Université Claude Bernard Lyon 1

Influence of soft tissue release alignemnt and joint lines : stages of release

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Hôpitaux de Lyon

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Hôpitaux de Lyon

Stages of release in varus knees

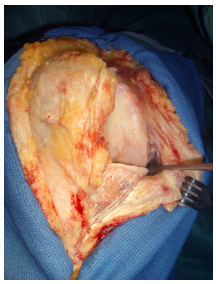
Introduction

- Fixed varus deformity is most common angular contraction in TKA patients
- Several medial release techniques available
  - Insall, Whiteside, Yagashita
    - Capsule and deep MCL
    - Superficial MCL distal on the tibia
  - Engh
    - osteotomy of the medial epicondyle
  - Neyret
    - capsule and deep MCL
    - pie crust superficial MCL at joint line
    - Superficial MCL distal on the tibia
- Purpose
  - achieve ligamentous balance in extension AND flexion

STAGE 1

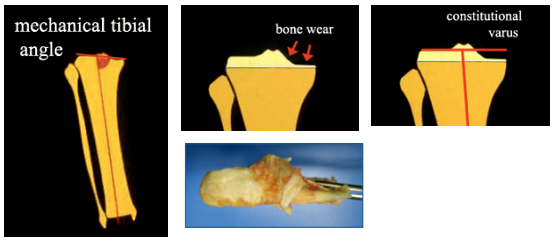
- Medial parapatellar approach
- Release of the anterior capsule
- Release of deep MCL

•+…



For all varus knees

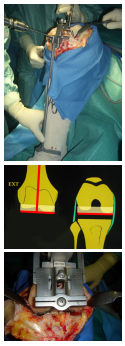
Varus knee



Reducibility of the deformity

STAGE 2

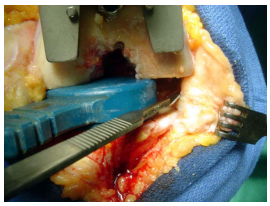
- Tibial cut first perpendicular to mechanical axis
- Posterior femoral cut
  - posterior condyle reference
  - external rotation depending on distal offset



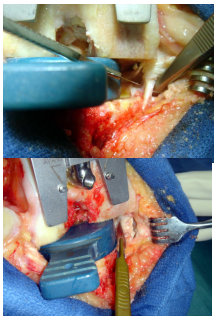
For <u>all</u> varus knees

Varus knee < 6°?

+ Release of the MCL

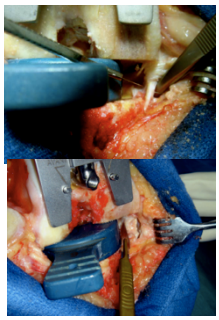


Pie crust of the MCL



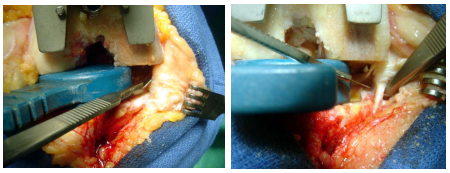
Varus knee

Pie crust of the MCL



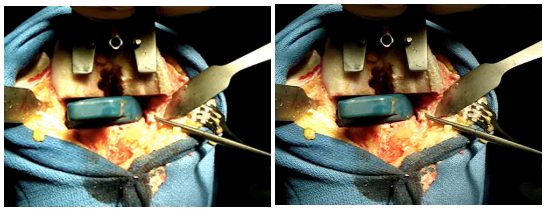
Surgical algorithm: OPTION 1

- Pie Crust of the superficial MCL at the joint line level. Only the tightest fibres of the MCL are addressed from the inside in flexion (anterior) and in extension (posterior) using an 11 blade



For <u>moderate</u> varus knees

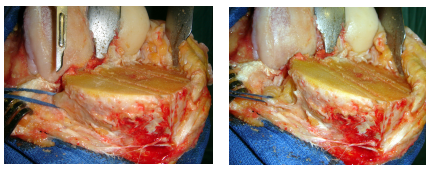
Pie crust of the MCL



Medial Medial

Surgical algorithm: OPTION 1bis

- Pie Crust of the superficial MCL at the joint line level
  - address selectively the posterior (extension) or anterior (flexion) fibers of the superficial MCL
- **+ release Semi-Membranosus**

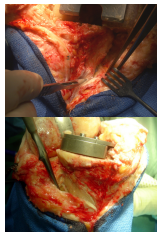


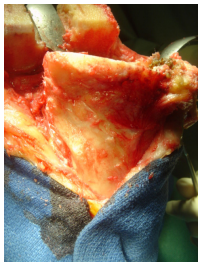
For <u>moderate</u> varus knees + flexion contracture

Varus knee 6-8°

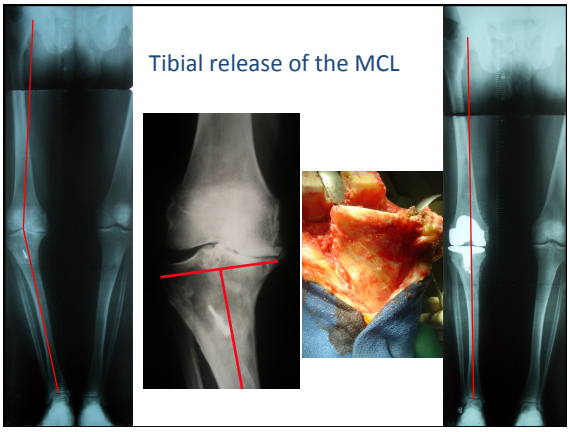
Pie crust of the MCL

Tibial release of the MCL





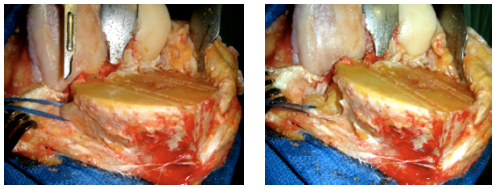
Constitutional deformity 6-8°



Varus knee

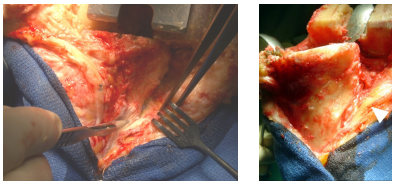
+ Semi membranosus release

if varus knee + flexum



Surgical algorithm: OPTION 2

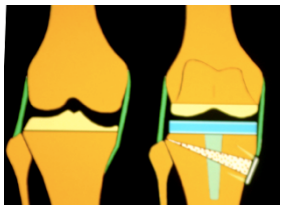
- Release of the superficial MCL on the distal tibia + release Semi-Membranosus



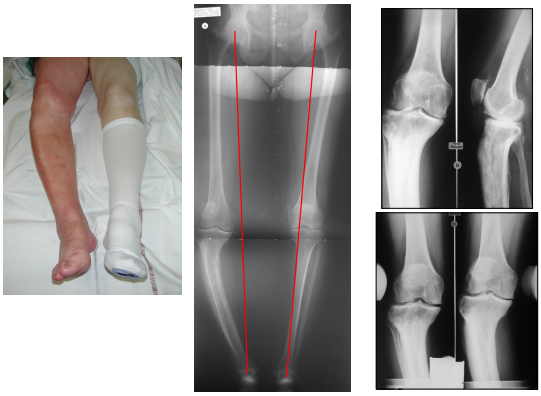
For severe varus knees

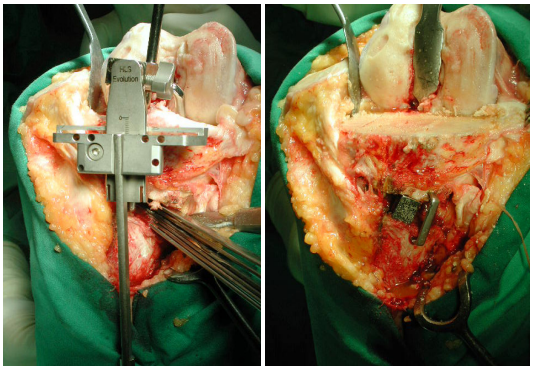
Varus knee > 8°

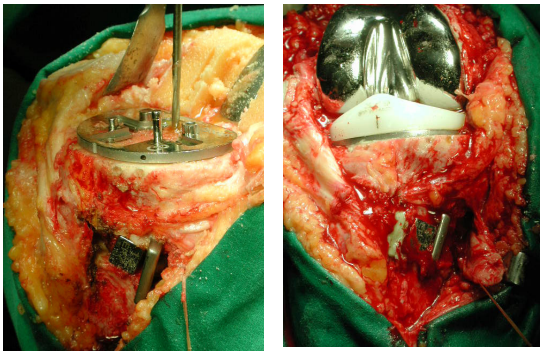
High Tibial Osteotomy + TKA

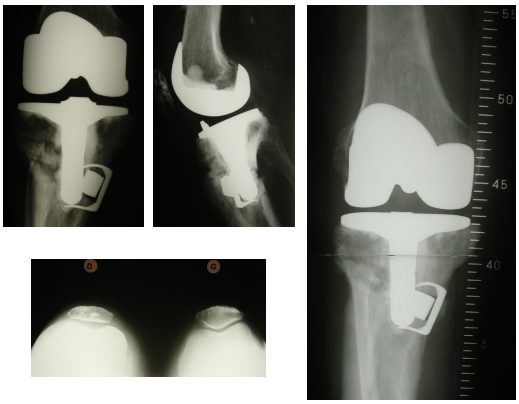


Constitutional deformity > 8°



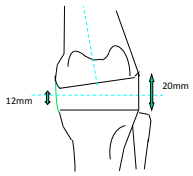




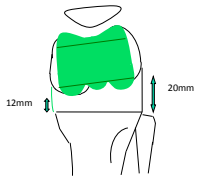


Pie Crust of the Medial MCL

- safely allows you to lengthen/release the superficial MCL up to max. 8 mm at the jointline level
- selective release of anterior (flexion) or posterior (extension) fibers possible



extension



flexion

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Rationale & Guidelines

- the choice of release technique is based upon
  - HKA
  - reducibility of the deformity
  - is done after the tibial cut... to assess flexion-extension gap asymmetry

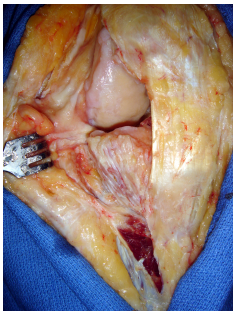
- Always release of the capsule and deep MCL
- varus < 8°: release pie crust supMCL
- varus >10°: release distal supMCL

Stages of release in valgus knees

Valgus knee

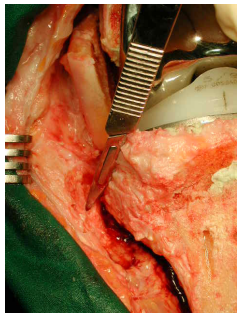
Lateral approach
Or medial ….

Ilio tibial band release



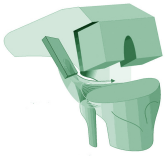
Valgus knee

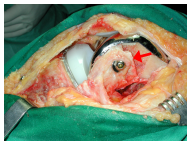
Pie crust of the ilio-tibial band



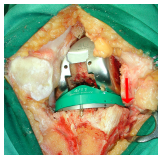
Valgus knee

Lateral femoral sliding osteotomy





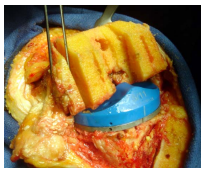
flexion



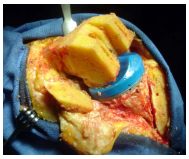
extension

BURDIN, Br JBJS Nov 2002

Valgus knee

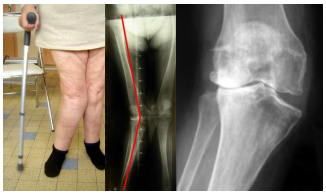


Lateral femoral sliding osteotomy



Valgus knee

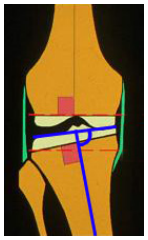
Valgus knee + Severe medial laxity
Rotating hinge prosthesis ?



CONCLUSION

Strategy

Varus knee — CONSTITUTIONAL DEFORMITY



<6° — Checked release of the MCL

6-8° — Tibial release of the MCL

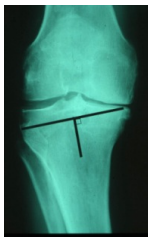
>8° — HTO+TKA

Unilateral lenghtening

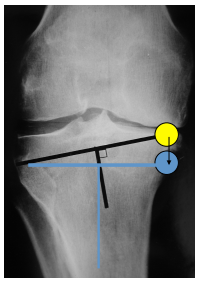
extra articular deformity, tibia varum

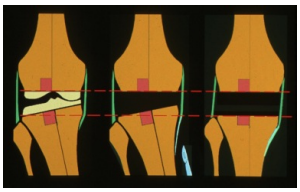
asymmetrical tibial cut

→ resection related laxity

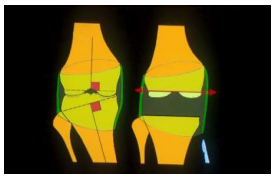


Unilateral lenghtening

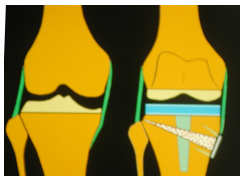




Limits for balancing



Unilateral lenghtening



HTO + TKA

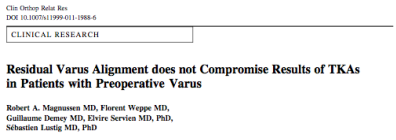
Strategy

valgus knee

Lateral approach

- Ilio tibial band release
- Lateral femoral osteot.
- Pie crust of the ilio tibial band
- …..Rotating hinged

Thank you



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CLINICAL RESEARCH

Residual Varus Alignment does not Compromise Results of TKAs in Patients with Preoperative Varus

Robert A. Magnussen MD, Florent Weppe MD, Guillaume Demey MD, Elvire Servien MD, PhD, Sébastien Lustig MD, PhD