

Staying Out of Trouble in ACL Surgery Whoops! I Blew Out the Back Wall



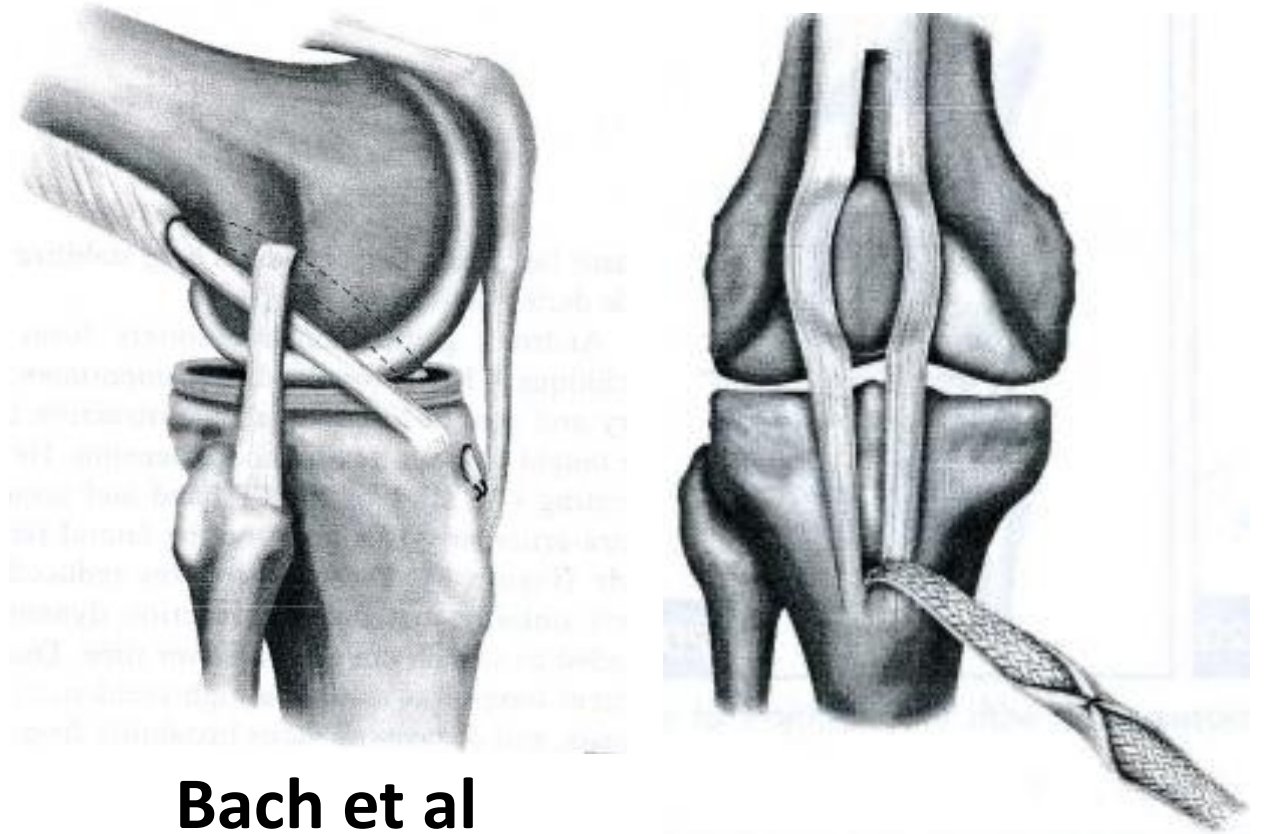
John C. Richmond, M.D.
New England Baptist Hospital
Tufts University School of Medicine

Speaker's Disclosure

- **Our fellowships and registry receive support from:**
Arthrex, DePuy-Synthes, DonJoy, Smith & Nephew, Conmed
Linvatec, Zimmer Biomet, Stryker
- **Consultant:**
Flexion Therapeutics
- **Member Speaker's Bureau**
Flexion Therapeutics
- **Available @ AAOS Disclosure Program**

Brief 40 Year H/O Intra-articular ACL Reconstruction

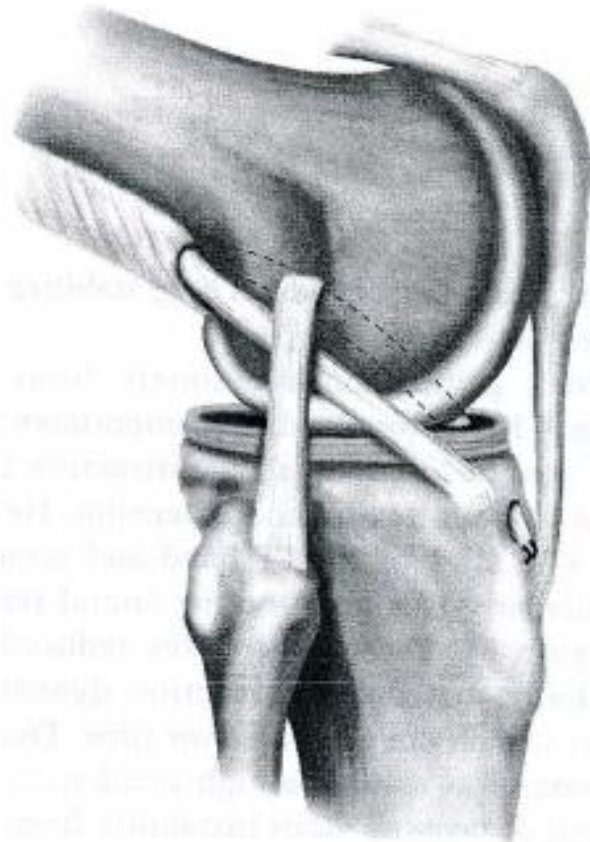
- Lateral extra-articular procedures evolved into combined intra- & extra-articular surgery
- MacIntosh 2
- MacIntosh 3 – QPOT
- Non-anatomic
- No femoral drill hole



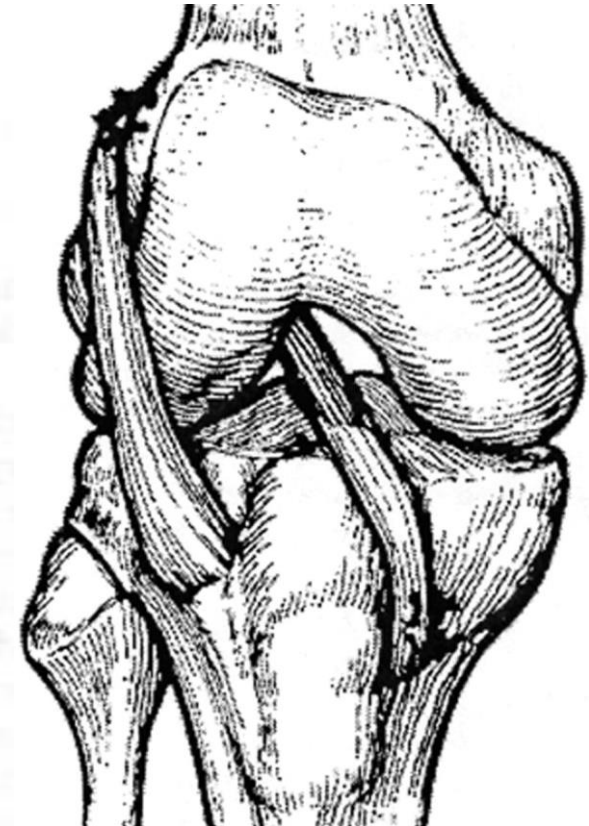
Bach et al
Illustrated H/O ACL Surgery

Brief 40 Year H/O Intra-articular ACL Reconstruction

- Lateral extra-articular procedures evolved into combined intra- & extra-articular surgery
- MacIntosh 2 evolved into physeal sparing pediatric technique of Micheli/Kocher
 - Still among the best results for physeal sparing



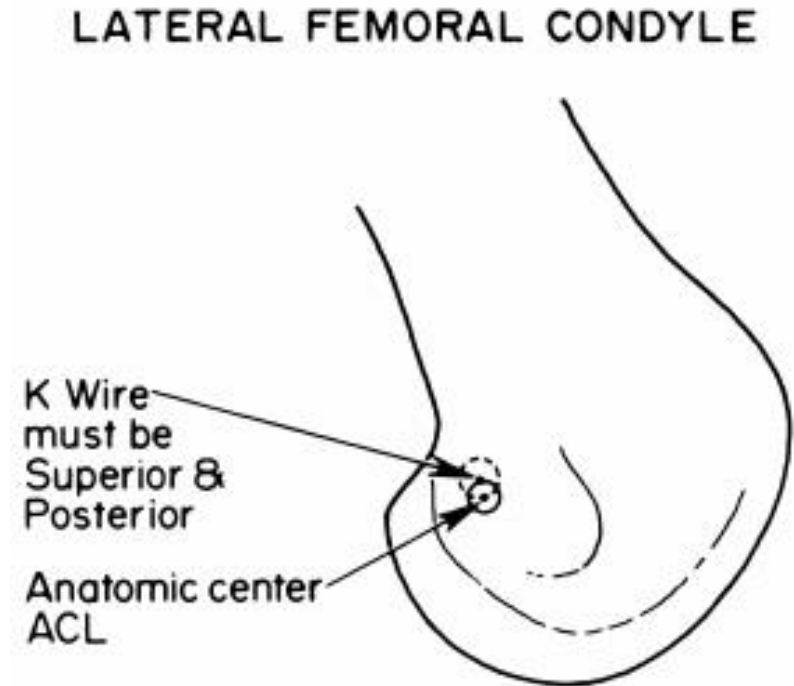
MacIntosh 2



Micheli/Kocher

Brief 40 Year H/O Intra-articular ACL Reconstruction

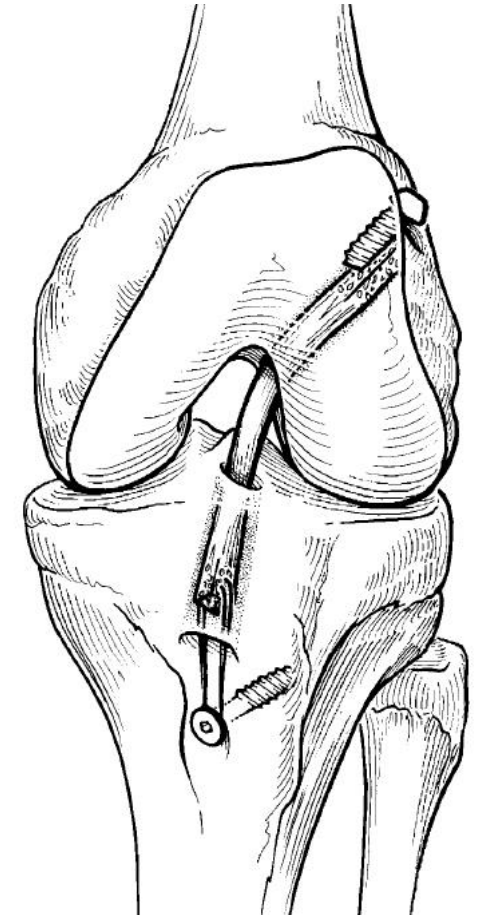
- Evolution from over-the-top to femoral drill hole
- Non-anatomic with guide pin more proximal
- Increased risk of blowing out the posterior wall



Clancy, JBJS 1982

Brief 40 Year H/O Intra-articular ACL Reconstruction

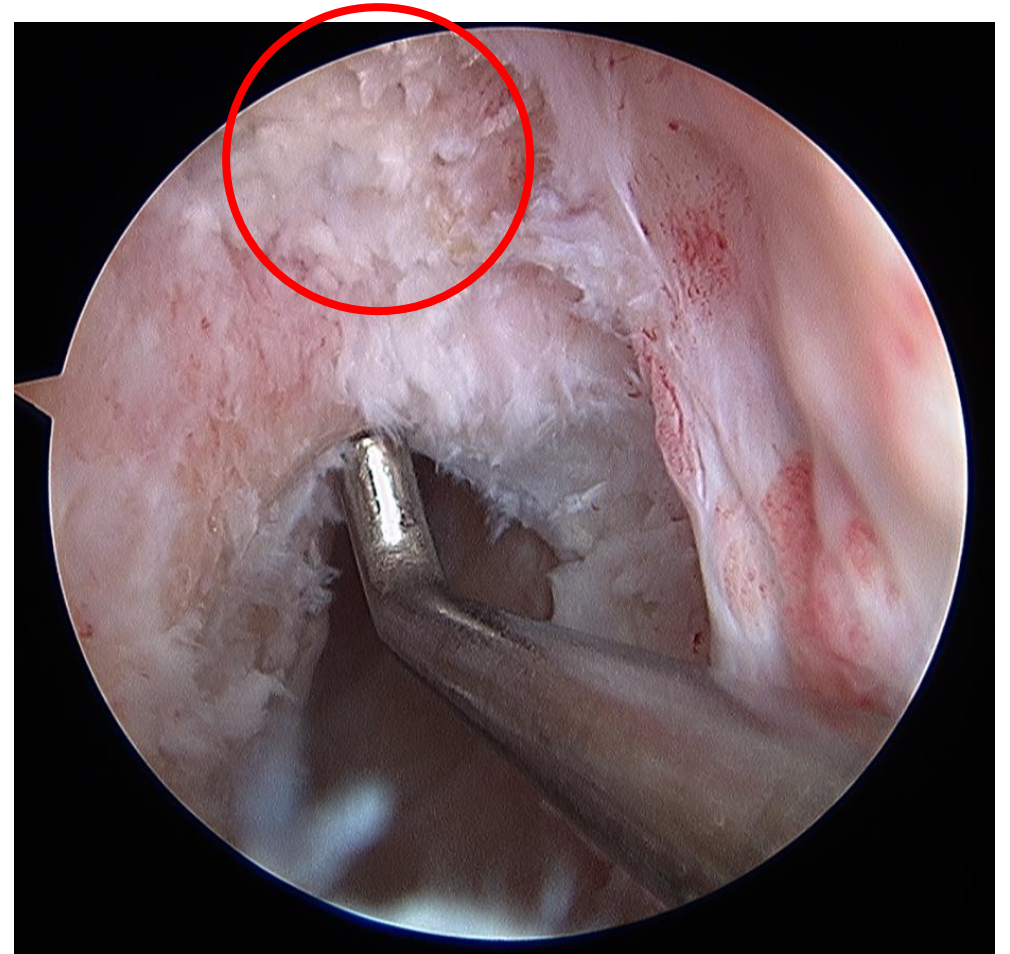
- Femoral drill hole with over-the-back guides or medial portal technique
- Blowout typically only medial 1/3 drill hole
- 2-incision with lateral cortical fixation: button, interference screw or screw as a post



JARS 1998

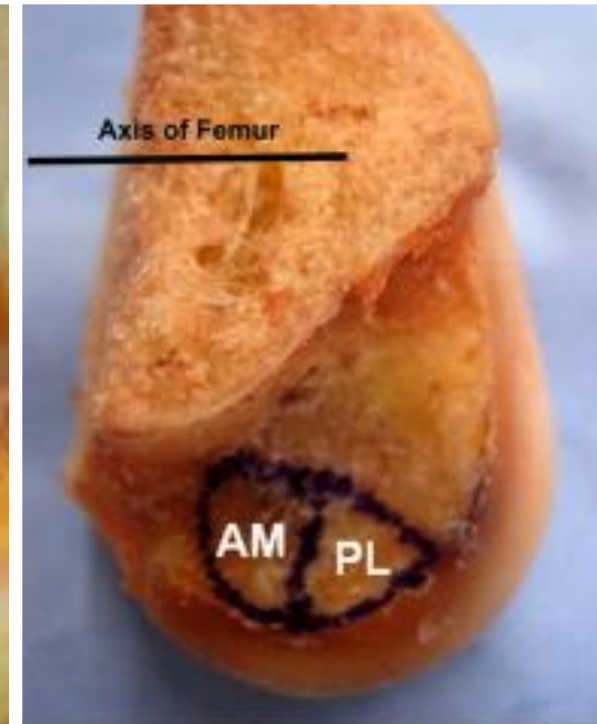
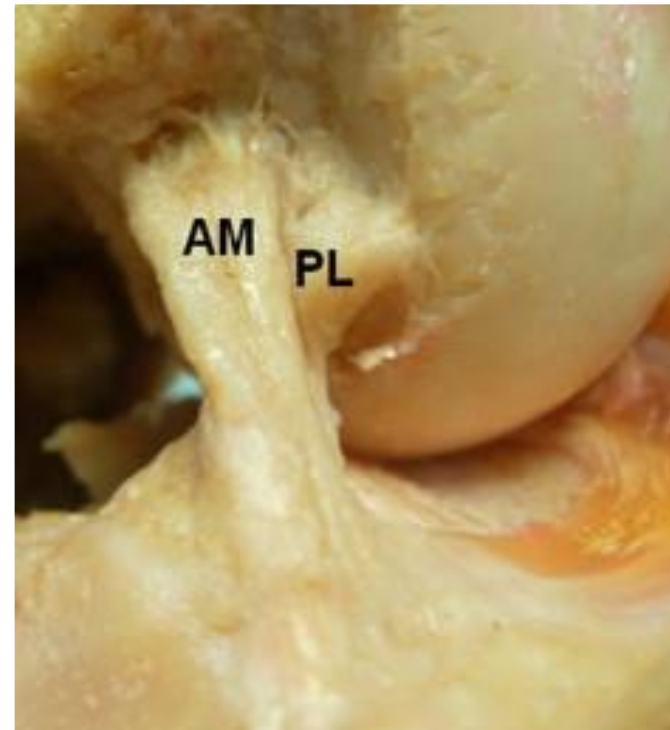
Brief 40 Year H/O Intra-articular ACL Reconstruction

- Rosenberg 1991 introduced trans-tibial “endoscopic” single incision technique
- Almost impossible to get far enough back to blow out posterior wall
- We had other problems



Brief 40 Year H/O Intra-articular ACL Reconstruction

- Late 1990s – early 2000s anatomy rediscovered
- Femoral footprint low on the lateral wall of the notch
- Double-bundle
- Back to independent femoral drilling

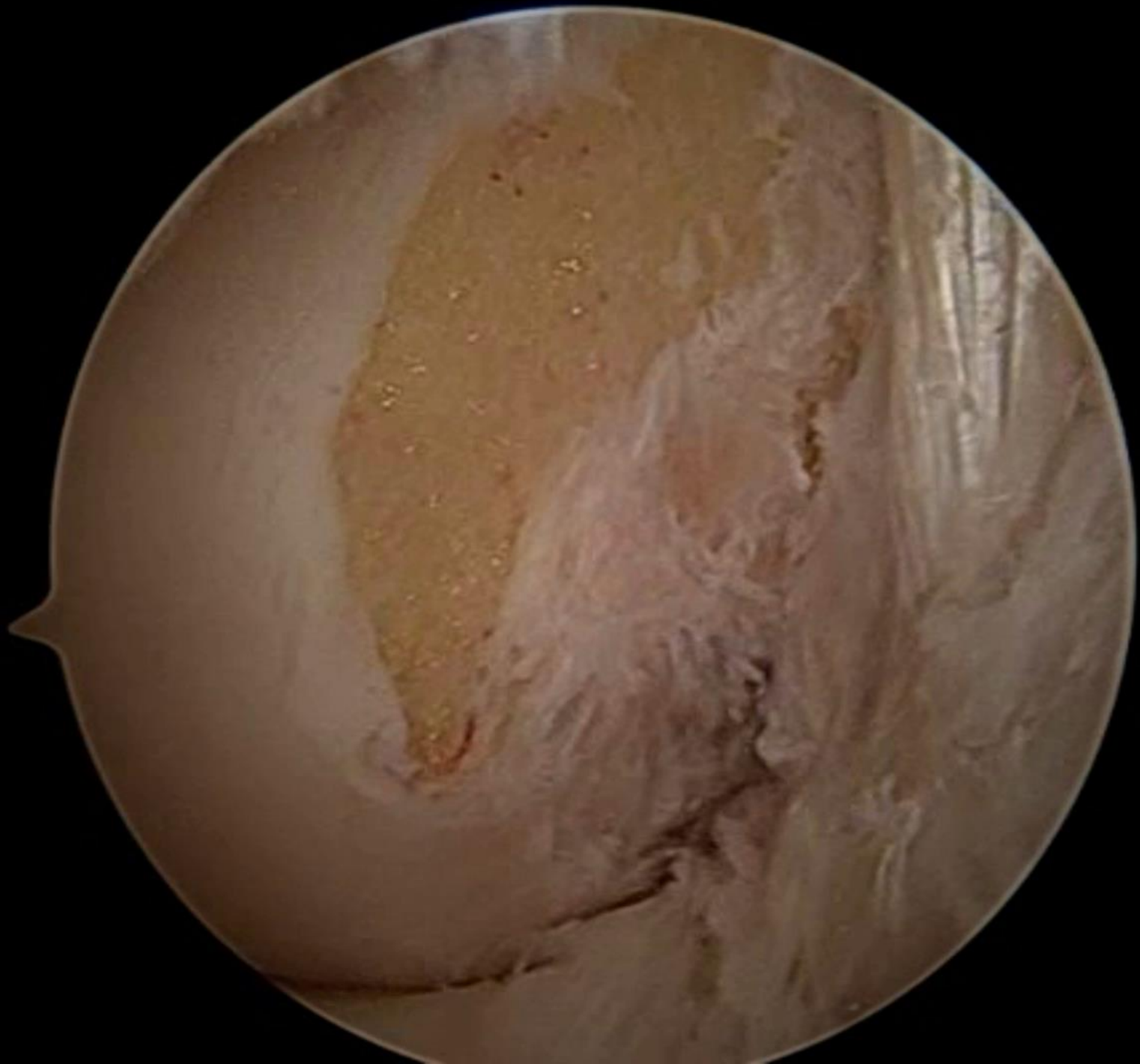


Fu et al, *Arthroscopy*, 2008

Brief 40 Year H/O Intra-articular ACL Reconstruction

- Independent femoral drilling
- Medial portal or outside-in
- Posterior wall blowout is back in play
- Avoidance techniques

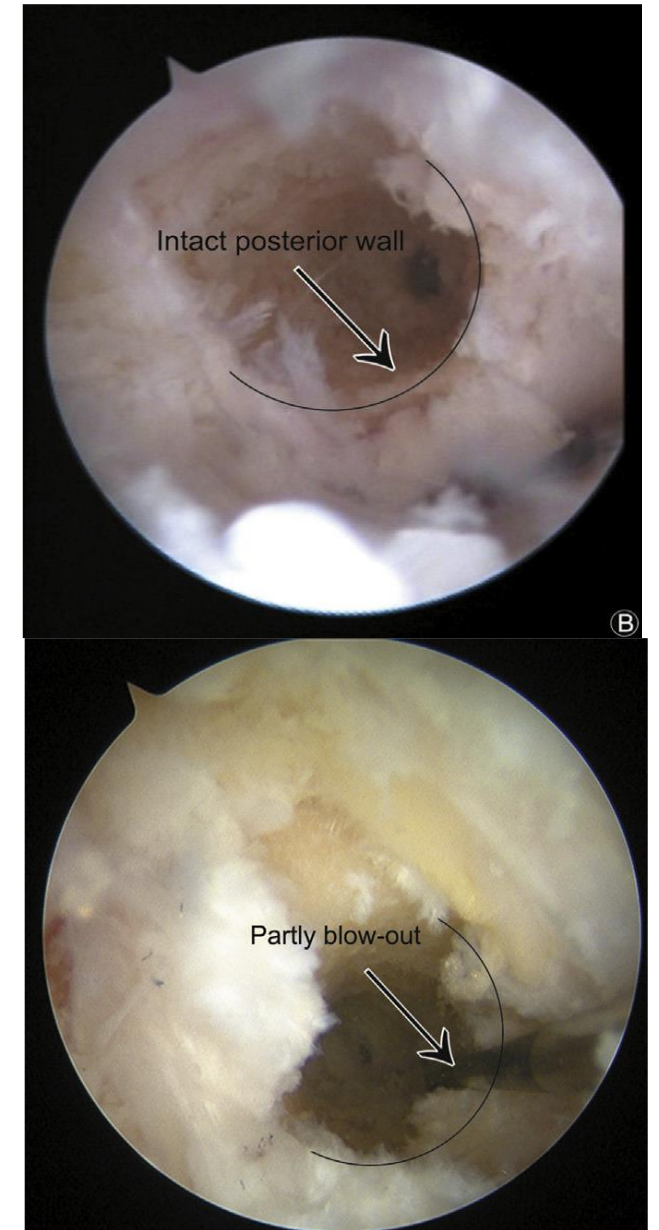




Data (what little there is)

Results After Posterior Wall Blowout

- Chinese Journal of Traumatology – 2019
- Retrospective comparison with matched cohorts 10 pts.
- Hamstring autografts: lateral cortex intact, routine fixation with flip button
- No difference in KT or clinical laxity, IKDC, Lysholm & Tegner scores

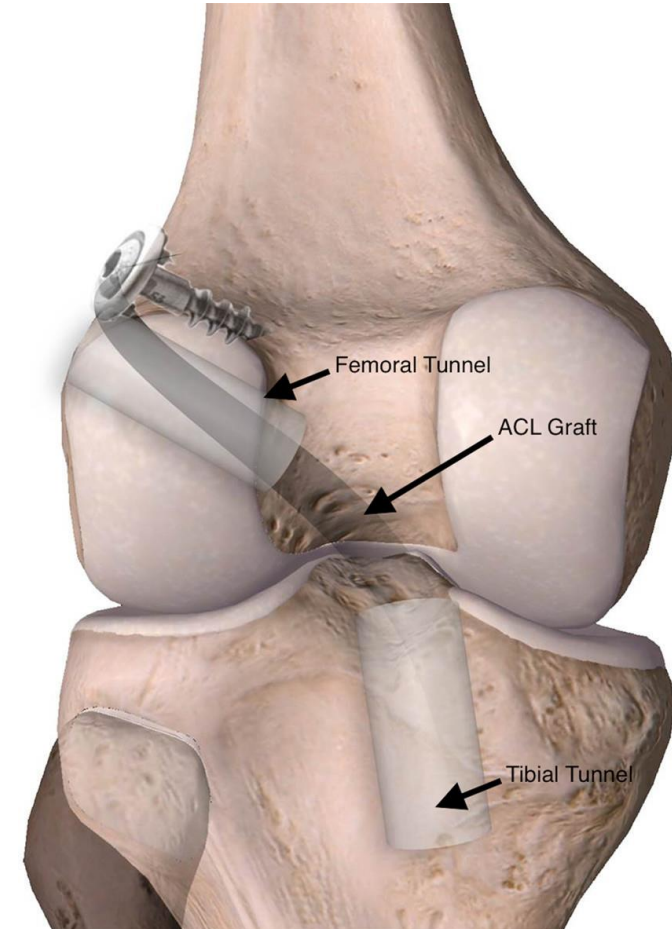


What to do After Complete Posterior Wall Blowout

Fall back to 2nd Incision for Cortical fixation

- LaPrade et al – *AJSM* 2016
- Bach et al – *JKS* 2010

- Key is intra-op recognition
- Use medial portal for vision
- Remember 2nd incision



LaPrade et al – *AJSM* 2016

REFERENCES

Rue JH, Busam ML, Dettlerline AJ, Bach BR Jr. Posterior wall blowout in anterior cruciate ligament reconstruction—avoidance, recognition, and salvage. *J Knee Surg.* 2010;21:235-240.

Mitchell JJ, Chase SD, ChahlaJ, et al. Posterior wall blowout in anterior cruciate ligament reconstruction; a review of anatomic and surgical considerations. *OJSM.* 2016;4:e551-e555.

Jiang X-D, Zheng H-L, Yang Y-P. Outcome of posterior wall blowout in anterior cruciate ligament (ACL) reconstruction via anteromedial approach: a retrospective research in 20 patients with 6 years follow-up. *Chin J Traum.* 2019;22:24-28.

Thank You