

BAD RESULTS OF CONSERVATIVE TREATMENT OF ACL TEARS IN CHILDREN

Guy BELLIER
PARIS France

TREATMENT OF ACL TEARS IN CHILDREN

CONTROVERSIAL

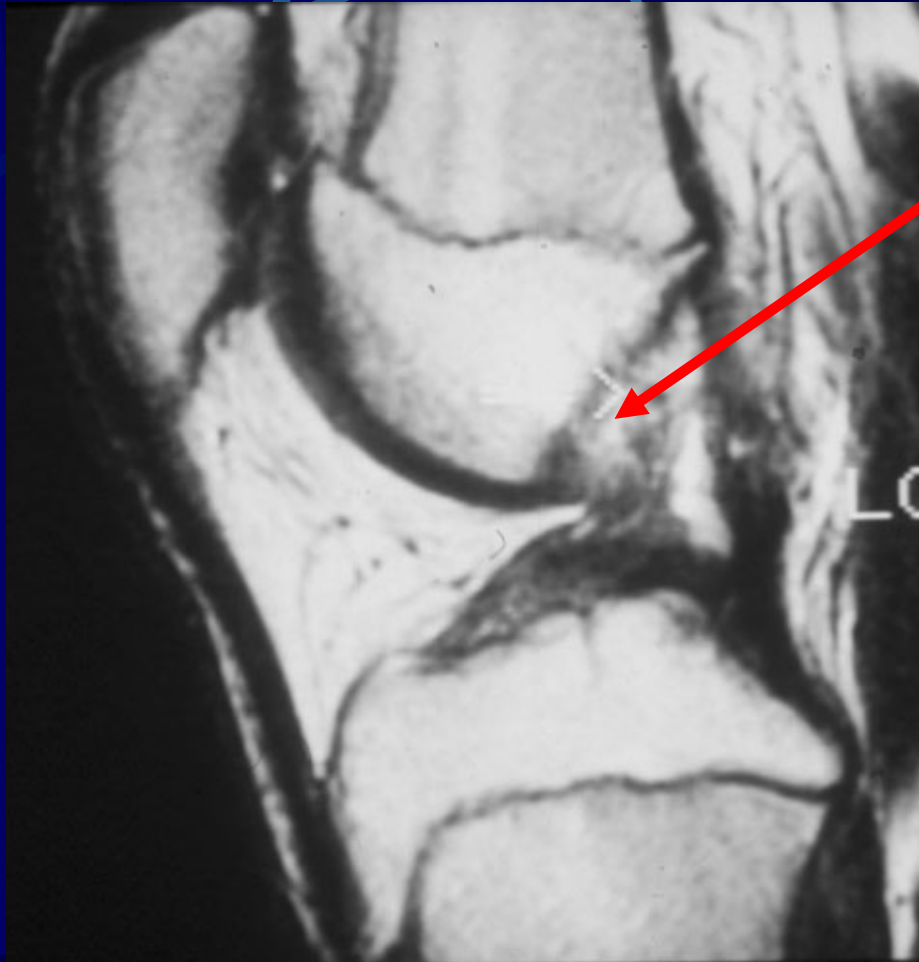
DIAGNOSIS

- clinical exam
- X-rays (stress)
- M.R.I.
- arthroscopy

ACL TEARS IN CHILDREN

- open physis
- exclusion criteria
 - ATS fractures
 - congenital absence of ACL
 - hyperlaxity

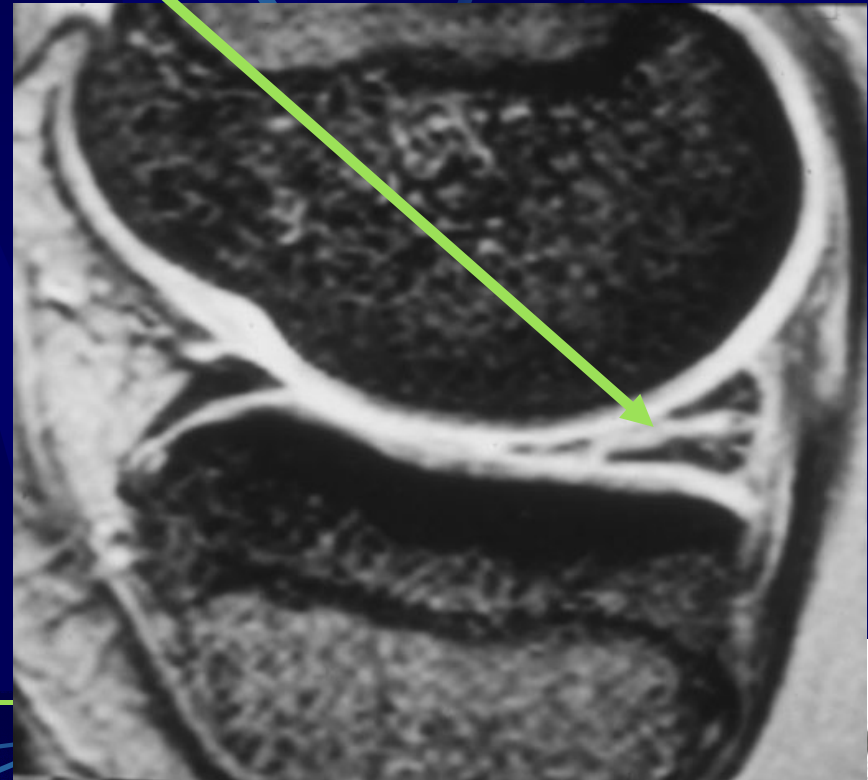
ANATOMICAL TYPE



- femoral or tibial avulsion
- complete mid-substance tear
- partial tear

ASSOCIATED LESIONS

- Litterature compilation : 190 ACL tears
 - 96 meniscal lesions : 50%
 - 14 MCL tears : 7%



CLINICAL EXAM, MRI, ARTHROSCOPY CORRELATION IN CHILDREN.

C. Stanitski AJSM 1998

- 28 children (14 ACL tears)
- highly positive correlation :
clinical exam-arthroscopy
- highly negative correlation : MRI-arthroscopy

MRI HIGH-SIGNAL INTENSITY IN THE MENISCI OF ASYMPTOMATIC CHILDREN

Y.Takeda & al. JBJS 1998

- 51 boys and 29 girls (mean age 12.2)
- 66% prevalence of high-signal intensity (adults 29%)
- Prevalence decreased with skeletal maturity

PEDIATRIC ACL INJURIES

G.Bellier

- 40 children (20 girls, 20 boys)
- Mean age : 13 y.o. (9.5 to 16)
- Average follow-up : 3 y. (1 to 20)
- Exam U.A. +/- arthroscopy

TREATMENT

- 25 conservative management
(cast 3 to 6 weeks)
- 14 sutures for proximal or distal tears
- 1 primary reconstruction (autograft)
- 11 partial meniscectomies

RESULTS

- 13/25 (52%) required intra-articular reconstruction 1 to 5 years later
 - 10 good or excellent results (Lachman +)
 - 3 poor or bad results (Lachman ++ or +++)
- 10/14 sutures stable with Lachman +
- 4 instability : reconstruction

MENISCAL LESIONS

B.K.Graf Arthroscopy 1992

- ALL braced patients + 2 tenodesis :
developed instability (7 to 15 months)
- 7 patients further meniscal damage (15 months)
- 2 IA ST : no instability, Lachman test +, no growth disturbance at 21 and 27 months



MENISCAL LESIONS

G.Bellier

- 10 children with M.R.I.
- 7 medial meniscus lesions (4 secondary)
 - 2 partial medial meniscectomies (1 failed suture)
 - 3 medial meniscus sutures
 - 2 : no treatment

NATURAL HISTORY



BAD RESULTS OF CONSERVATIVE TREATMENT

- Kannus & Jarvinen [JBJS 1987]
- Mc Carroll [AJSM 1995]
- Mizuta [JBJS 1995]
- Patel & Aichroft [JBJS 1993]
- Bellier [ITS 1997]
- Pressman [JPO 1997]



Engelbrechtsen L & al:

- *Poor results of anterior cruciate ligament repair in adolescence*
- *Acta Orthop Scand 59: 684-686, 1988*
- *8 adolescents, suture repair ACL*
- *F/U 3 - 8 years*
- *3 good, 5 unstable*
- *-> Reconstruction probably better than suture repair*



SURGICAL TECHNIQUES

Intra-articular reconstruction with autograft

- Ilio-tibial band
- Patellar tendon
- Hamstrings (gracilis + semitendinosus)
- Quadriceps tendon (+/- bone block)



ACL RECONSTRUCTION WITH QUADRICEPS TENDON

- as strong as patellar tendon
- no anterior tibial tuberosity harvesting
- patellar periosteal flap

MANAGEMENT AND COMPLICATIONS OF ACL TEARS IN SKELETALLY IMMATURE PATIENTS

A survey of members of the ACL Study Group
(83/138)

- Average age : 11.5
- Non-operative : 57.8% (8 yo) 49.4% (13 yo)
- Immediate reconstruction : 14.5% (8 yo) 34.5% (13 yo)
- Tibial technique : transphyseal (80.5%), epiphyseal (15.6%), no tunnel (3.9%)
- Femoral technique : transphyseal (52.6%), over-the-top (47.3%)
- Graft preference : hamstrings (72.1%), PT (16.5%), other (11.3%)
- 8.4% (7/83) growth disturbance (femur 5, tibia 2)

ACL TEARS IN CHILDREN : AN ANALYSIS OF OPERATIVE VERSUS NON-OPERATIVE TREATMENT.

A.E.PRESSMAN & coll. J.P.O. 1997

- 42 tears in 40 children, retrospective
- Mean follow-up : 5.3 years
- KT-1000 measurements
- Treatment
 - Non-operative : 13
 - Primary repair : 6
 - Reconstruction : 23 (17 PT, 6 ST)

ACL TEARS IN CHILDREN : AN ANALYSIS OF OPERATIVE VERSUS NON-OPERATIVE TREATMENT.

A.E.PRESSMAN & coll. J.P.O. 1997

- The ACL reconstruction group had better results in
 - Fonctionnal score
 - Clinical examination
 - KT-1000 results
- No deleterious effect of leg length discrepancy or angular deformity by using intra-articular tunnels that violate the physis

GROWTH REMAINING



Trauma of the cartilage of the ATT
3 years earlier

RECURVATUM

Journal of Pediatric Orthopaedics
14:516-521 © 1994 Raven Press, Ltd., New York

Prediction of Angular Deformity and Leg-Length Discrepancy After Anterior Cruciate Ligament Reconstruction in Skeletally Immature Patients

William Wester, M.D., S. Terry Canale, M.D., Joseph P. Dutkowsky, M.D.,
William C. Warner, M.D., and James H. Beaty, M.D.

Department of Orthopaedic Surgery, University of Tennessee-Campbell Clinic, Memphis, Tennessee, U.S.A.

ACL TEARS IN CHILDREN

- ACL tears in children are not *minor injuries*
- An *overly conservative approach* is not justified
- **Correct grafts** (autologous ST, quadriceps T.) lead to good results (KT-1000, IKDC)
- Careful drilling of the open physis