





Université Claude Bernard  Lyon 1

DOES ACL REPAIR PREVENT ARTHRITIS ?

Pr E Servien, MD PhD
Hôpital de la Croix-Rousse
Val d'Isère 2014

DOES ACL REPAIR PREVENT ARTHRITIS ?

Literature ?

Does ACL repair prevent arthritis?

Kessler et al, *Function, osteoarthritis and activity after ACL-rupture: 11 y FU results of conservative versus reconstructive treatment*, KSSSTA 2008

→ 42% OA (aclR) vs. 25% (acl insufficient knee)

..... No!

Lyon series (long term FU)

our series

1978-1983 : 423 ACL Reconstructions

Follow-up :

- 251 in 1986 (mean FU : 4y)
- 148 in 1992 (mean FU : 11.5y)
- 103 in 1999 (mean FU : 17y)
- 125 in 2006 (mean FU :24.5y)

100 radiological FU

Patients & methods

100 patients


- M/F : 73/26
- Age at intervention : 25.1 years (14.2-43.3)
- Surgical delay : 2.9 years (1-232 months)
- Age at final follow-up : 49.3 years (39.0-68.2)

MEAN FOLLOW UP : 24.5 years (21-27years)

Surgical technique

Originally described by H.Dejour

- Bone - Patellar Tendon - Bone
- Extra-articular Lemaire Tenodesis



- <1980 : Cast immobilisation
- >1980 : Immediate rehabilitation

Meniscus & cartilage status at intervention

- 33/100 no **meniscus** lesion
- 67/100 medial **meniscus** lesion
 - 58 medial meniscectomies
 - 48 subtotal
 - 10 partial
 - 8 sutures
 - 1 non treated
- 18/100 medial **cartilage** lesion

Outcome

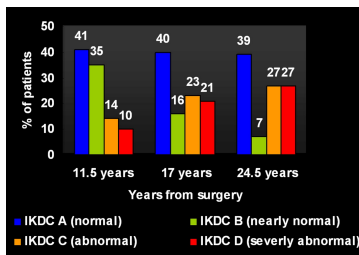
- Clinical outcome
 - IKDC form
 - KOOS
- Radiological outcome
 - Weight bearing AP and lateral
 - Rosenberg' view
 - Skyline view at 30°

IKDC CLASSIFICATION
 A : normal
 B : slight changes
 C : < 50 % JSWN (pre OA)
 D : > 50 % JSWN (OA)



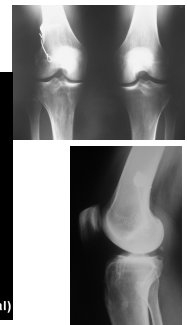
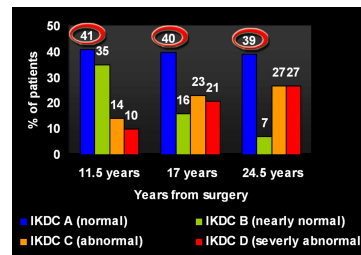
Radiological outcome

TF joint



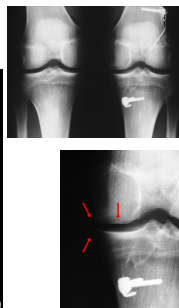
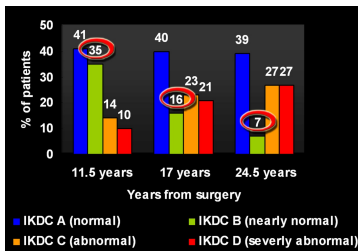
Radiological outcome

TF joint



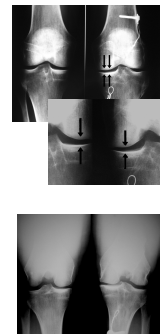
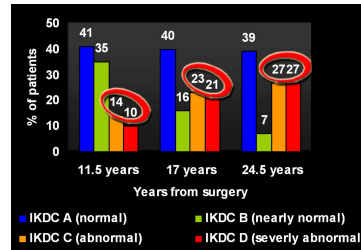
Radiological outcome

TF joint

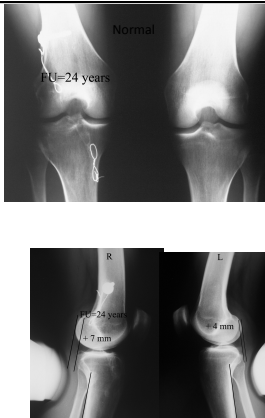


Radiological outcome

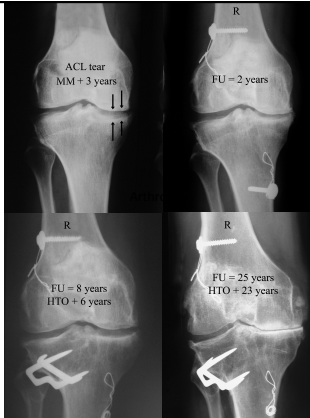
TF joint



- Miss MAY...
- 22y old at surgery
- intact MM
- 46y old at FU
- IKDC = 78



- ✓ Mr MOU...
- ✓ 43y old at surgery
- ✓ MM
- ✓ Surgical delay : 5y
- ✓ 68y old at FU
- ✓ IKDC = 60



Correlation study

	ARTHRITIS at 24.5 y FU
medial cartilage lesion	5 X
medial meniscectomy	3 X
higher age at time of intervention	1.15 X

Patellofemoral OA?

Patients & methods

91 patients

- M/F : 67/24
- Age at intervention : 25.1 years (14.2-43.3)
- Surgical delay : 2.9 years (1-232months)
- Age at final follow-up : 49.3 years (39.0-68.2)

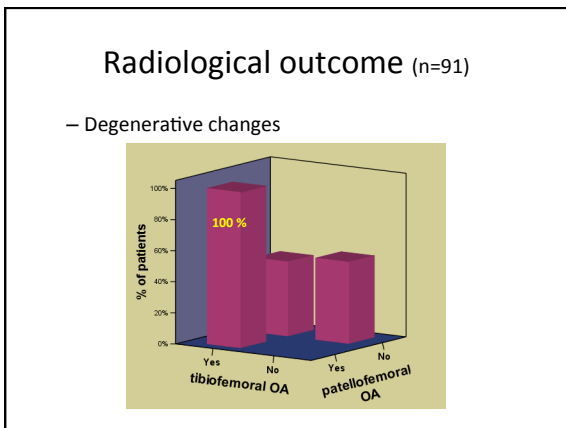
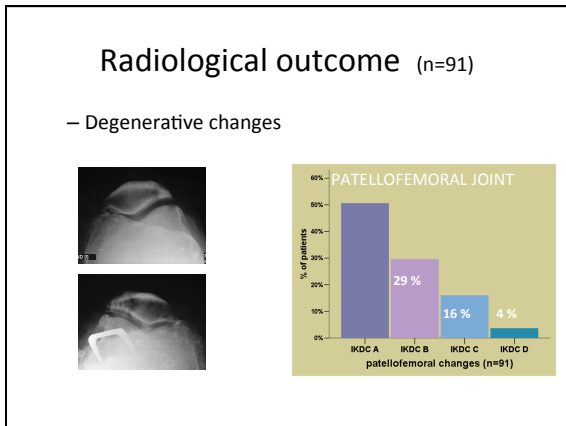
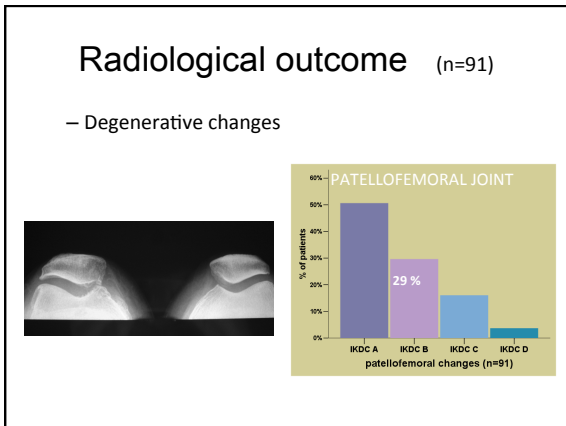
MEAN FOLLOW UP : 24.5 years (21-27 years)

Methods

- Radiological assessment
 - Weight bearing AP and lateral
 - Tunnel view
 - Skyline view at 30°

Patellofemoral changes

IKDC CLASSIFICATION
 A : normal
 B : slight changes
 C : < 50 % JSN (pre OA)
 D : > 50 % JSN (OA)



ACL reconstruction very long term FU and patellofemoral joint :

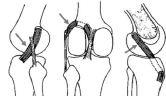
Low rate of PF degenerative changes

Related to TF degenerative changes

DISCUSSION

Long term results of anterior cruciate ligament reconstruction with iliotibial tract: 6-, 13-, and 24-year longitudinal follow-up

Satoshi Yamaguchi · Takahisa Sasho · Akihiro Tsuchiya · Yuichi Wada · Hideshige Moriya



- 1979 -1981, n= 45 patients
- Mean age : 24 y (15-43)
- 24 y FU :
- 50 % patients practicing sport
- 42% Lysholm score (excellent)
- 71% of degenerative lesions

KSSTA (2006)

Does ACL repair prevent arthritis? BTB versus ST-G

- Pernin and Neyret et al. AJSM,(2010)
- 24 y FU , n =100
- 84% of satisfied patients
- 54 % of radiologic changes (pré-arthrits & arthrits)

Risk Factors : Medial meniscectomy § chondral lesions

Meniscectomy & ACL Reconst.

Subtotal MM / **stabilized knee** : 24.5
y

– 42 % OA and 27 % pre-OA

Subtotal MM / **stabilized knee** : 24
y

– 50 % OA and 6 % pre-OA

Yamaguchi S, Sacho T, Tsuchiya A, Wada Y, Moriya H.
Long term results of ACL reconstruction with ilio tibial tract :
6, 13 and 24 year longitudinal follow-up. KSSTA 2006.

Subtotal MM / **instable knee** : 26.5
y

– 90 % OA and 10 % pre-OA

Neyret P, Wäch G, Dejmur L.
La meniscectomie interne intra murale selon la technique de A. Trillat.
Resultats a long terme de 258 interventions. Rev Chir Orthop 1988.

Normal Meniscus & ACL Reconst.

Normal meniscus / **stabilized knee** : 24.5
y

– 12 % OA and 24 % pre-OA

Natural history of **unstable knee** ? 14
y

– 41 % pre-OA + OA

Von Porat A, Roos EM.
High prevalence of OA 14 years after an ACL tear
in male soccer players. Ann Rheum Dis 2004.

– 90 % OA and > 50 % TKA 35
y

Nebelung W, Wuschtech H.
Thirty-five years of follow-up of anterior cruciate
ligament-deficient knees in high-level athletes. Arthroscopy 2005

Does ACL repair prevent arthritis? BTB versus ST-G

- No difference (AJSM 2010)

Medial OA 55% (ST-G) / 64% (BTB)

No Difference in Knee Function or Prevalence of Osteoarthritis After Reconstruction of the Anterior Cruciate Ligament With 4-Strand Hamstring Autograft Versus Patellar Tendon-Bone Autograft

A Randomized Study With 10-Year Follow-up
Inger Holm,¹ PT, PhD, Britt Ein Öststad,¹ PT, May Anna Risberg,² PT, PhD,
and Anne Kristian Aune,¹ MD, PhD

Does ACL repair prevent arthritis? BTB versus ST-G

- Meniscus
- Weight (Lebel , Kessler)

➔ **Knee Osteoarthritis After Anterior Cruciate Ligament Injury**

A Systematic Review

Britt Ein Öststad,¹ PT, MSc, Lars Engelbreten,¹ MD, PhD, Kjersti Storheim,¹ PT, PhD,
and May Anna Risberg,² PT, PhD

CONCLUSION

ACL reconstruction
seems to prevent tibio femoral OA
in the knee with normal meniscus
...and in the meniscectomized knee ??

Known medial OA risk factors

Cartilage lesions (x5)
Medial meniscus lesions (x3)

Shelbourne KD, Gray T.
Results of ACL reconstruction based on meniscus and
articular cartilage status at the time of surgery. *Am J Sports Med* 2000.

Factors affecting results :
1- Articular cartilage damage
2- partial/total medial meniscectomy