

Clinica Ortopedica e Traumatologica dell'Università di Pavia

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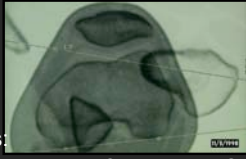
FIRST TIME PATELLA DISLOCATION: EPIDEMIOLOGY, ASSESSMENT, INITIAL TREATMENT

F. Benazzo, G. Zanon

INTRODUCTION

Surgical treatment of patella dislocation, acute and chronic, has evolved significantly over the past decade:

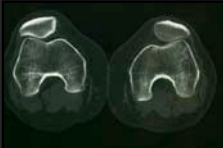

- Biomechanical knowledge:
 - Injury pattern classification
 - clinical examination
- Improved imaging techniques:
 - CT scan: throclear groove, patella height, Q-angle, TT-TG
 - MRI: soft tissue analysis, bone bruise



INTRODUCTION

BUT.....

...there continues to be no consensus on treatment parameters.....





MEDIAL PATELLO-FEMORAL LIGAMENT

Predisposing factors are well-known

In the last years it has been pointed out that medial retinacular injury associated with first-time patella dislocation may result in residual laxity of the injured structure:

WE NEED TO REPAIR IT!!



"Current concepts of lateral patella dislocation"
Arendt et al., Clin Sports Med, 2002

MEDIAL PATELLO-FEMORAL LIGAMENT

"For the first-time dislocator, most investigators would agree that an arthroscopy should be performed if intra-articular chondral damage is suspected

Non-operative management of first-time patella dislocation continue to be the **preferred practice pattern** in the US"

"Current concepts of lateral patella dislocation"
Arendt et al., Clin Sports Med, 2002

FIRST-TIME PATELLAR DISLOCATION

Treatment options

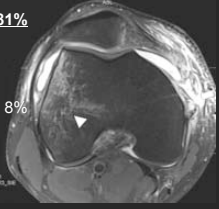
- ✓ Conservative treatment
- ✓ Arthroscopic procedure: only for chondral damage or reconstruction
- ✓ Open procedure




ASSESSMENT

1) Try to understand the mechanism

- **Moved to flexion during the dislocation: 81%**
 - From a straight start: 97%
 - From a well-bent start: 3%
- Extension of the knee from a well-bent start: 8%
 - Older (mean 25 ys vs. 19)
 - Low trauma energy
 - Locked dislocation: 100%
- direct hit to the knee: 4%
- rotation while stretching: 7%




"The mechanism of primary patellar dislocation"
Nikku et al., Acta Orthop, 2009

ASSESSMENT

1) Try to understand the mechanism

- Locked primary dislocation
 - Patients with open growth line of the tibial tubercle: 40%
 - Patients with closed tubercle: 65%
- Locked primary dislocation:
 - 33% of the girls
 - 52% of the boys
 - 57% of the women
 - 71% of the men




"The mechanism of primary patellar dislocation"
Nikku et al., Acta Orthop, 2009

ASSESSMENT

1) Try to understand the mechanism

- Spontaneous patellar relocation
 - Is common in skeletally immature girls
- Locked primary dislocation:
 - Is common in skeletally mature men

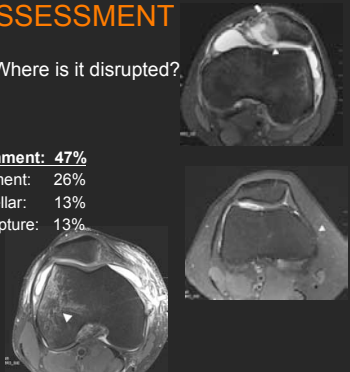


"The mechanism of primary patellar dislocation"
Nikku et al., Acta Orthop, 2009

ASSESSMENT

2) Where is it disrupted?

- Tear of the MPFL
 - **At the patellar attachment: 47%**
 - At the femoral attachment: 26%
 - Both femoral and patellar: 13%
 - Attenuation without rupture: 13%



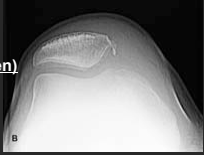
"MPFL injury patterns and associated lesions: an MRI study"
Guerrero et al., Sports Med Arthrosc, 2009

ASSESSMENT

2) Associated findings

- Tear of the MPFL and

– Loos bodies:	13%
– Meniscus tears:	21% (women)
– Patella avulsion/fracture:	7%
– MCL sprain/tear:	19%
– Osteochondral lesions:	49% (male)



"MPFL injury patterns and associated lesions: an MRI study"
Guerrero et al., Sports Med Arthrosc, 2009

Why all these numbers?

Influence on:

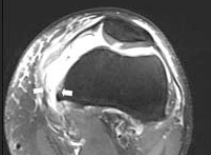
- Surgical indication: open? Arthroscopic?
- Clinical outcome
- Radiological outcome




FIRST-TIME PATELLA DISLOCATION: THE IMPORTANCE OF THE MRI

Prognosis after primary traumatic patella dislocation may vary by MPFL injury location:

- ✓ femoral
- ✓ midsubstance
- ✓ patellar



"Femoral avulsion of MPFL after FTPD predicts instability in men"
Sillanpaa et al., Am J Sports Med, 2009

FIRST-TIME PATELLA DISLOCATION: THE IMPORTANCE OF THE MRI

Nonoperative management 7 years before:

- ✓ unstable patella: femoral site
- ✓ patella redislocation: femoral site
- ✓ % of preinjury level activity: lower in femoral site

Lesion of MPFL at **femoral site** are predictor of instability (surgical indication)

"Femoral avulsion of MPFL after FTPD predicts instability in men"
Sillanpaa et al., Am J Sports Med, 2009

FIRST-TIME PATELLA DISLOCATION: OPEN SURGICAL TREATMENT

Operated (open) vs. non operated:

- ✓ 7 years follow up
- ✓ 40 patients, no predisposing factors
- ✓ **no redislocation in operated**
- ✓ **Higher redislocation rate (p=0.02) in non op.**
- ✓ Painful patellar subluxation: similar
- ✓ Kujala score: similar
- ✓ MRI: 20% full-thickness chondral lesion not related to the initial treatment
- ✓ no clear subjective benefits

"Treatment with and without initial stabilizing surgery for FTPD. Prospective randomized study"
Sillanpaa et al., JBJS Am, 2009

FIRST-TIME PATELLAR DISLOCATION: ARTHROSCOPIC TREATMENT

Operated (arthroscopic) vs. non operated:

- ✓ 7 years follow up
- ✓ 76 patients
- ✓ non significant difference in redislocation rate
- ✓ Painful patellar subluxation: similar
- ✓ **pre-injury activity level: significant**
- ✓ MRI: no difference in PF osteoarthritis changes

"Arthroscopic surgery for FTPD: nonrandomized study with 7 years follow-up"
Sillanpaa et al., Am J Sports Med, 2008

It's a pathology very common in
children and adolescent

Which kind of behaviour have we got to
have in these young patients?



FIRST-TIME PATELLA DISLOCATION IN CHILDREN AND ADOLESCENT

Sutured + LRR vs. LRR:

- ✓ children < 16 years, adolescent >16 years
- ✓ Open+LRR vs. LRR
- ✓ Indication if patella dislocatable under anesthesia

"Acute patellar dislocation in children and adolescents: randomized clinical trial"
Palmu et al., JBJS Am, 2008

FIRST-TIME PATELLA DISLOCATION IN CHILDREN AND ADOLESCENT

Sutured + LRR vs. LRR:

- ✓ similar subjective results : 66-75%
- ✓ similar % of recurrent dislocation: 65-70%
- ✓ redislocation in 2 years in both groups
- ✓ instability of controlateral patella in 48% of the patients

The only predictor for recurrence:
family history of patella instability

"Acute patellar dislocation in children and adolescents: randomized clinical trial"
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Take home messages

Every knee is/has a different story:

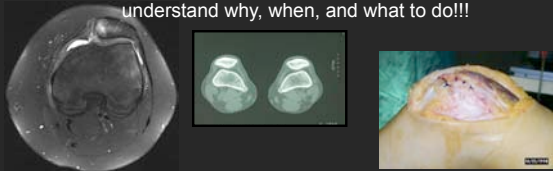
- Importance of trauma kinematics
- Importance of the age of the patient
- Importance of gender
- Patellar instability (controlateral site, family history)
- **MRI evaluation: site, predisposing factors, associated lesions**
- **Open suture in femoral disruption, possibly even in patellar site**
- **Surgical indication in children not clear**

Take home messages

Every knee is/has a different story:

This evaluation of the "patello-femoral complex" helps us to the correct strategy of treatment.....

.....remembering that the modern literature is controversial again and we need more studies to better understand why, when, and what to do!!!



FIRST-TIME PATELLAR DISLOCATION

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In everyday practice is it really this way?

Clinical and radiological findings help us to go in the correct direction with our suspicion.....

But an accurate arthroscopic evaluation is mandatory to have the correct diagnosis and the correct treatment