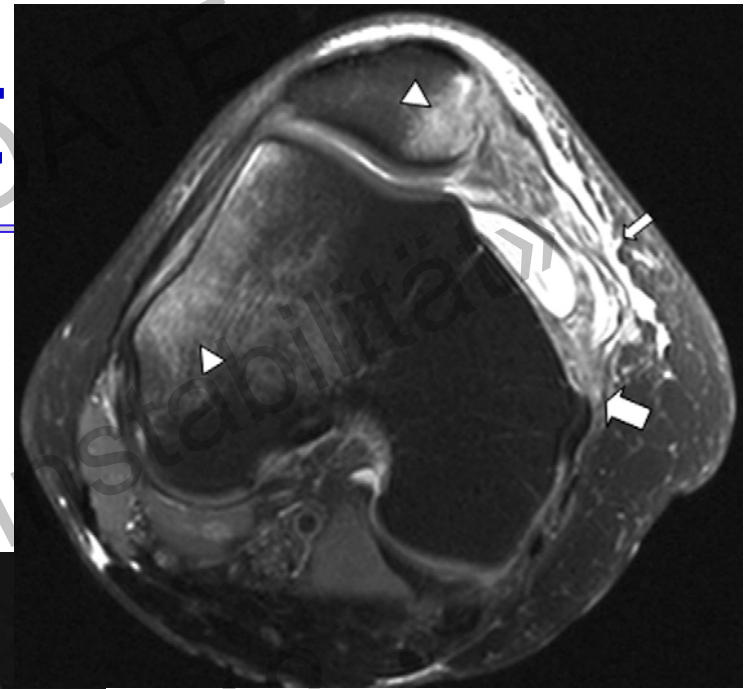


Normal

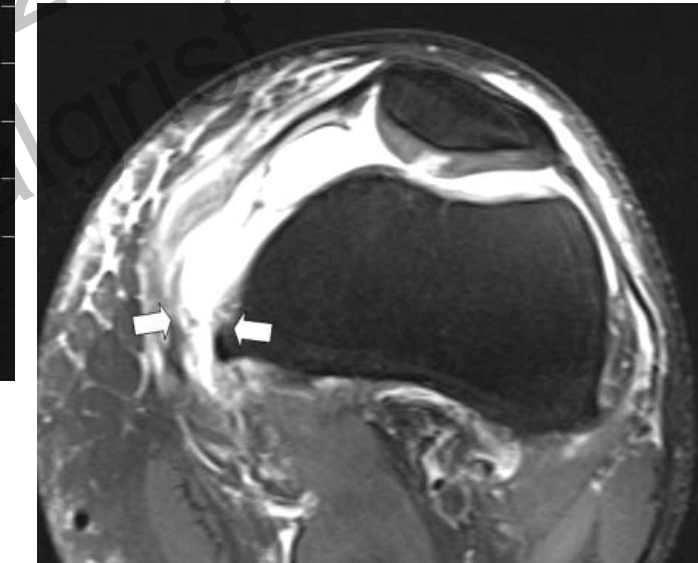
MPFL femoral and mid-substance injury



MPFL Patellar injury



MPFL femoral injury



Location of MPFL tear

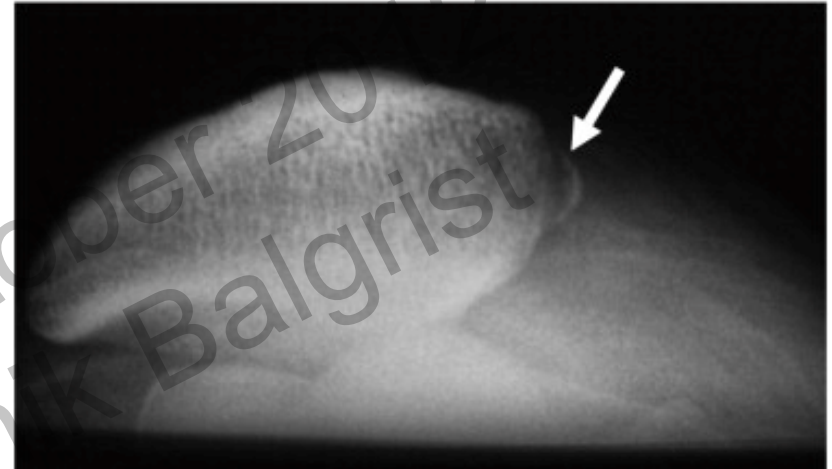
MPFL injury	Anatomical location	Proportion in primary dislocation	Mean reported incidence
Patellar	MPFL patellar attachment	13-76%	54%
Midsubstance	MPFL midsubstance	0-30%	12%
Femoral	MPFL femoral attachment	12-66%	34%

Sillanpaa et al *La Patella 15^{ème} Journées Lyonnaises de Chirurgie du Genou* 2012

Elias et al *Radiology* 2002
 Zaidi et al *Pediatr Radiol* 2006
 Sillanpaa et al *Am J Sports Med* 2009
 Weber-Spickschen et al *Knee* 2011
 Kepler et al *Am J Sports Med* 2011

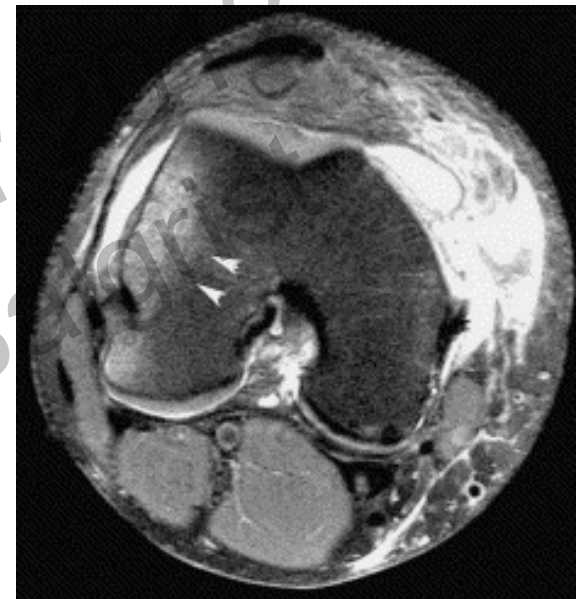
Location of MPFL tear

- MPFL disruption at the patellar attachment may include an osteochondral avulsion



Location of MPFL tear

- MPFL disruption at the femoral attachment was related to more frequent subsequent instability than patellar or midsubstance MPFL injuries





Which treatment?

- In acute primary patella dislocation

Stefancin et al *COOR* 2007

Smith et al *KSSTA* 2011

Hing et al *Cochrane Database Syst Rev* 2011

- Conservative or surgery?

ORTHOPEDICS UPDATE

«Dis Patellofemorale Instabilität»
25. Oktober 2012
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Confounders

- Variation in location of the MPFL injury
- Osteochondral fracture
- Patellofemoral joint dysplasia



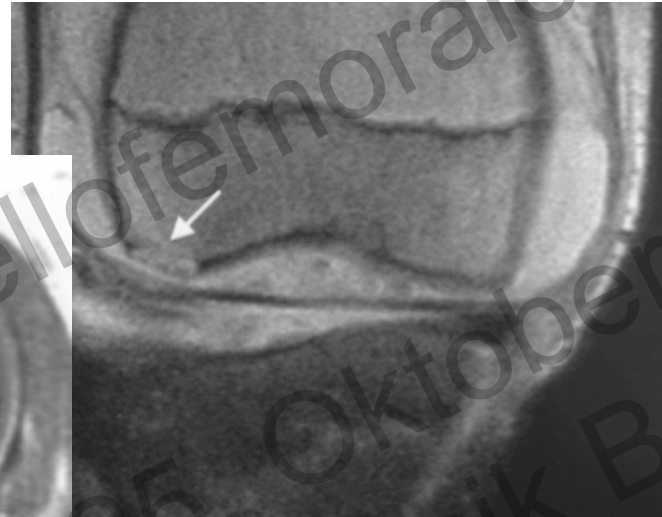
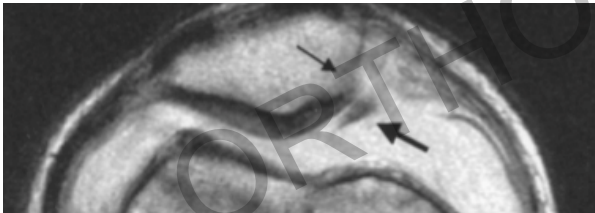
Risks factors

- For recurrent patellar instability:
 - Prior history of dislocation
 - Family history of patella dislocation
 - Trochlea dysplasia
 - Patella alta
 - Variations of limb alignment
 - Connective tissue laxity

Osteochondral lesions

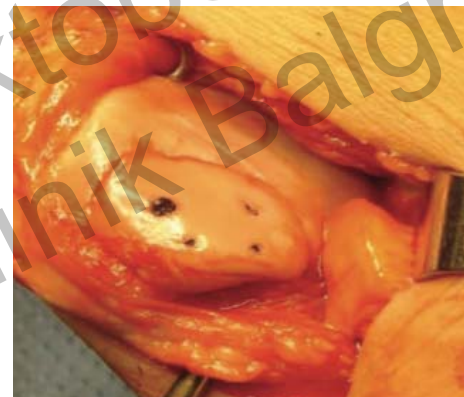
- Prevalence in a juvenile population: 34%

Oeppen et al *AJR* 2004



Osteochondral lesions

- Small fragments are removed ($<1\text{cm}^2$)
- Large fragments are refixed through a medial approach for the patella and a lateral approach for the femur



Conservative vs Surgery

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Conservative Versus Surgical Treatment for Repair of the Medial Patellofemoral Ligament in Acute Dislocations of the Patella

Gilberto Luis Camanho, Ph.D., Alexandre de Christo Viegas, M.Sc., Alexandre Cameiro Bitar, M.Sc., Marco Kawamura Demange, M.Sc., and Arnaldo José Hernandez, Ph.D.

Acta Orthopaedica 2005; 76 (5): 699–704

699

Operative treatment of primary patellar dislocation does not improve medium-term outcome

A 7-year follow-up report and risk analysis of 127 randomized patients

Risto Nikku, Yrjänä Nietosvaara, Kari Aalto and Pentti E Kallio

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Acute Patellar Dislocation in Children and Adolescents: A Randomized Clinical Trial

By Sauli Palmu, BM, Pentti E. Kallio, MD, PhD, Simon T. Donell, FRCS(Orth), MD, Ilkka Helenius, MD, PhD, and Yrjänä Nietosvaara, MD, PhD

Investigation performed at Aurora Hospital, Helsinki, and Children's Hospital, Helsinki University Central Hospital, Helsinki, Finland

Treatment with and without Initial Stabilizing Surgery for Primary Traumatic Patellar Dislocation

A Prospective Randomized Study

By Petri J. Sillanpää, MD, Ville M. Mattila, MD, PhD, Heikki Mäenpää, MD, PhD, Martti Kiuru, MD, PhD, Tuomo Visuri, MD, PhD, and Harri Pihlajamäki, MD, PhD

Investigation performed at Central Military Hospital, Helsinki, Finland

Isolated Repair of the Medial Patellofemoral Ligament in Primary Dislocation of the Patella: A Prospective Randomized Study

Svend Erik Christiansen, M.D., Bent Wulff Jakobsen, M.D., Bent Lund, M.D., and Martin Lind, M.D., Ph.D.

Surgical versus non-surgical interventions for treating patellar dislocation (Review)

Hing CB, Smith TO, Donell S, Song F



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Conservative vs Surgery

■ Each RCT - different technique of MPFL repair

- Suture-suture anchors
- Arthroscopic retinaculum suture
- Medial structure reefing
- Roux-Goldwaith procedure
- Proximal soft tissue realignment

Nikku et al *Acta Orthop* 2005

Palmu et al *J Bone Joint Surg* 2008

Christiansen et al *Arthroscopy* 2008

Sillanpaa et al *Am J Sports Med* 2008

Camanho et al *Arthroscopy* 2009

Sillanpaa et al *J Bone Joint Surg* 2009

Hing et al *Cochrane Database Syst Rev* 2011

Conclusions: Initial arthroscopic medial retinacular repair was not followed by improved patellar stability nor reduced incidence of redislocations compared with nonoperative (except for removal of loose bodies) treatment.

Sillanpaa et al *Am J Sports Med* 2008

Conclusions: In a study of young, mostly male adults with primary traumatic patellar dislocation, the rate of redislocation for those treated with surgical stabilization was significantly lower than the rate for those treated without surgical stabilization.

Sillanpaa et al *J Bone Joint Surg* 2009

Conservative vs Surgery

- Prospective studies report variable results

Hing et al *Cochrane Database Syst Rev* 2011

- Two prospective randomized studies report better patellar stability after MPFL repair compared to with conservative ttr

Camanho et al *Arthroscopy* 2009

Sillanpaa et al *J Bone Joint Surg* 2009

- Only one study report clinical improvement after a surgical ttr

Camanho et al *Arthroscopy* 2009

MPFL patellar attachment tear

- Can be classified in:
 - Ligamentous or bony avulsion +/- osteochondral lesion
- Fixed with anchors and/or suture
- Reinsertion may lead to better outcome than non-surgical treatment
Camanho et al *Arthroscopy* 2009
- Controversies exist in results of prospective studies
Nikku et al *Acta Orthop* 2005
Palmu et al *J Bone Joint Surg* 2008
Christiansen et al *Arthroscopy* 2008
Sillanpaa et al *J Bone Joint Surg* 2009

MPFL midsubstance tear

- No benefit from acute repairs

Sillanpaa et al *Am J Sports Med* 2009

- Difficult to repair

- Repair not recommended

Sillanpaa et al *J Bone Joint Surg* 2009

Nikku et al *Acta Orthop* 2005

- Only repaired when associated with extensive VMO fascial disruption in a high-energy dislocation



MPFL femoral attachment tear

- Can be repaired with suture and/or suture anchors

Camanho et al *Arthroscopy* 2009

- Conservative ttr may lead to an increased rate of recurrent instability

Sillanpaa et al *Am J Sports Med* 2009

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Conservative vs Surgery

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A 7-year follow-up report and risk analysis of 127 randomized patients

Risto Nikku, Yrjöna Nietosvaara, Karl Aalto and Pentti E Kallio

Nikku et al Arch Orthop 2005

- n=127 patients, FU: 5 years
- Proximal realignment vs conservative
- Outcomes were similar

There is insufficient high quality evidence to confirm any significant difference in outcome between surgical or non-surgical initial management of people following primary patellar dislocation, and none examining this comparison in people with recurrent patellar dislocation. Adequately powered randomised, multi-centre controlled trials, conducted and reported to contemporary standards are recommended.



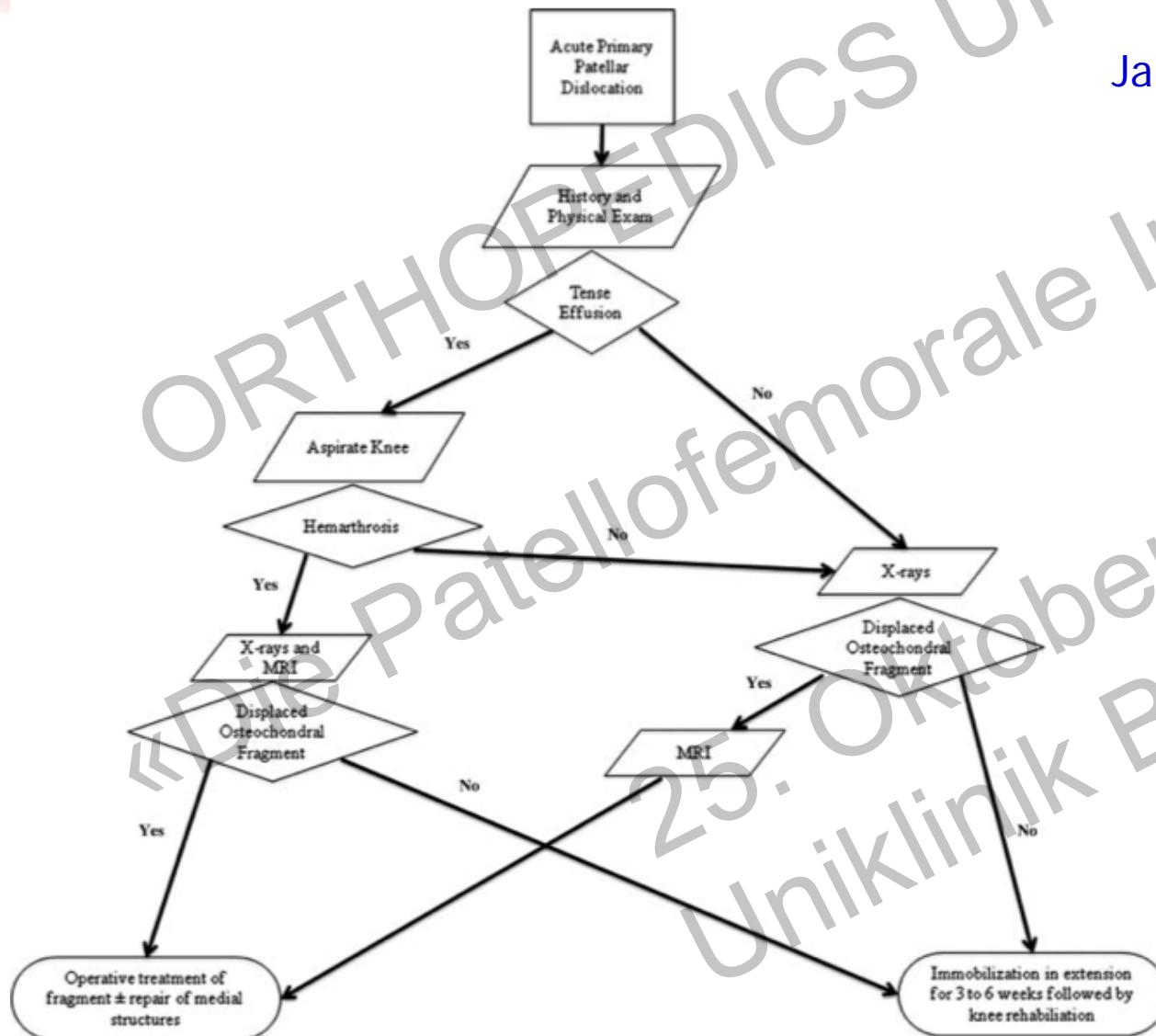
Hing et al *Cochrane Database Syst Rev* 2011

Conservative vs Surgery

- Comparison between MPFL reconstruction and conservative treatment have never been done yet
- MPFL reconstruction
 - When ?
 - How ?
 - Associated to chondral injury treatment?

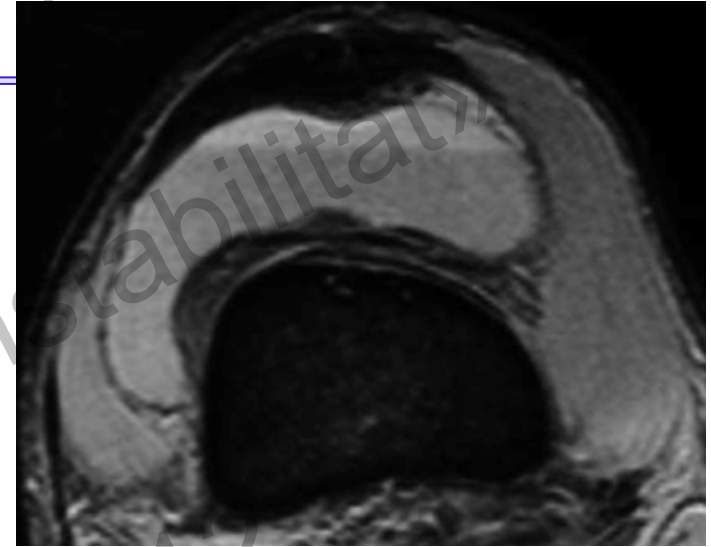
Algorithm of treatment

Jain et al *Sports and Health* 2011



Knee aspiration

- YES!
 - Patient's comfort
 - Release the pressure on ligamentous structures
 - Reduce the inhibition of the quad
 - Hemarthrosis unfavorable to cartilage healing



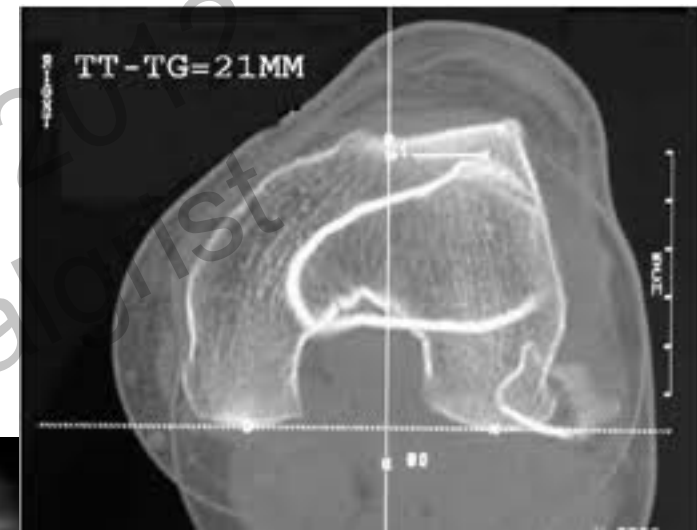
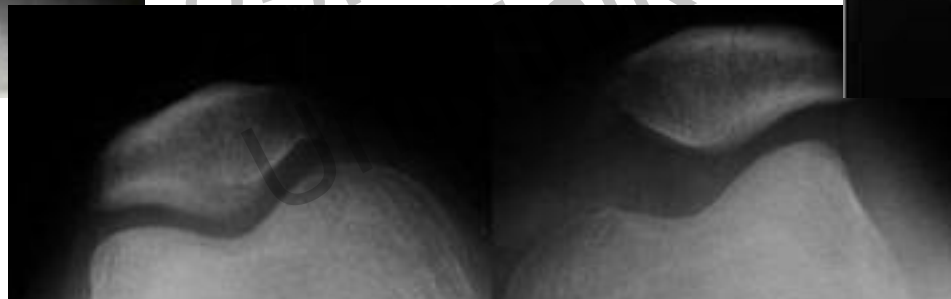
PF dislocation management

- Radiographs and MRI
- Osteochondral lesion addressed
- In case of surgery, fixation of the patellar or femoral MPFL injury
- Vast majority: conservative treatment

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2nd dislocation

- Knee aspiration
- Radiographs and MRI
- Ct-scan for bony morphology
- Surgery « à la carte »



PF dislocation management

- Radiographs and MRI

Ms B, 1992 gymnast



Conservative treatment

- Knee aspiration
- Immobilization 5 days (10days in case of MPFL femoral injury)
- Functional ttr:
 - Progressive ROM
 - VMO conditioning
 - Core stability
 - Dynamic stabilisation



Reverse Step-up



Star excursion test

Take home message

- Management of primary acute patella dislocation can be challenging
- Radiographs + MRI
- Characterization of the MPFL lesion
- Large osteochondral lesion should be fixed
- Majority of primary patella dislocation can be managed non-operatively



Take home message

- Surgery might be considered in MPFL patellar or femoral detachment in case of dysplastic features and highly unstable patella after dislocation

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Thank you for listening



HUGO  
Hôpitaux Universitaires de Genève


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