Treating patellofemoral chondral lesions? Personal experience

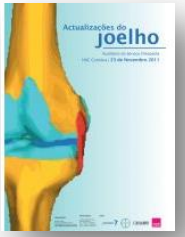
Fernando Fonseca

http://rihuc.huc.min-saude.pt/handle/10400.4/1753

What means?

- Anterior knee pain?
- Patellofemoral instability?
- Patellofemoral osteoarthritis?

FROM PAST TO PRESENT DAY...



- Anterior knee pain
  - FiCT's internal disarrangement of the knee
  - Chondromalacia of patella

- *"CT-Assisted ClassifiCTion of Patellofemoral pain"*, Schutzer et al., 1986, Orthop. Cli. of N. A.
  - IDK: "I don't Know"
  - CMP: "Could be – May be – Possible be"

FROM PAST TO PRESENT DAY...

- *" CT-Assisted ClassifiCTion of Patellofemoral pain"*, Schutzer et al., 1986, Orthop. Cli. of N. A.

  - ***I**nternal **D**isarrangement of the **K**nee* **(IDP)**

    IDK: "I don't Know"

  - ***C**hondro**M**alacia of the **P**atella* **(CMP)**

    CMP: "Could be – May be – Possible be"

Classification and aetiology

Knee Surg Sports Traumatol Arthrosc. 1994;2(1):19-26.

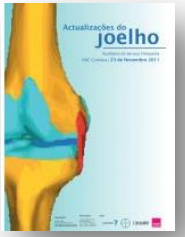
Factors of patellar instability: an anatomic radiographic study.

Dejour H, Walch G, Nove-Josserand L, Guier C.
Clinique Chirurgicale Orthopédique et Traumatologique, Centre Hospitalier Lyon-Sud, Pierre-Benite, France.

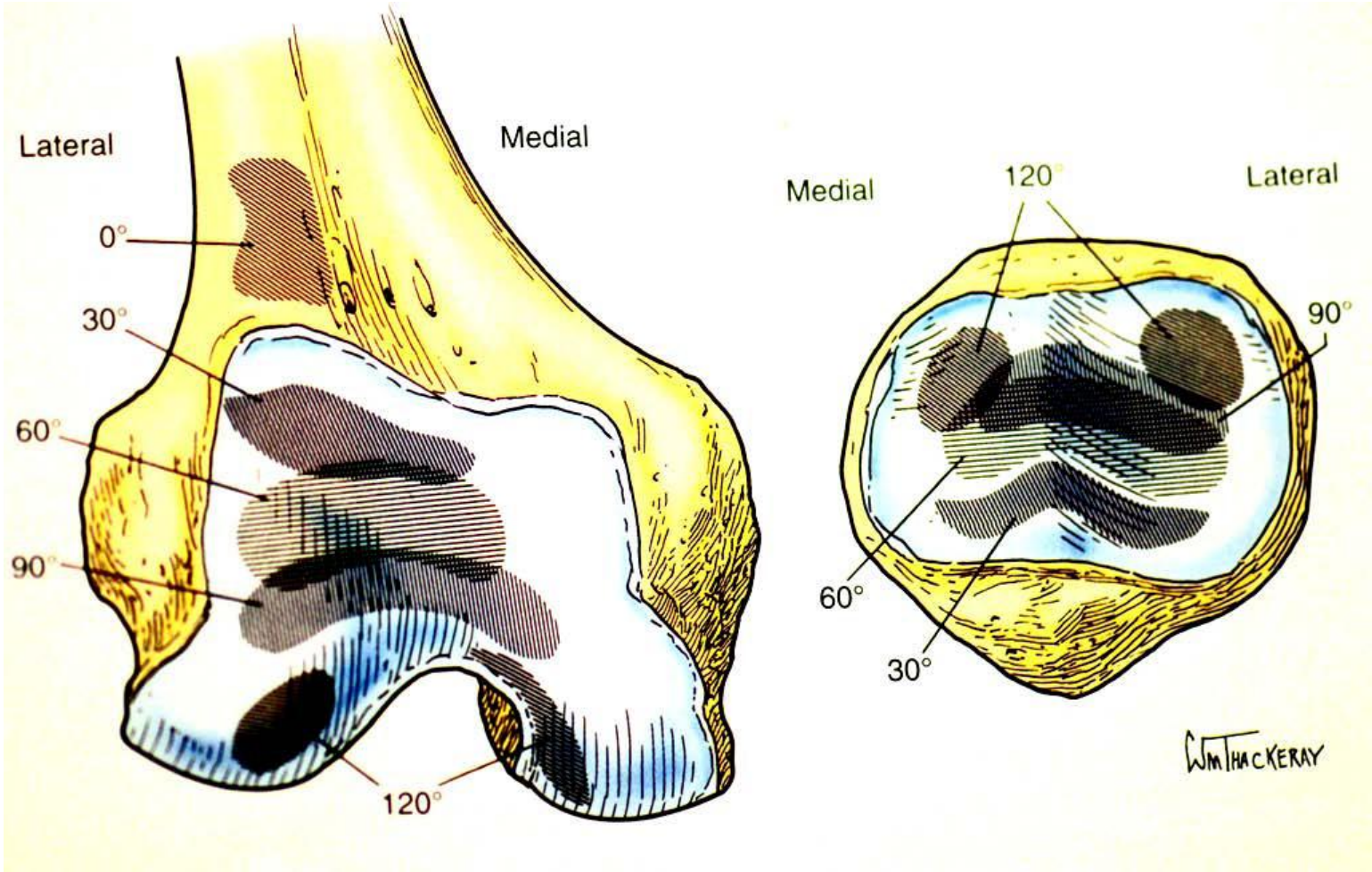
1) Painfull patellar syndrome
2) Potential patellar instability
3) **Objective patellar instability**

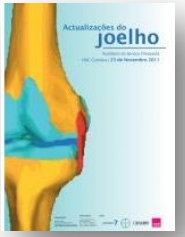
(CT; n=143 knees)

- Trochlear dysplasia (85%)
- *Quadriceps Femoralis dysplasia* (83%) – *patella tilting*> 20%
- Patella alta – ICD > 1.2 (24%)
- TT-TG > 20 mm (56%)



PATELLOFEMORAL BIOMECHANIC





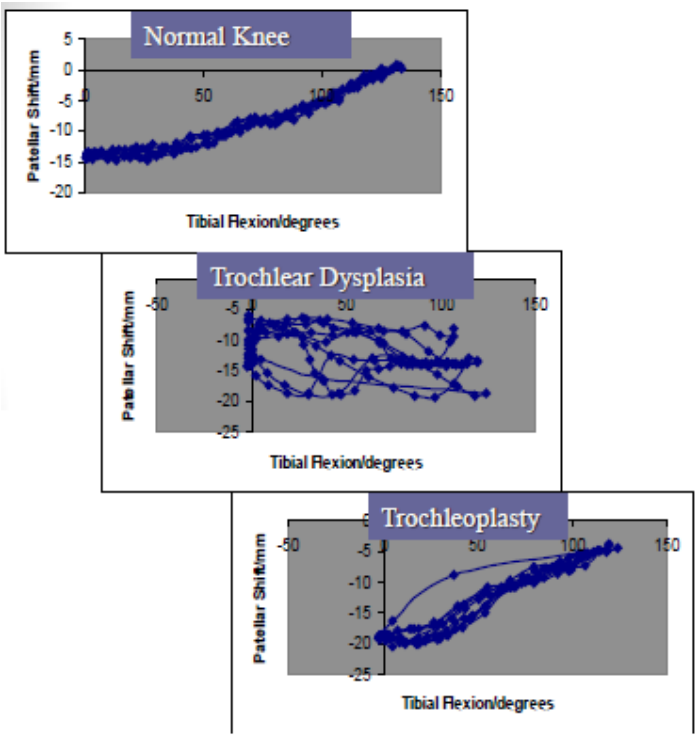
PATELLOFEMORAL BIOMECHANIC

J Bone Joint Surg Br. 2008 Jul;90(7):864-9.

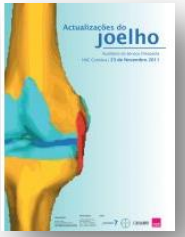
The effect of trochleoplasty on patellar stability and kinematics: a biomechanical study in vitro.

Amis AA, Oguz C, Bull AM, Senavongse W, Dejour D.

Department of Mechanical Engineering, Imperial College London, London, England. a.amis@imperial.ac.uk

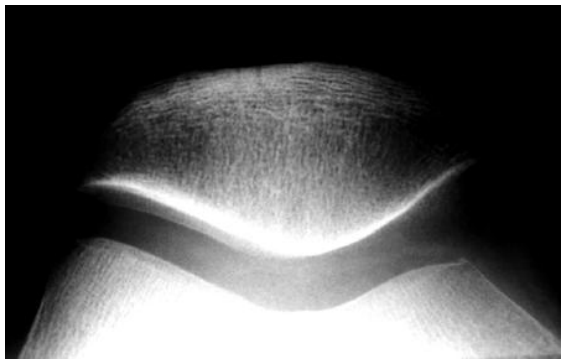


Patella*Tracking*

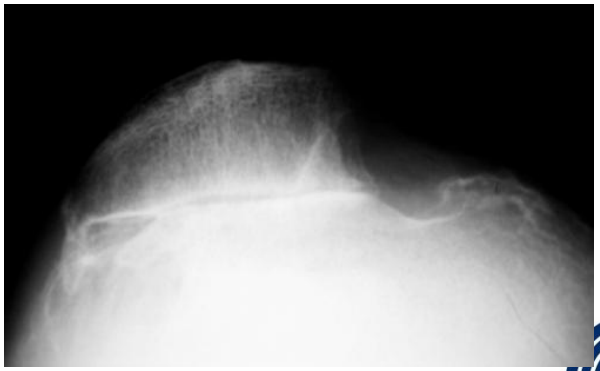


Pathogenesis

- *"Patellar Malalignment Syndrome"*, John Insall, 1979
- *"Homesotasis theory"*, Scott F. Dye, 1990s
- "*Neural Model*", Vicent Sanchis-Alfonso et al., 2001



Why?



The problem!

- From literature
  - Curl: 63% chondral lesions in 31.000 arthroscopies
  - Hjielle: 61% chondral lesions in 1000 arthroscopies, most in medial femoral condile

Curl WW, Krome J, Gordon ES, et al. Cartilage injuries: a review of 31,516 knee arthroscopies. Arthroscopy. 1997;13(4):456–60.
Hjelle K, Solheim E, Strand T, et al. Articular cartilage defects in 1,000 knee arthroscopies. Arthroscopy. 2002;18(7):730–4.
Widuchowski WW, Widuchowski JJ, Trzaska TT. Articular cartilage defects: study of 25,124 knee arthroscopies. Knee.2007;14(3):177–82.

The problem (2)

- Personal experience
  - 1712 arthroscopies with other causes different from patellofemoral
    - 548 arthroscopies show cartilage lesions (32%)

What means ?

Contents lists available at SciVerse ScienceDirect

The Knee

Clinically insignificant association between anterior knee pain and patellofemoral lesions which are found incidentally

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ABSTRACT

Background: Patellofemoral chondral lesions are frequently identified incidentally during the arthroscopic treatment of other knee pathologies. A role has been described for arthroscopic debridement when symptoms are known to originate from pathology of the patellofemoral joint. However, it remains unclear how to manage lesions which are found incidentally whilst tackling other pathologies. The purpose of this study was to establish the strength of association between anterior knee pain and patellofemoral lesions identified incidentally in a typical arthroscopic population.

Methods: A consecutive series of patients undergoing arthroscopy for a range of standard indications formed the basis of this cross section study. We excluded those with patellofemoral conditions in order to identify patellofemoral lesions which were solely incidental. Pre-operative assessments were performed on 64 patients, where anterior knee pain was sought by three methods: an annotated photographic knee pain map (PKPM), patient indication with one finger and by palpated tenderness. A single blinded surgeon, performed standard arthroscopies and recorded patellofemoral lesions. Statistical correlations were performed to identify the association magnitude.

Results: Associations were identified between incidental patellofemoral lesions and tenderness palpated on the medial patella ($P = 0.007$, $\chi^2 = 0.32$) and the quadriceps tendon ($P = 0.029$, $\chi^2 = 0.26$), but these associations were at best fair, which could be interpreted as clinically insignificant.

Conclusion: Incidental patellofemoral lesions are not necessarily associated with anterior knee pain, we suggest that they could be left alone. This recommendation is only applicable to patellofemoral lesions which are found incidentally whilst addressing other pathology.

Clinical presentation

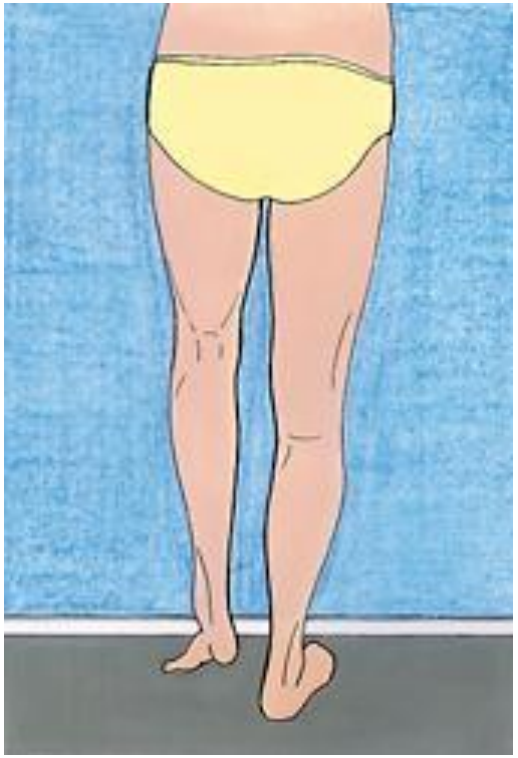
- Patient's history and anamnesis
- Clinical examination
  - Patellar tracking
  - Q-angle
  - Rabot, Zohelen

Patellar pain

- Anterior knee pain mainly
  - Upstairs ou downstairs
  - Prolonged sitting
  - Nonspecific
- Frequent complaints
  - “pseudo-blockade” (frequent)
  - Knee effusion (rare)

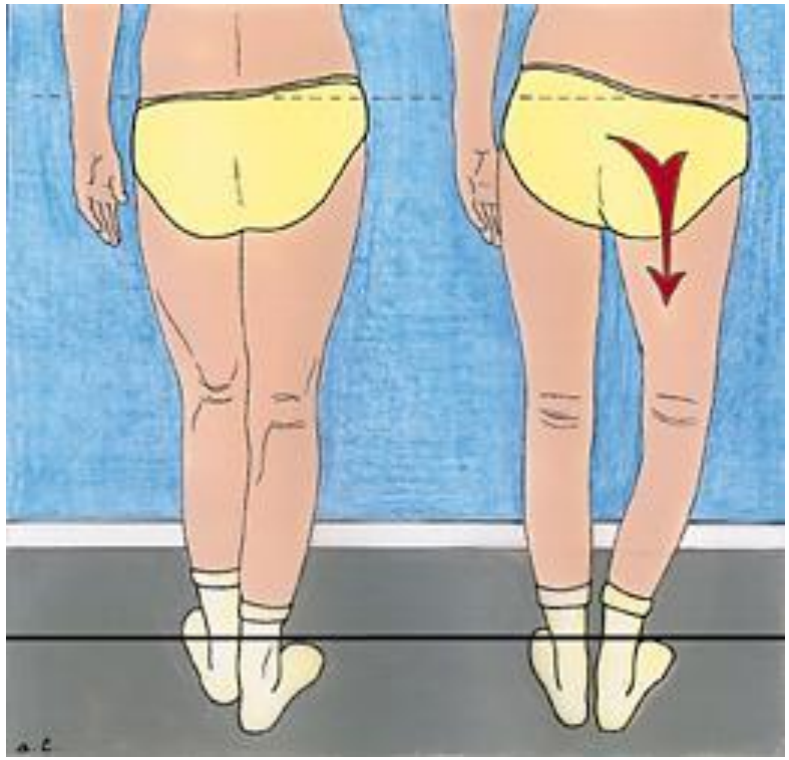
Blockade

- Blockade
  - impossibility of full extension of the knee



“False blockade”

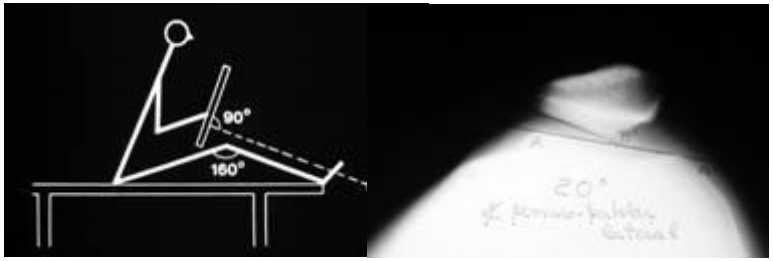
- False blockade
  - –Knee sennsation of impossibility to continue moving after flexion (30º) of knee



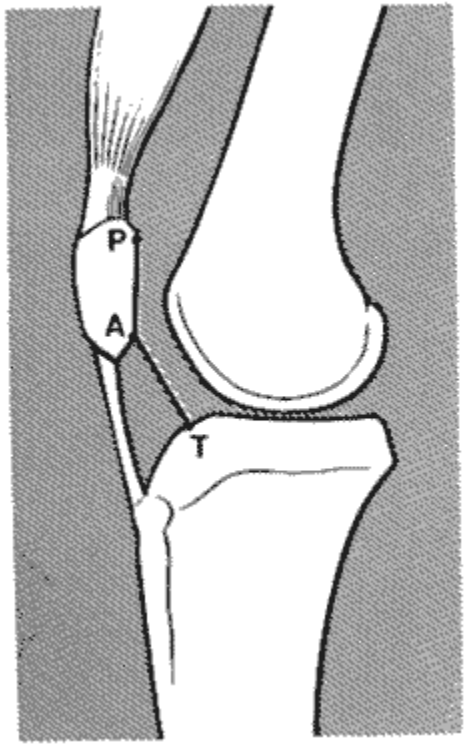
Effusion

Imaging

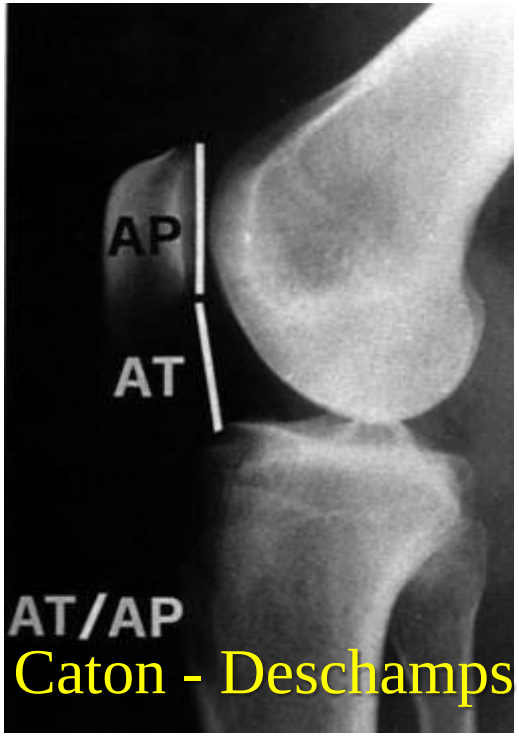
- Standard X-ray
  - AP view
  - Sagittal (30º of flexion)
  - Axial view
    - Laurin
    - Merchant
- CT scan
  - Measuring TT-TG
  - Patellar tilting
- MRI



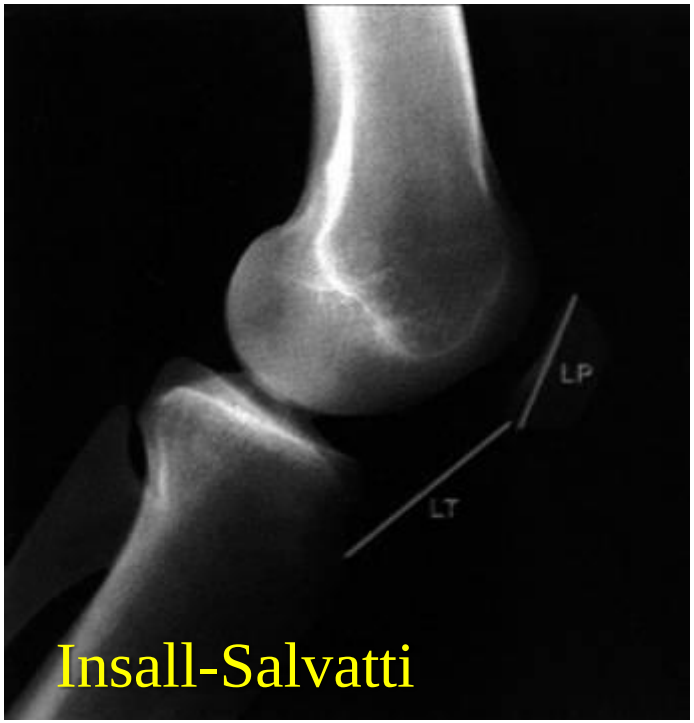
Patella height



Patella height index

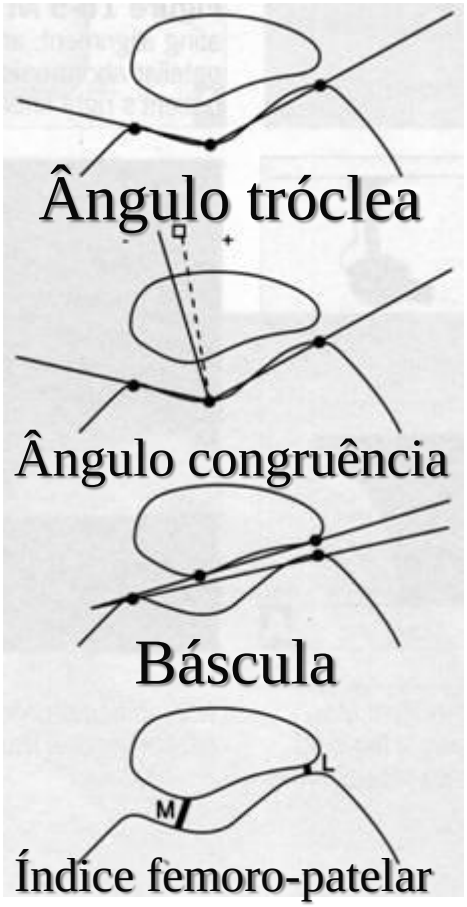


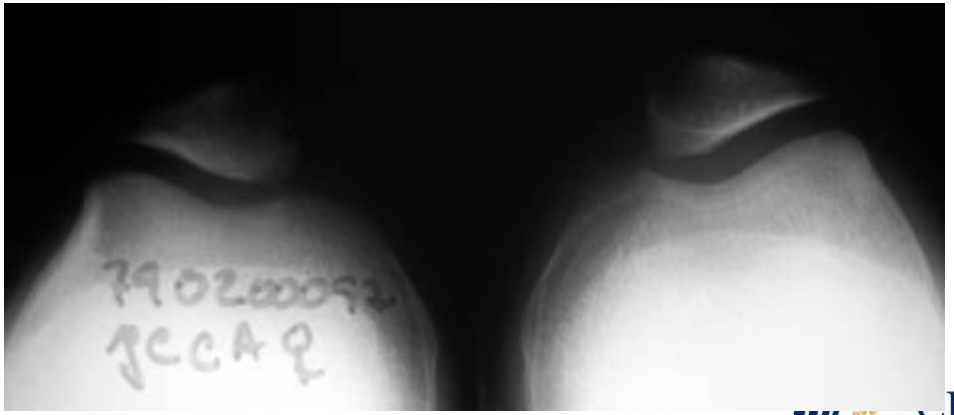
Caton - Deschamps



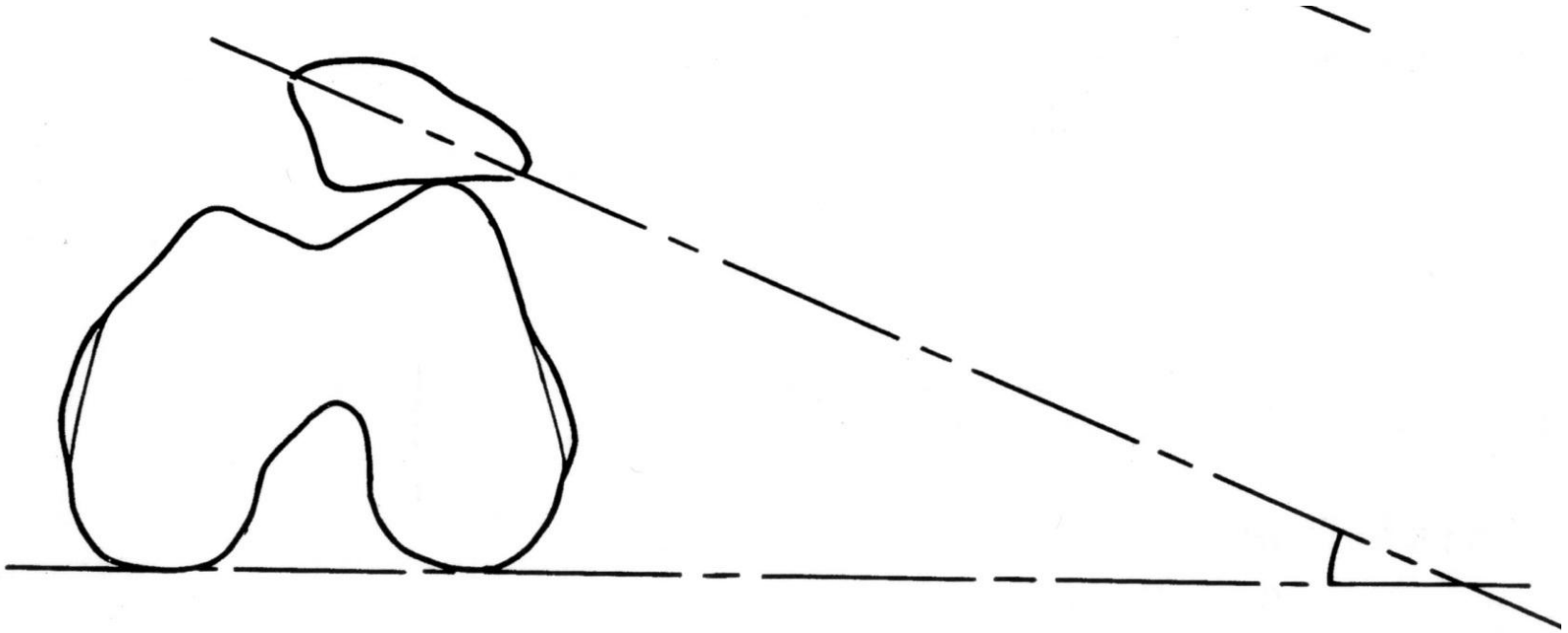
Insall-Salvatti

Axial view


Ângulo tróclea
Ângulo congruência
Báscula
L
M
Índice femoro-patelar



Patellar tilting



Arch Orthop Traumat Surg 96, 303–304 (1980)

Archives of Orthopaedic and Traumatic Surgery

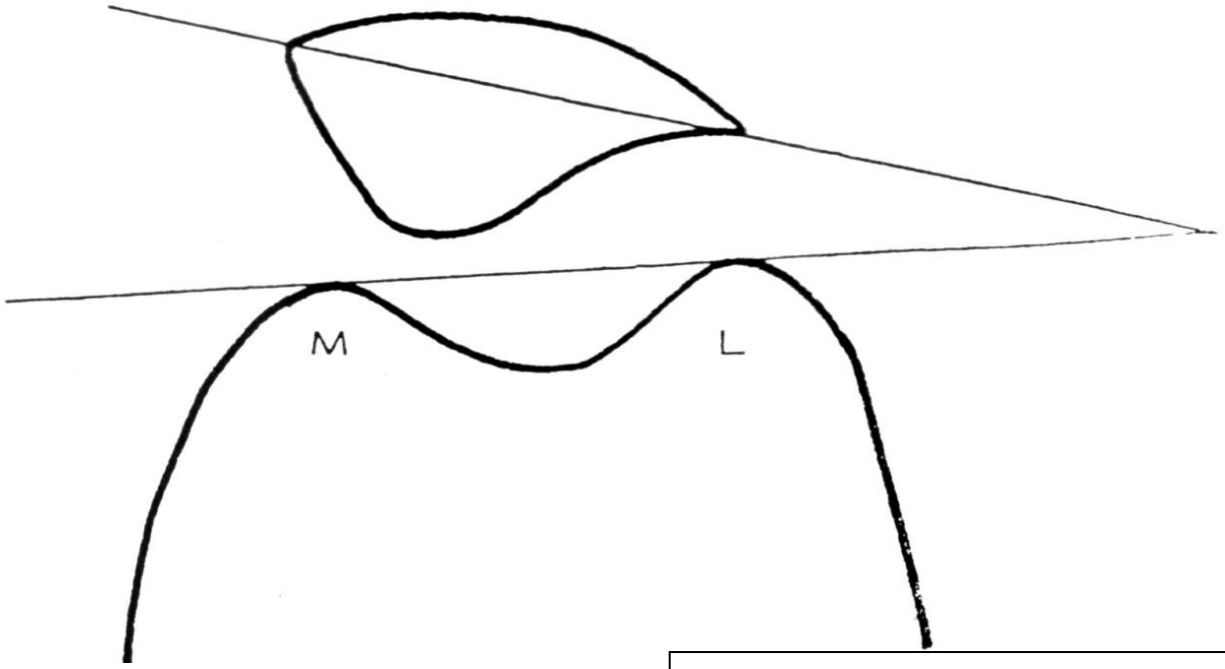
The Bicondylo-Patellar Angle as a Measure of Patellar Tilting

H. Delgado-Martins*
L'Hôpital Orthopédique de la Suisse Romande, CH-1000 Lausanne, Switzerland

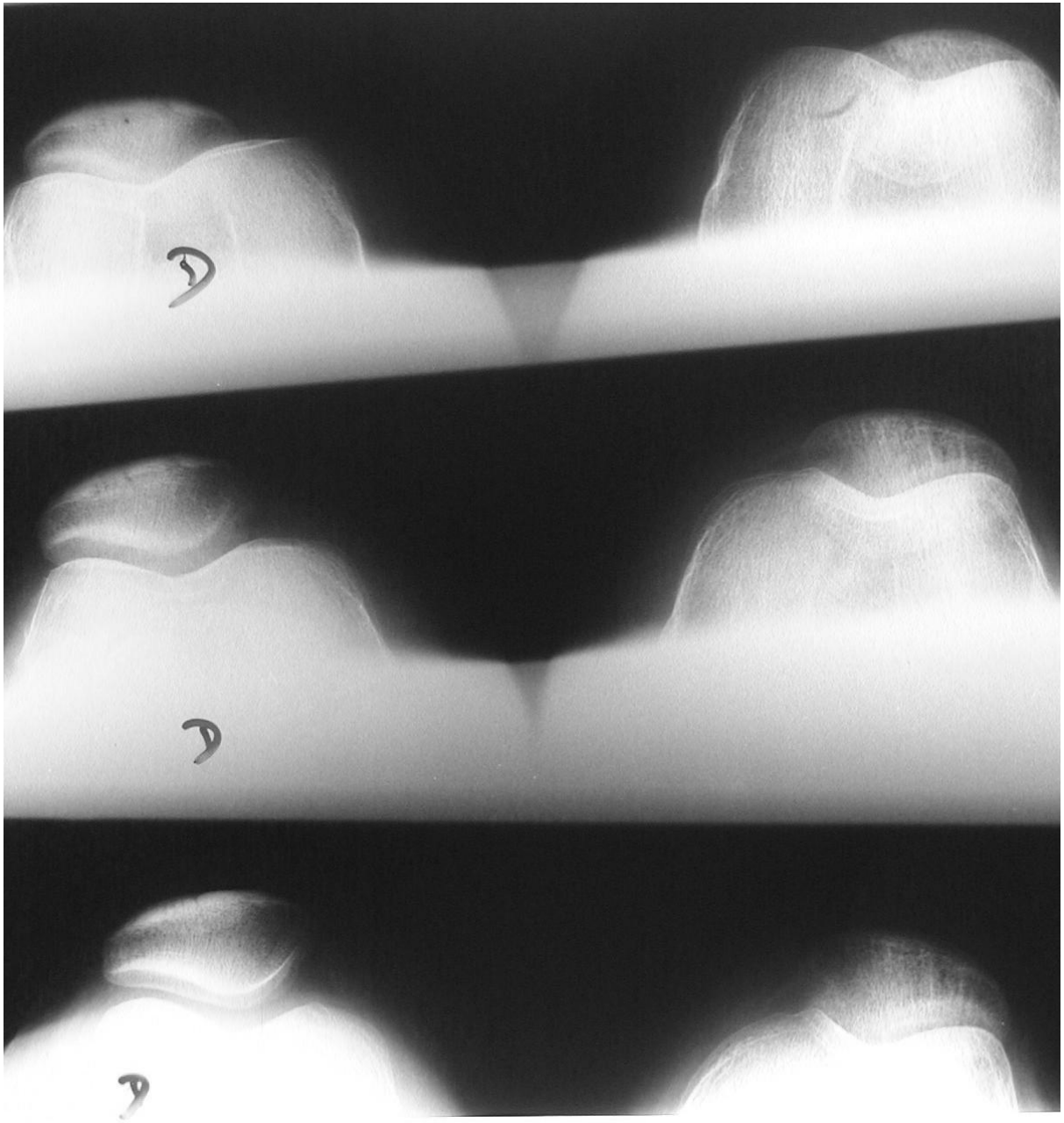
- Arch Orthop Trauma Surg 1980;96(4):303-4
  - **The bicondylo-patellar angle as a measure of patellar tilting.**

Delgado-Martins H.

Delgado – Martins angle



30º	**27,3**	±	**1,45**
60º	**12,0**	±	**0,63**
90º	**9,4**	±	**0,46**



Delgado-Martins angle and CT scan

ICRS

CT APPLICATIONS AND BEYOND IN CARTILAGE AND CARTILAGE REPAIR

Patellar tilt – An easy and accurate method to evaluate it

Oliveira, J.P.*, Peixoto, A.** , Fonseca, F.***
* MD, Orthopaedics Resident, Coimbra University Hospital ** Medical Student at Medicine Faculty of Coimbra University *** MD, PhD, Head Chief of Orthopaedics Department, Coimbra University Hospital

Patellar instability is a common cause of pain and functional impotence of the knee[1]. Recurrent patellar dislocation is often associated with four major risk factors: trochlear dysplasia, patella alta, lateralization of the tibial tuberosity relative to the trochlear groove (TT-GT offset) and insufficient medial retinacular restraint (patellar tilt)[1-3]. In 1980, Delgado-Martins (DM)[4] described the Bicondylo-Patellar angle and reported the values for patellar tilt at different grades of flexion as well as the decreasing of the tilting from full extension to 90º of flexion by performing an axial X-ray study on normal knees.

The computed tomography (CT) scan has great importance in the analysis of the patellofemoral joint, being the first exam to establish some of the pathological threshold levels for the objective patellar dislocation population[5-8], providing some of the guidelines used for surgical correction in terms of trochlear morphology, malalignment, patellar tilt and rotational abnormalities. Knowing the difference in cost and accessibility between these two radiologic tests, our department tried to determine the correlation between these evaluation methods and if DM angle could be considered a measure for screening patellar tilt. 37 randomized knees of both genders have been evaluated under CT scan and axial X-ray view at 30º of flexion, with the data statistically analysed using SPSS®.

Regression analysis did not observe any relationship between the measurements made by each method. Comparing the data, of those with normal values of patellar tilt described by each radiologic method, it was observed that the Bicondylo-Patellar angle has a 100% sensitivity and 31% specificity in detection of patellar tilting. The positive predictive value (PPV) was 81.3% and negative predictive value (NPV) 100%. Although the sample size is small, the data obtained deserve consideration. The lack of correlation between two different evaluation methods was unexpected; however, the 100% sensitivity and NPV make the method described by Delgado-Martins highly accurate and optimal for screening this bone pathology. This is because it is easily accessible in a simple routine consultation, allowing the use of CT scan for cases whose values are out of normal.

References:
Winkowitz, R., Inzerillo, C., Sherman, O. Patella instability (2007) Bulletin of the NYU Hospital for Joint Diseases. 65(4):280-93

Dejour H, Walch G, Nove-Josserand L, Guier C (1994) Factors of patellar instability: an anatomic radiographic study. Knee Surg Sports Traumatol Arthrosc 2(1):19-26

Fithian D, Neyret P, Servien E (2007) Patellar instability: The Lyon experience. Tech Knee Surg 6(2):122-123

Delgado-Martins H (1980) The Bicondylo-Patellar Angle as a Measure of Patellar Tilting. Arch Orthop Traumat Surg 96:303-304

Dejour H, Walch G, Nove-Josserand L, et al (1994) Factors of patellar instability: an anatomic radiographic study. Knee Surg Sports Traumatol Arthrosc 2(1):19-26

Goutallier D, Walch G, Dejour H et al (1993) An anatomical and radiological study of the femoropatellar articulation. Surg Radiol Anat 12(2):119-125

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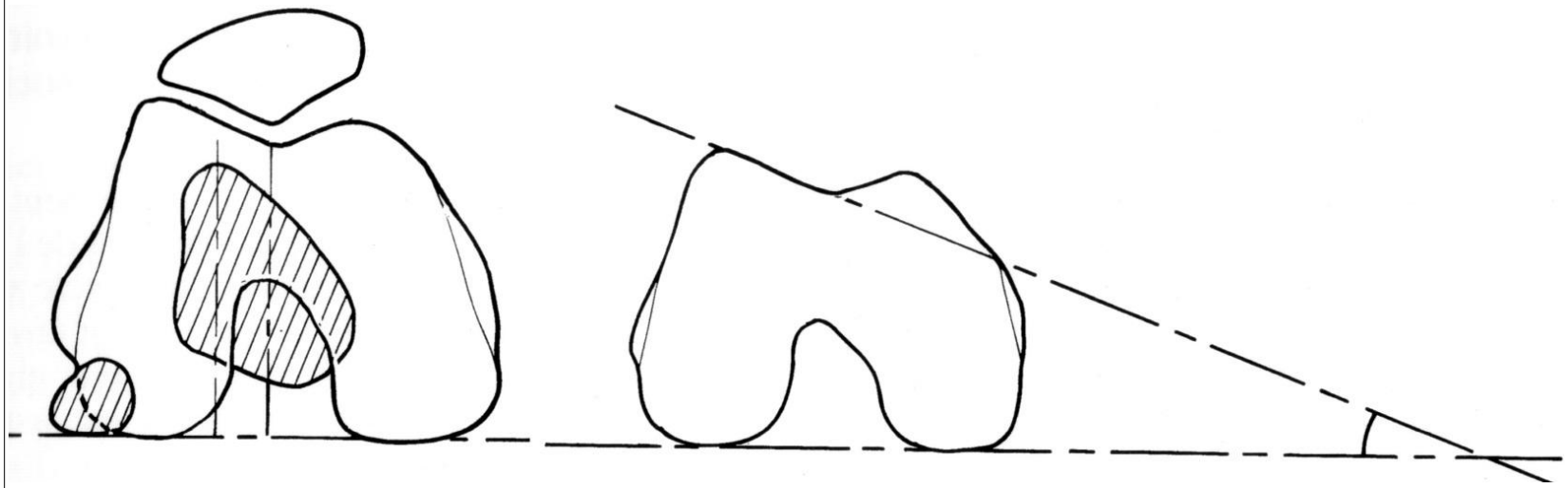
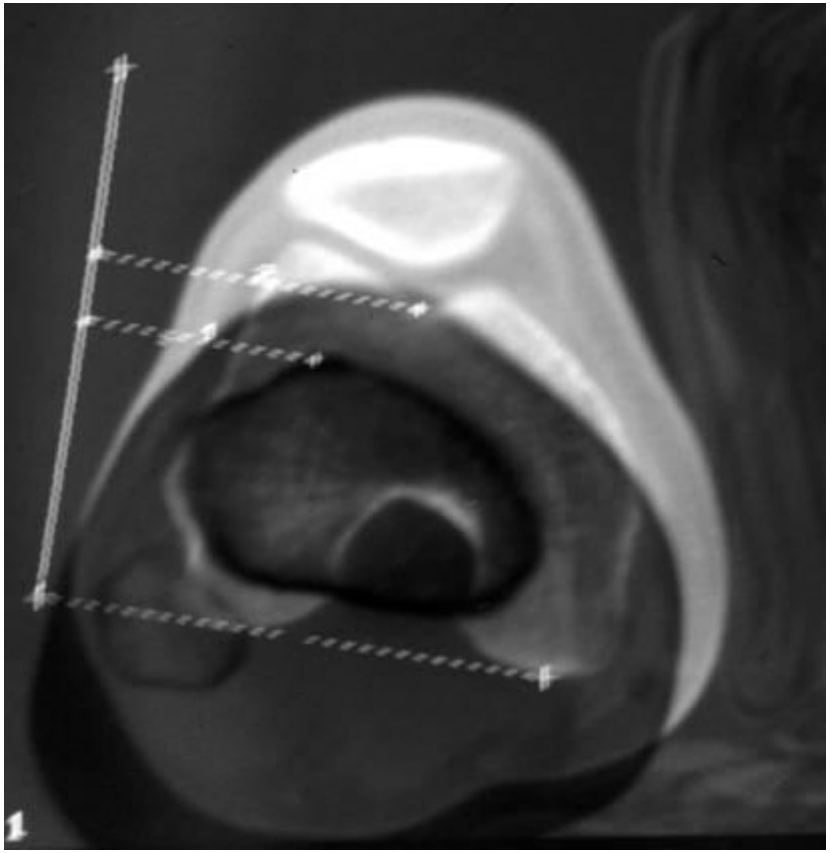
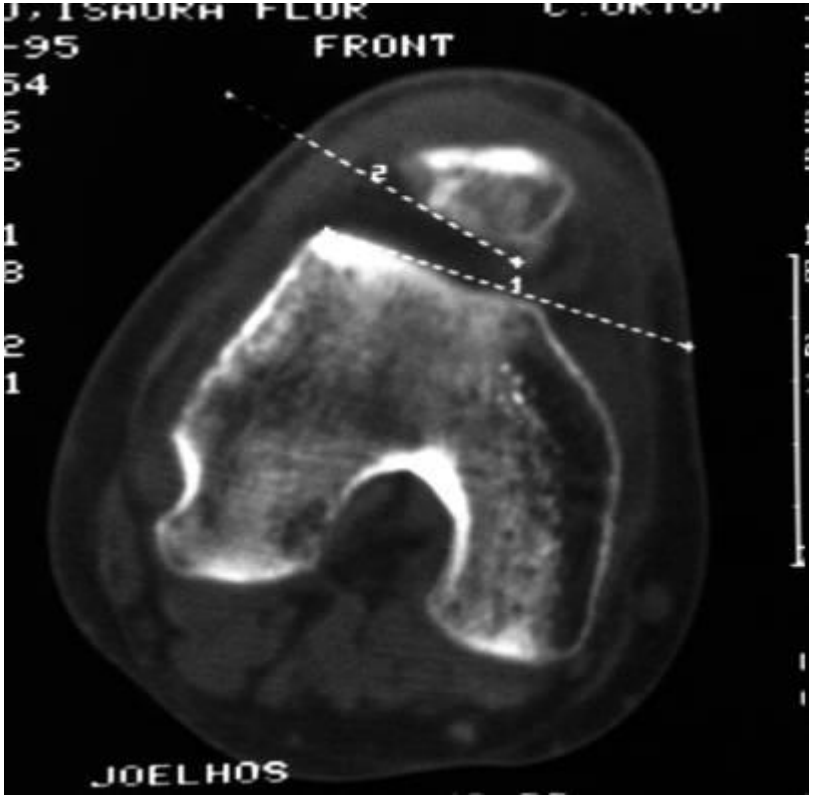
TT-TG



CT scan



CT scan



Treatment

- Conservative (6 months at least)
  - Pain control and NSAID
  - Viscosuplementation
  - Physyoterapy
    - Closed kinetics chain exercises
    - Open kinetics chain exercises
    - Reeducation
      - Muscular
      - Postural

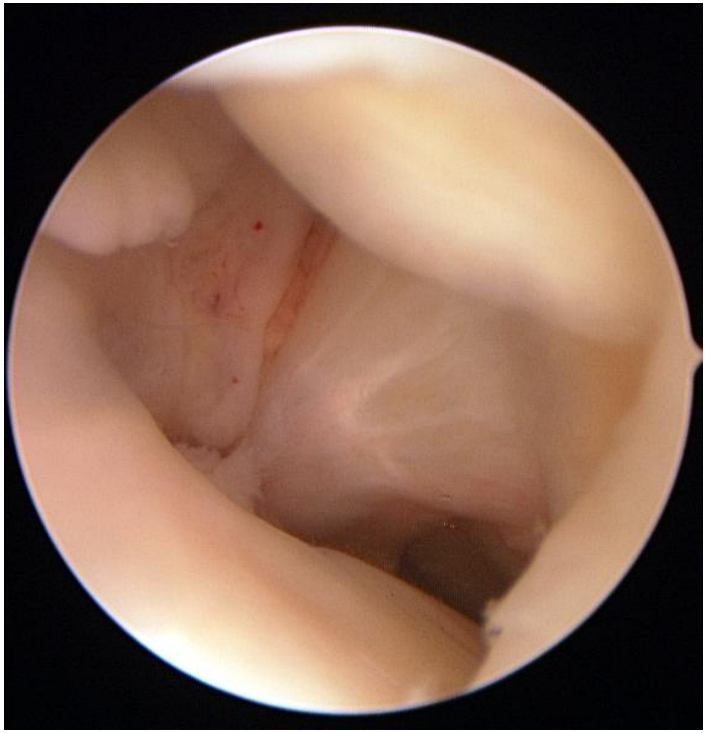
Kramer K. Management of patellar and trochlear chondral injuries. Oper Tech Orthop. 2007;17(4):10–0
MD STC, MD JHB. Campbell's operative orthopaedics e-dition: text with continually updated online reference, 11e. 11(null) ed. Mosby; 2007
.

Conservative traetment

- Rest
- Muscle exercises
- Hamstrings streching exercises
- Ice after exercises

Surgery

- Last option!
  - Arthroscopy
  - Extension mechanism surgery
    - Lateral release of lateral retinaculum
      - Ficat s technique
      - Larson-Slocum
    - Modifying TTA
      - Maquet III
      - Fulkerson
  - Cartilage
    - Microfractures
    - Mosaicplasty
    - ACI



Ficat´s release

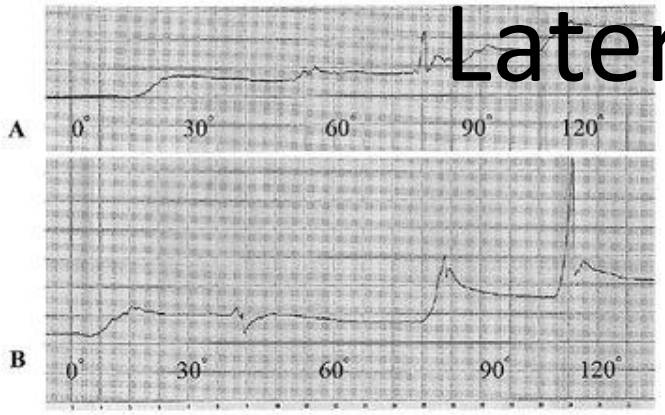
- Described by Merchant and Mercer in 1974 and popularized by Ficat
  - Indication
    - Patellofemoral pain with patellar tilt

Lateral retinaculum

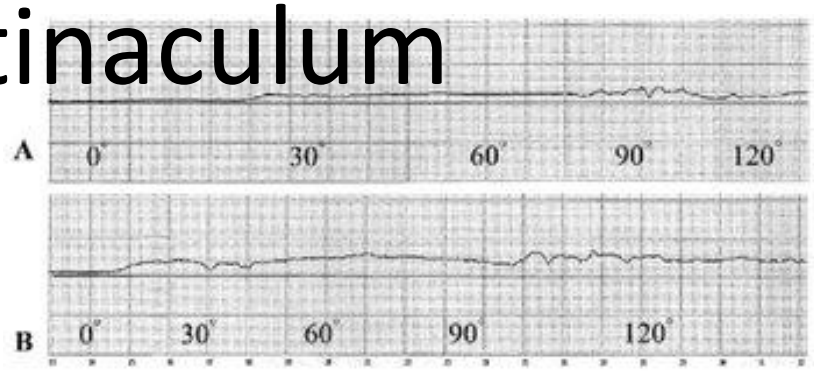
- Four types at flexion-extension
  - Type I (82,5%) – Patella pression augments with flexion
  - Type II – No different patellar pressurin during flexion-extension
  - Type III – No different patellar pressurin during flexion-extension except at patellar recentration in throclea
  - Type IV – Pression augments at the beginning of flexion, and with patellar recentration at throchlea pression diminish until the end of flexion

Ishibashi Y, et al.
Lateral patellar retinaculum tension in patellar instability
CORR, 2002, 397, 362-369

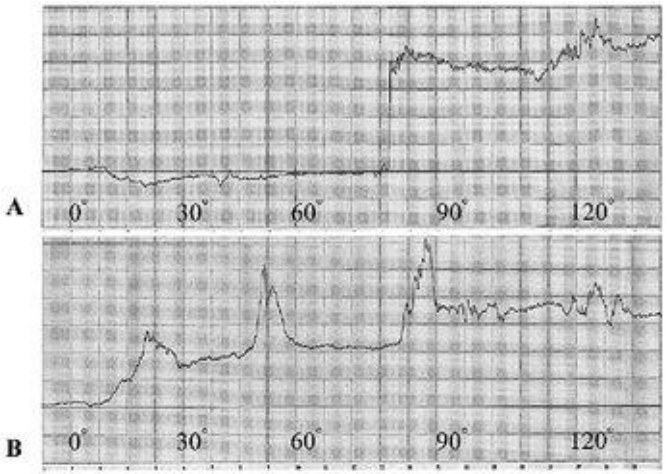
Lateral retinaculum



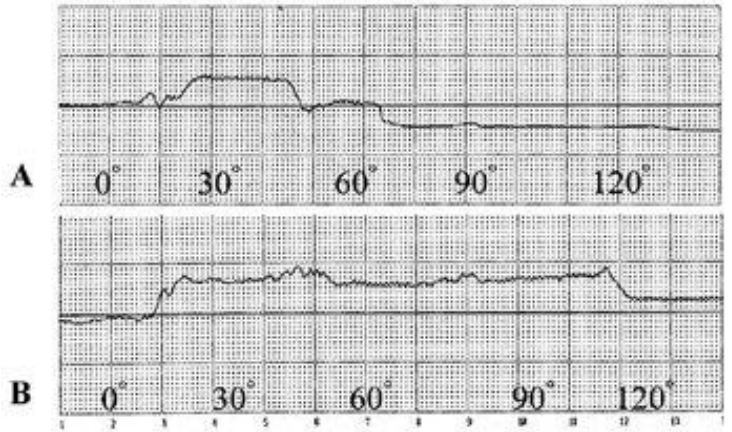
Tipo I



Tipo II



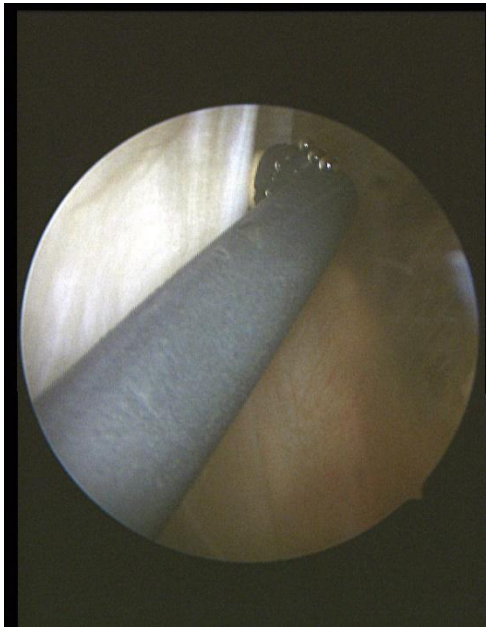
Tipo III

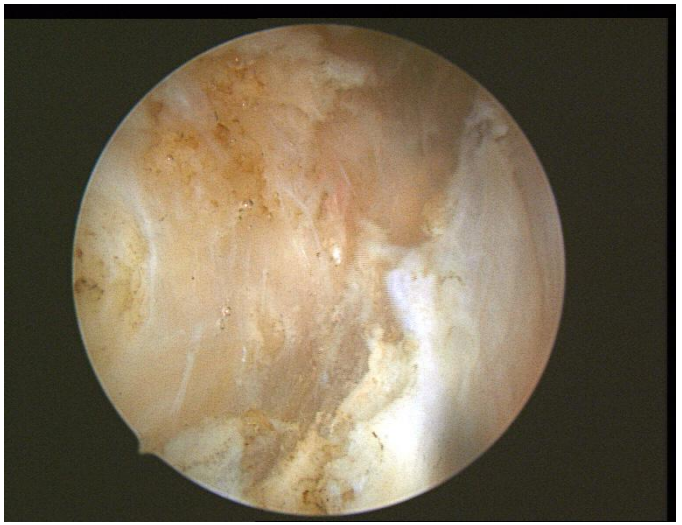


Tipo IV

Ishibashi Y, et al.
Lateral patellar retinaculum tension in patellar instability
CORR, 2002, 397, 362-369

Arthroscopic lateral release of lateral patellar retinaculum



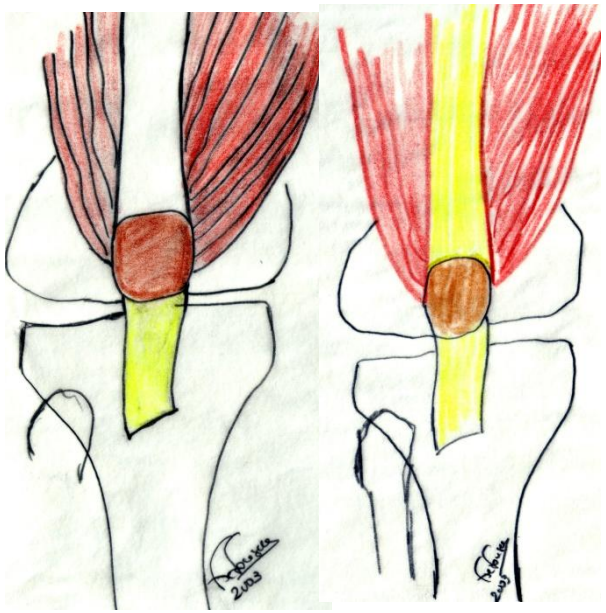


Lateral release of lateral patellar retinaculum

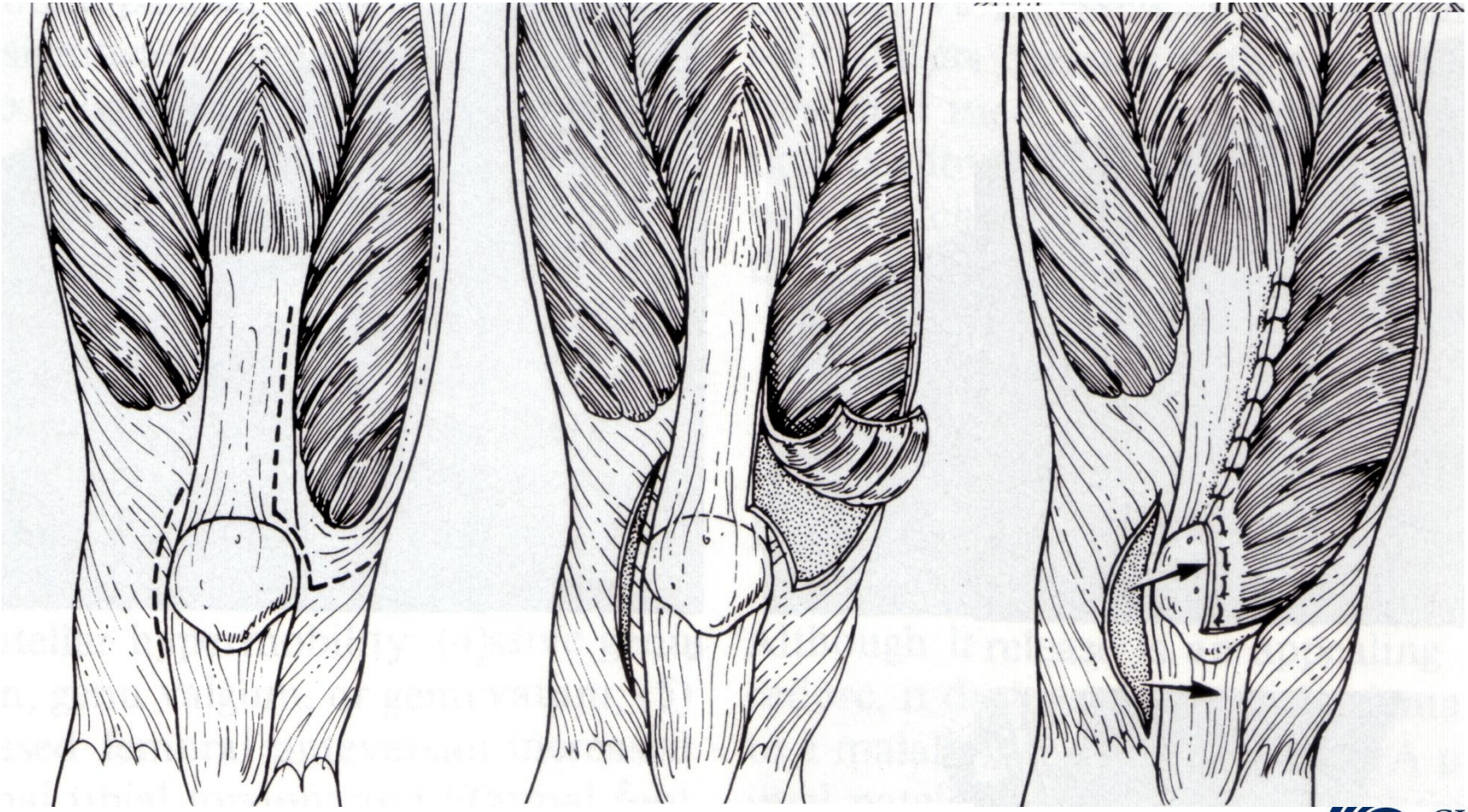
- Be carefull ….
- There some long time complications !

Proximal realigment

- Indications
  - Patellofemoral objective instability
  - Vastus medial transfer
    - Distal e lateral (Madigan - 1975)
    - Tubular (Insal)
    - Krogius (combined)

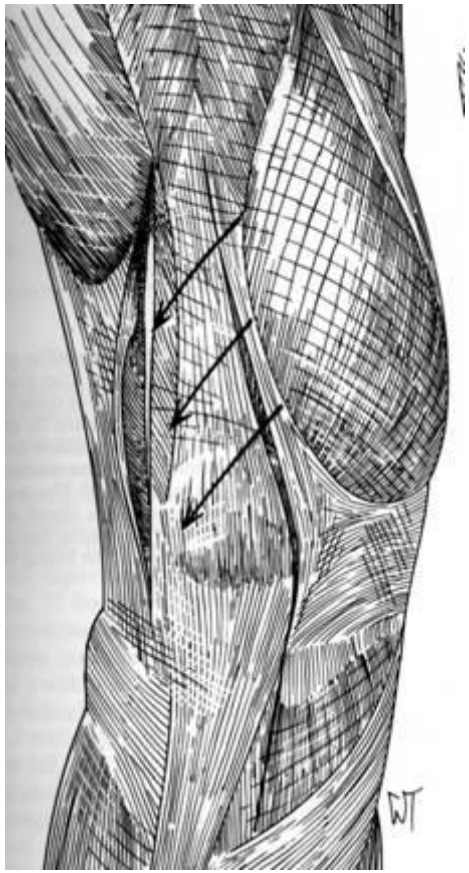


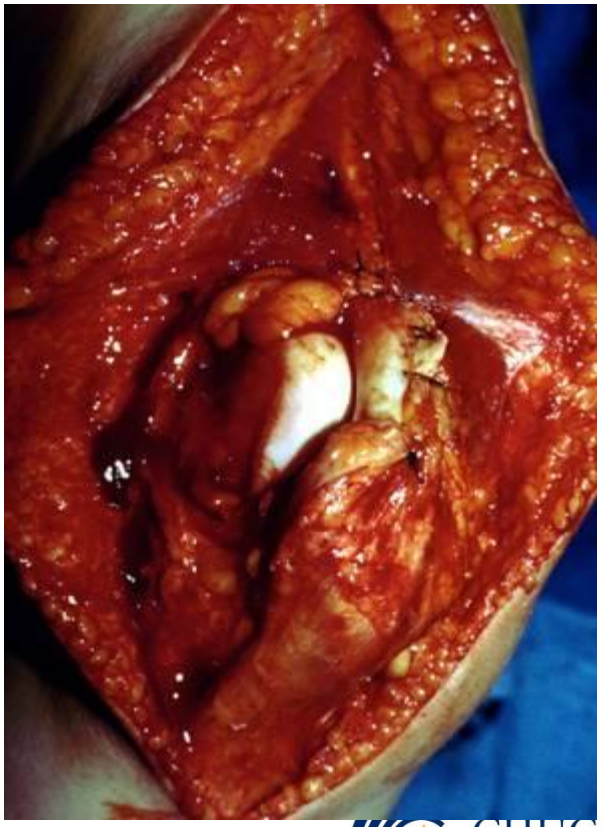
Madigan



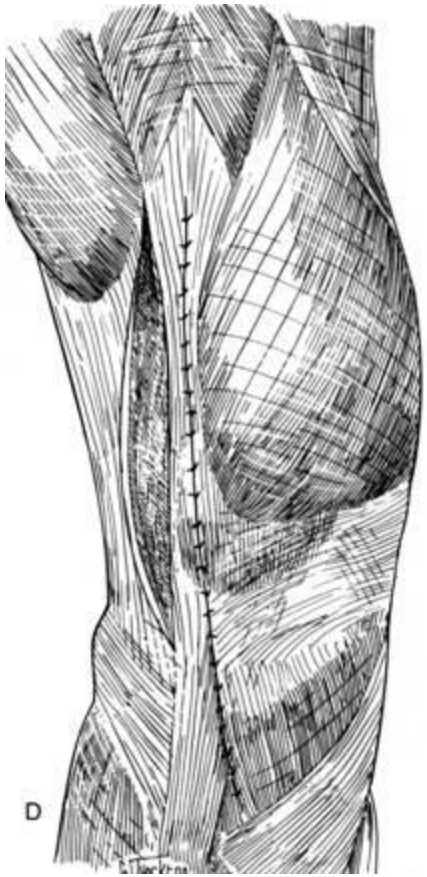
Insall's plicature

Insall's plicature



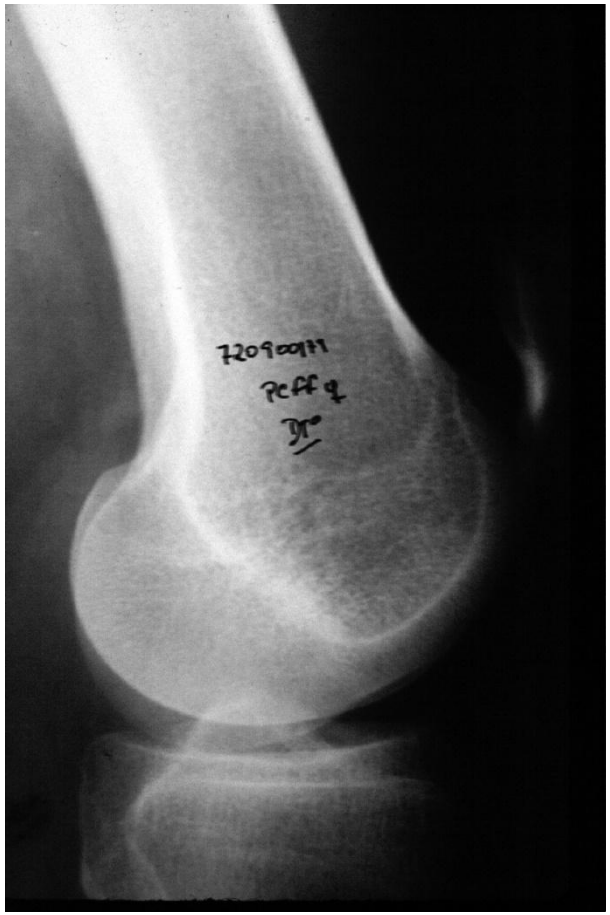


Insall's plicature



- Distal realignement
  - Soft tissues
    - Galiazzi
    - Roux-Goldthwait
  - Bone
    - Hauser
    - Elmslie-Trillat; Fulkerson
  - Combined
    - Févre-Dupuis

Elmslie-Trillat



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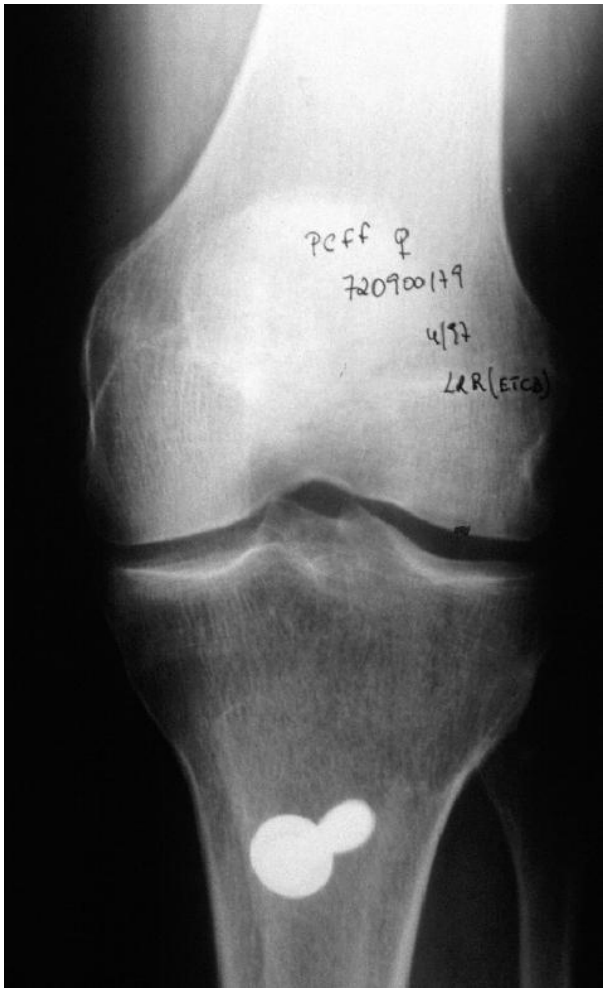
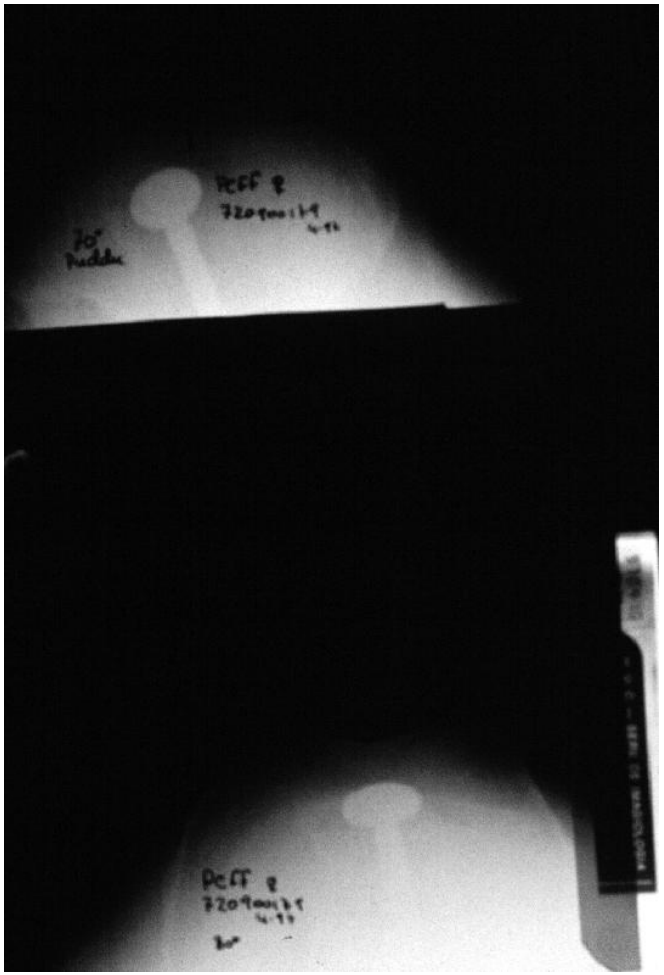
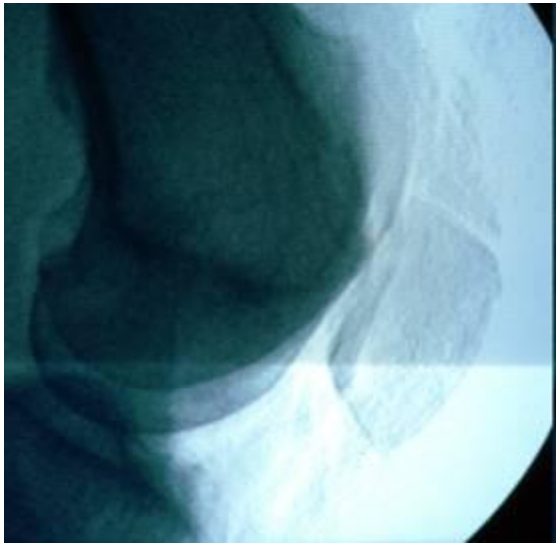
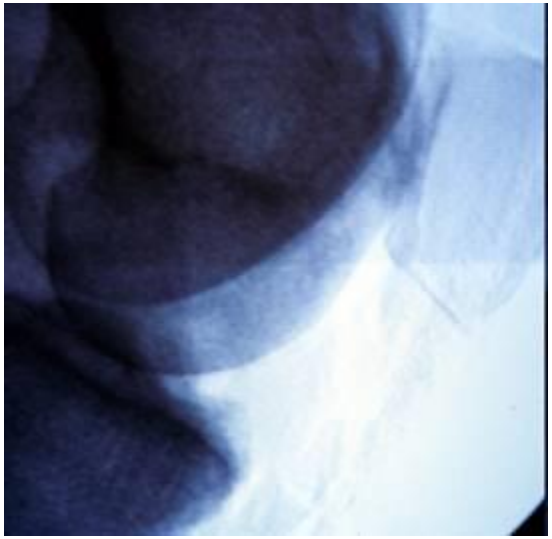


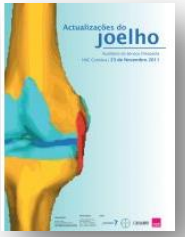


Proximal translation of TT





OTHER SOLUTIONS



- Art. Patelo-Femoral: "*The forgotten compartment of the knee...*", Ficat and Hungerford, 1977

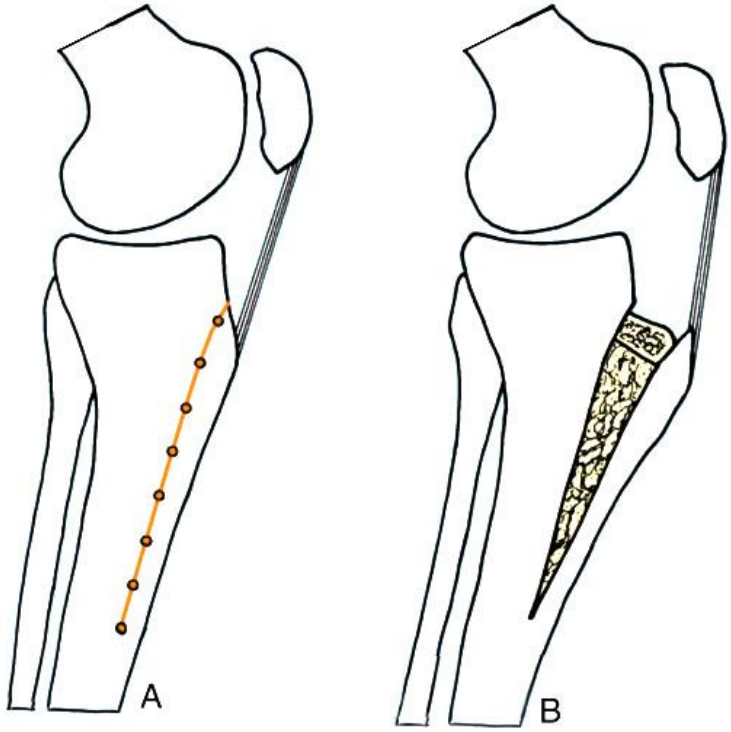
Deformity	Procedure
	Frontal Plane
Genu valgum	Femoral osteotomy (supracondylar)
Genu varum	Tibial osteotomy (infratuberosity)
	Sagittal Plane
Prominent trochlea	Trochleoplasty
Shallow trochlea	Lateral condyle osteotomy
Patella alta	Distal tuberde transfer
Increased AG-TG(>20 mm)	Tibi[illegible]e medialization
Decreased TT-TG	[illegible] tibia tuberde transfer
	Combined Deformities
Valgus + femoral anteversion	Distal femoral varus external rotation osteotomy
Varus + femoral anteversion	Distal femoral valgus external rotation osteotomy
Tibial torsion + increased TT-TG	Proximal tibial osteotomy (supratuberosity)
Femoral anteversion + tibial torsion ("miserable malalignment")	Proximal femoral external rotation osteotomy + proximal tibial internal rotation osteotomy

"*Menu à la carte*" H. Dejour, 1987

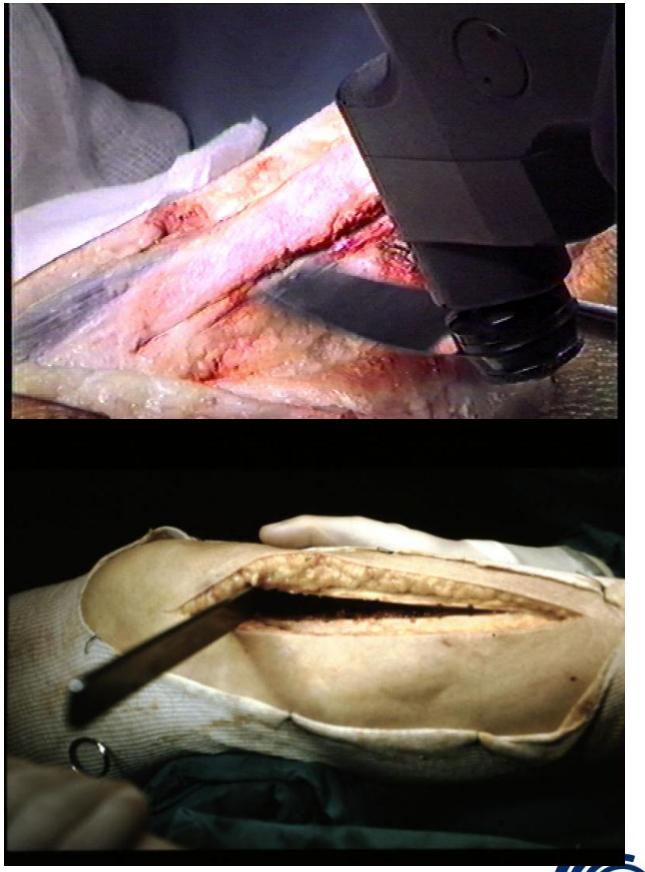
Robert A. Teitge and Roger Torga-Spak

Maquet-III

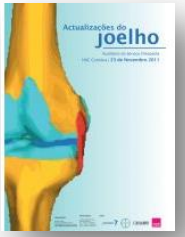
Personal experience



From Canale & Beaty (2007)
Campbell's Operative Orthopaedics



Operação de Maquet: X-ray after surgery

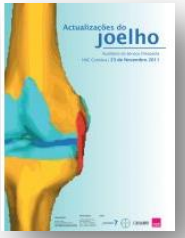


MAQUET III

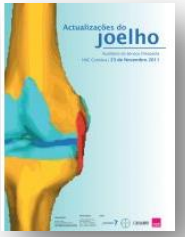
Imediate post-operative

Follow-Up after 30 years

MAQUET III



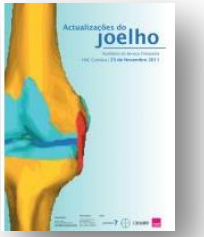
***Follow-Up* 30 years**



MAQUET EVIDENCES

Study	Year	No. Cases	Elevation (cm)	Overall Complication Rate (%)	Wound Complications	
					Minor	Major
Maquet	1976	41	2–2.5	5 (12%)	4	1
Hirsh et al	1979	9	2–2.5	3 (33%)	1	0
Rozbruch et al	1979	30	1.75	8 (27%)	3	1
Lund et al	1980	68	1	22 (32%)	2	8
Sudmann et al	1980	33	1.5	5 (18%)	0	0
Heller et al	1982	20	2–2.5	14 (70%)	2	0
		14	2–2.5 (modified)	0	0	0
Ferguson	1982	184	1.25	3 (2%)	0	0
Heatley et al	1984	29	1.5	4 (13%)	0	0
Hofmann et al	1984	14	1.5 + tibial osteotomy	4 (28%)	0	1
Putnam et al	1985	34	1.25 + tibial osteotomy	6 (18%)	2	0
Mendes et al	1986	27	2.5	16 (59%)	8	2
Radin	1986	36	2–2.5	9 (25%)	4	0
Radin	1986	12	Group I (2–2.5)	5 (42%)	3	0
		32	Group II (2–2.5) (+modified)	5 (16%)	1	0
		9	Group III (1.25)	2 (22%)	0	0
Siegel	1987	20	1.9	8 (40%)	0	4
Bessette et al	1988	21	1.5	8 (40%)	2	0
Engebretsen et al	1989	46	1.5–2	8 (17%)	0	0

Rappoport, L.H. Et al. (1992). The Maquet Osteotomy. Orhopaedic Clinics of North America, Vol 23, Nº4, p.651



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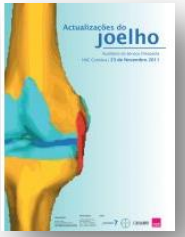


MAQUET EVIDENCES

Study	Year	No. Cases	Average Age (years)	Follow-up (mo)	Follow-up (no. of patients)	Surgical Indications				Clinical Rating	
						DJD/CM	P/F + MED	INST	PAT	Good–Excellent (%)	Fair–Poor (%)
Marquet	1976	41	56	56.4	39	39	2	0	0	37 (95)	2 (5)
Hirsh et al	1979	9	26	29	8 patients/ 9 knees	8	0	1	0	8 (89)	1 (11)
Rozbruch et al	1979	30	34		30	15	8	6	1	18 (60)	12 (40)
Lund et al	1980	68	35	13	62 patients/ 68 knees	68	0	0	0	63 (93)	5 (7)
Sudmann et al	1980	33	30	22	29 patients/ 33 knees	33	0	0	0	30 (91)	3 (9)
Ferguson	1982	63	26	24–48	63	63 CM	0	0	0	53 (84)	10 (16)
		48	57	24–48	48	48 DJD	0	0	0	44 (92)	4 (8)
		40	21	24–48	40	0	0	40	0	33 (82)	7 (18)
		25	30	24–48	25	25 Trauma	0	0	0	21 (84)	4 (16)
		8	42	24–48	8	0	0	0	8	7 (88)	1 (12)
Heatley et al	1984	29	18–71	36	28 patients/ 29 knees	21	0	7	1	19 (66)	10 (34)
				86.4	27 patients/ 28 knees	—	—	—	—	15 (54)	13 (46)
Hofmann et al	1984	14	56	27	14	0	14	0	0	1 (7)	13 (93)
Putnam et al	1985	34	60	16	31 patients/ 34 knees	0	34	0	0	23 (68)	11 (32)
Mendes et al	1986	27	55	66	25	13	11	0	3	20 (80)	5 (20)
Radin	1986	36	28	42	14	14 Trauma	0	0	0	13 (93)	1 (7)
					16	0	0	16	0	13 (81)	3 (19)
					6	0	0	0	6	4 (67)	2 (33)
Radin	1986	12	29	min. 24	12	12	0	0	0	11 (92)	1 (8)
		32		min. 24	32	32	0	0	0	30 (94)	2 (6)
		9		min. 24	9	9	0	0	0	6 (67)	3 (33)
Bessette et al	1988	21	34	29	17 patients/ 18 knees	19	0	0	2	?	?
Engebretsen et al	1989	46	23–55	60	41	46	0	0	0	10 (30)	23 (70)

* DJD/CM = patellofemoral osteoarthritis/chondromalacia patellae; P/F + MED = patellofemoral and medial compartment osteoarthritis; INST = recurrent instability; PAT = post patellectomy.

Rappoport, L.H. Et al. (1992). The Maquet Osteotomy. Orhopaedic Clinics of North America, Vol 23, Nº4, p.651

MAQUET III – OUR EXPERIENCE

- **Our Results** with Maquet III (CHUC experience with cohort of 25 patients studied prospectively,)
  - **Mean follw-up 27,2 years**
  - **Mean age (2012) 65,2 years;**
  - **58% of excelent and good function results;**
  - **Mean of pain free time after surgery 20,5 years**
    - **40% patiens have no pain;**
  - **69% patients have grade I ou grade II osteoarthritis;**
  - **Kujala score 61,9**

J Orthop Surg Res. 2013 May 1;8
Maquet III procedure: what remains after initial compliCTions--long-term results.
Fonseca F[1], Oliveira JP, Marques P.

JOURNAL OF ORTHOPAEDIC SURGERY AND RESEARCH IMPACT FACTOR 1.58

Literature revision

ACI

Acta Orthop Belg. 2014 Jun;80(2):251-9.

Treatment of patellofemoral cartilage defects in the knee by autologous matrix-induced chondrogenesis (AMIC.

Dhollander A, Moens K, Van der Maas J, Verdonk P, Almqvist KF, Victor J.

Abstract

This study presents the prospective two-year clinical and MRI outcome of autologous matrix-induced chondrogenesis (AMIC) for the treatment of patellofemoral cartilage defects in the knee. Ten patients were clinically prospectively evaluated during 2 years. MRI data were analysed based on the original and modified MOCART (Magnetic Resonance Observation of Cartilage Repair Tissue) scoring system. A satisfying clinical improvement became apparent during the 24 months of follow-up. The MOCART scoring system revealed a slight tendency to deterioration on MRI between one and 2 years of follow-up. However, the difference was not statistical significant. All cases showed subchondral lamina changes. The formation of intralesional osteophytes was observed in 3 of the 10 patients (30%). In conclusion, AMIC is safe and feasible for the treatment of symptomatic patellofemoral cartilage defects and resulted in a clinical improvement. However, the favourable clinical outcome of the AMIC technique was not confirmed by the MRI findings.

PMID: 25090800 [PubMed - indexed for MEDLINE]

Microfractures

World J Orthop. 2014 Sep 18;5(4):444-9. doi: 10.5312/wjo.v5.i4.444. eCollection 2014.

Enhanced microfracture techniques in cartilage knee surgery: Fact or fiction?

Bark S[1], Piontek T[1], Behrens P[1], Mkalaluh S[1], Varoga D[1], Gille J[1].

⊕ Author information

Abstract

The limited intrinsic healing potential of human articular cartilage is a well-known problem in orthopedic surgery. Thus a variety of surgical techniques have been developed to reduce joint pain, improve joint function and delay the onset of osteoarthritis. Microfractures as a bone marrow stimulation technique present the most common applied articular cartilage repair procedure today. Unfortunately the deficiencies of fibrocartilaginous repair tissue inevitably lead to breakdown under normal joint loading and clinical results deteriorate with time. To overcome the shortcomings of microfracture, an enhanced microfracture technique was developed with an additional collagen I/III membrane (Autologous, Matrix-Induced Chondrogenesis, AMIC(®)). This article reviews the pre-clinical rationale of microfractures and AMIC(®), presents clinical studies and shows the advantages and disadvantages of these widely used techniques. PubMed and the Cochrane database were searched to identify relevant studies. We used a comprehensive search strategy with no date or language restrictions to locate studies that examined the AMIC(®) technique and microfracture. Search keywords included cartilage, microfracture, AMIC(®), knee, Chondro-Gide(®). Besides this, we included our own experiences and study authors were contacted if more and non published data were needed. Both cartilage repair techniques represent an effective and safe method of treating full-thickness chondral defects of the knee in selected cases. While results after microfracture deteriorate with time, mid-term results after AMIC(®) seem to be enduring. Randomized studies with long-term follow-up are needed whether the grafted area will maintain functional improvement and structural integrity over time.

KEYWORDS: Autologous, Matrix-Induced Chondrogenesis; Cartilage; Chondro-Gide®; Knee; Microfracture

Arthroscopy. 2013 Aug;29(8):1423-36. doi: 10.1016/j.arthro.2013.03.077. Epub 2013 May 24.

Advanced patellofemoral cartilage lesions in patients younger than 50 years of age: is there an ideal operative option?

Noyes FR[1], Barber-Westin SD.

Author information

Abstract

PURPOSE: The purpose of this review was to determine if there is an ideal operation for large symptomatic articular cartilage lesions on the undersurface of the patella in young patients.

METHODS: A systematic search of PubMed was conducted to determine the outcome of operations performed for large patellar lesions in young patients. Inclusionary criteria were English language, original clinical trials published from 1992 to 2012, patellar lesions 4 cm(2) or larger, mean patient age 50 years or younger, and all evidence levels.

RESULTS: Of 991 articles identified, 18 met the inclusionary criteria, encompassing 840 knees in 828 patients. These included 613 knees that underwent autologous chondrocyte implantation (ACI) (11 studies), 193 knees that had patellofemoral arthroplasty (PFA) (5 studies), and 34 knees that underwent osteochondral allografting (OA) (2 studies). The mean patient age was 37.2 years and the mean follow-up was 6.2 years. Long-term follow-up (>10 years) was available in only 4 studies (2 PFA, 1 ACI, 1 OA). All studies except one were Level IV and none were randomized or had a control group. Twenty-one outcome instruments were used to determine knee function. When taking into account knees that either failed or had fair/poor function, the percentage of patients who failed to achieve a benefit averaged 22% after PFA and 53% after OA and ranged from 8% to 60% after ACI. In addition, all 3 procedures had unacceptable complication and reoperation rates.

CONCLUSIONS: The combination of failure rates and fair/poor results indicated that all 3 procedures had unpredictable results. We concluded that a long-term beneficial effect might not occur in one of 3 ACI and PFA procedures and in 2 of 3 OA procedures. We were unable to determine an ideal surgical procedure to treat large symptomatic patellar lesions in patients 50 years or younger.

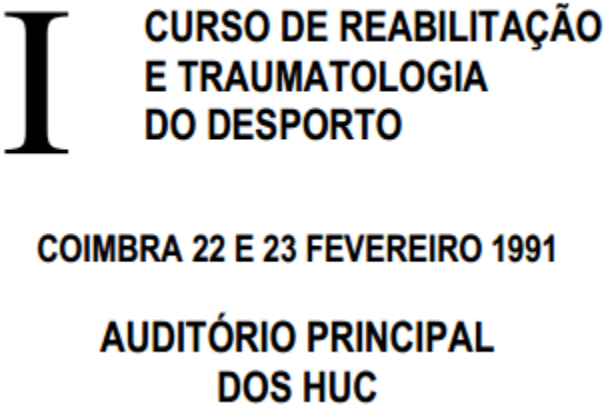
LEVEL OF EVIDENCE: Level IV, systematic review of Level I to IV studies.

PMID: 23711753 [PubMed - indexed for MEDLINE]

Lesson learned in25 years ?

Lessons learned

- 1991 – “standard” procedure
  - Conservative treatment
    - NSAIDs
    - Physioterapy
  - Surgical treatment
    - Larson Slocum (AAER)
    - Maquet (few cases, abandoned)



My options(2015) - 1

- Have a excellent patient history, evaluate carefully patient's syntoms
  - Listen patient complaints is a corner stone
- Carefully physical examination
  - Rule out secondary causes of knee pain
- If there are secondary causes for pain …
  - Treat secondary causes!
- Remember !!
  - Like at low back pain, hernia may not be the origin of the pain!

My options(2015) - 2

- If ther are no secondary cause for pain
  - Conservative treatment (main option!)
  - Surgical treatment (last option!)
    - Arthroscopy
      - Lavage
    - Avoid Ficat release!
      - If lateral release needed use Larsen Slocum option
    - Chondral lesions with < 2cm^2 (Microfracture is an option)
    - Chondral lesion with > 2cm^2(Mosaicplasty if at femur; avoid at patella)

Thank you

XXV CURSO
DE REABILITAÇÃO
E TRAUMATOLOGIA
DO DESPORTO

"25 ANOS DE REABILITAÇÃO E TRAUMATOLOGIA DO DESPORTO"

COIMBRA, 31 DE JANEIRO DE 2015