

Adhesion between the graft and the transverse ligament after anatomical ACL reconstruction:

~An effect of arthroscopic release of adhesions~

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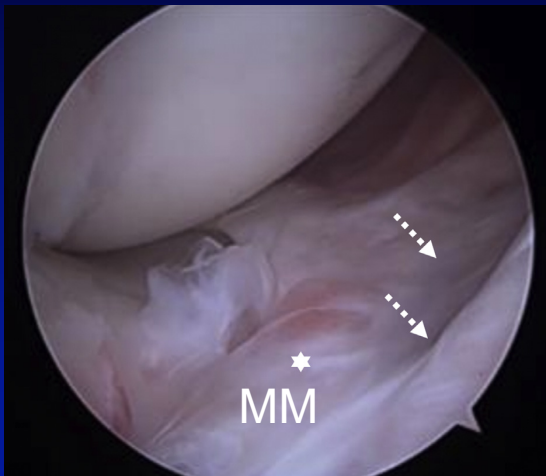
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Disclosure of Conflict of Interest

Name of first author: Masashi Kusano

I have no COI
with regard to our presentation.

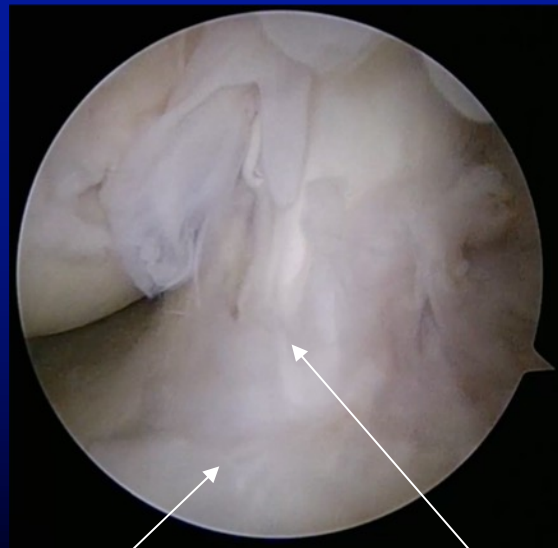
Introduction



Anterior interval is a space between Transverse lig. and infrapatella fat pad

Anterior interval scarring after ACL-R is an under-recognized condition

(Rose, Arthro tech 2018)



Transverse lig.

ACL graft

Not only anterior interval scarring, but **adhesion between transverse lig. and ACL graft** are observed

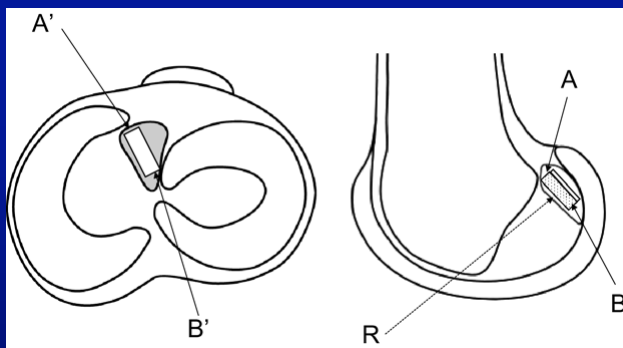
There have been no report

Purpose of this study

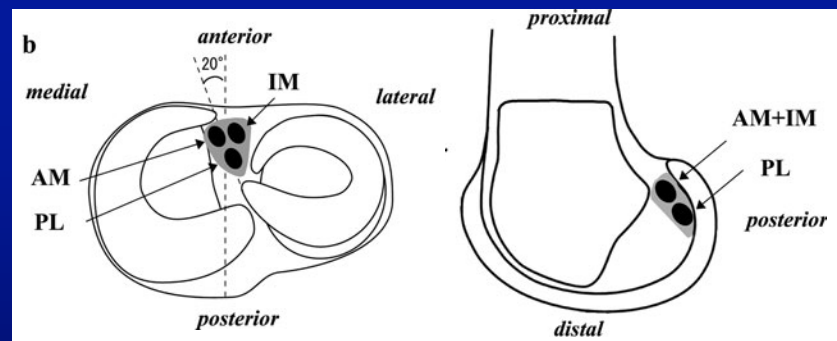
- To examine an adhesion between the ACL graft and transverse ligament after ACL reconstruction.
- To elucidate whether anterior knee symptoms after ACL reconstruction are caused by adhesion.
- To examine the effect of surgical release of adhesion.

Materials and Methods

- 37 knees who underwent 2nd look AS after ACL reconstruction since April 2017
 - ✓ 27 Anatomic rectangular-tunnel (ART) ACLR with BTB graft
 - ✓ 10 Anatomic triple-bundle (ATB) ACLR with HST graft



(Shino, Arthroscopy 2008) (Shino, Arthroscopy 2004)



(Shino, Oper Tech Orthop 2005)

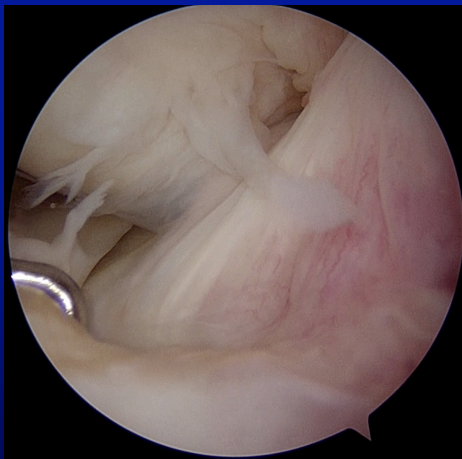
- No** patient complained
- instability
 - extension loss $>5^\circ$

Grading of adhesion @ 2nd look

Grade 0 : No adhesion

Grade I : mild (released by probe)

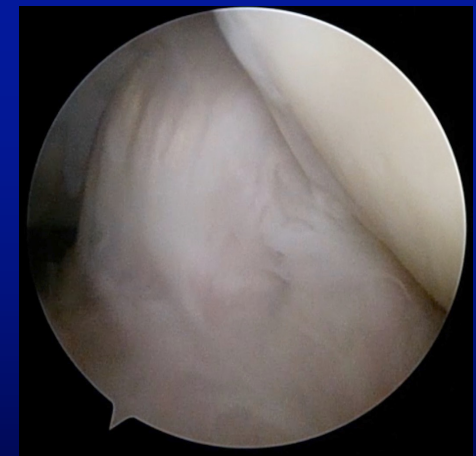
Grade II : moderate (released by mechanical shaver)



Grade 0



Grade I



Grade II

If adhesion was present, surgical release was performed

Results

No adhesion

Grade 0

6 knees

mild

Grade I

9 knees

moderate

Grade II

22 knees

11 knees

- Adhesion is only finding
- No other abnormal lesion such as cyclops

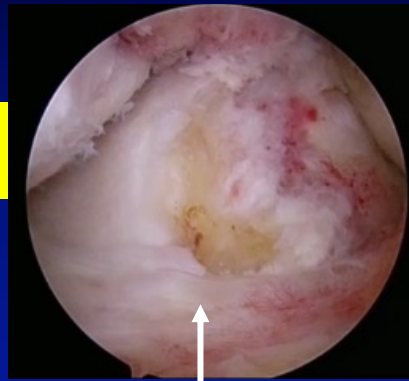
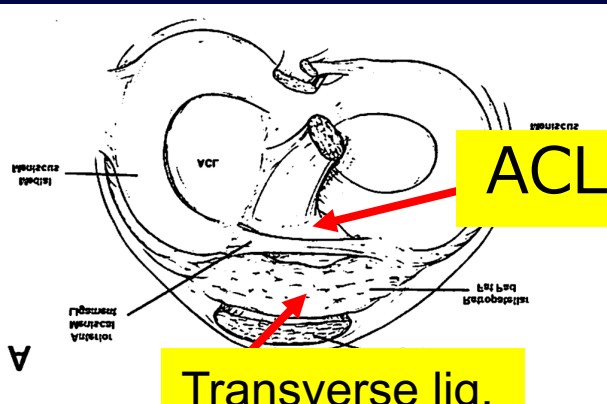
In 11 knees, changes of the symptom after surgical release were evaluated

Results ~Characteristics of 11 knees~

No.	Grade	Symptoms	
		Before ope.	After surgical release
1	I	No	No symptom (no change)
2	I	No	No symptom (no change)
3	I	No	Improvement in uncomfortable feeling
4	II	No	Improvement in uncomfortable feeling
5	II	No	Improvement in uncomfortable feeling
6	II	No	Improvement (Easier to extend knee)
7	II	Discomfort at full extension	Improved
8	II	Discomfort at full extension	Improved
9	II	Discomfort at full extension	Improved
10	II	Uncomfortable feeling (incl.sound)	Sound disappeared (slightly improved)
11	II	Uncomfortable feeling (incl.sound)	Improved

Surgical release of adhesion was effective in 9/11 knees

Discussion



Transverse ligament is located adjacent to the ACL

Transverse lig.

(Masouros KSSTA 2008) Transverse lig.



Transverse lig.

- Bone tunnel and the ACL graft is too close to the transverse lig. in anatomic ACLR

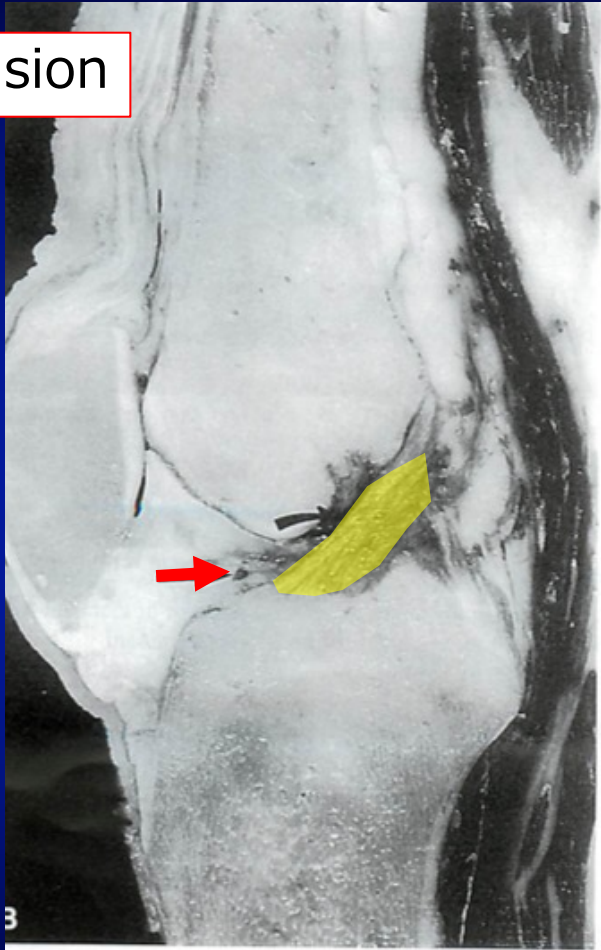
(Kusano, Yonetani Knee 2017)

- Immobilization after operation

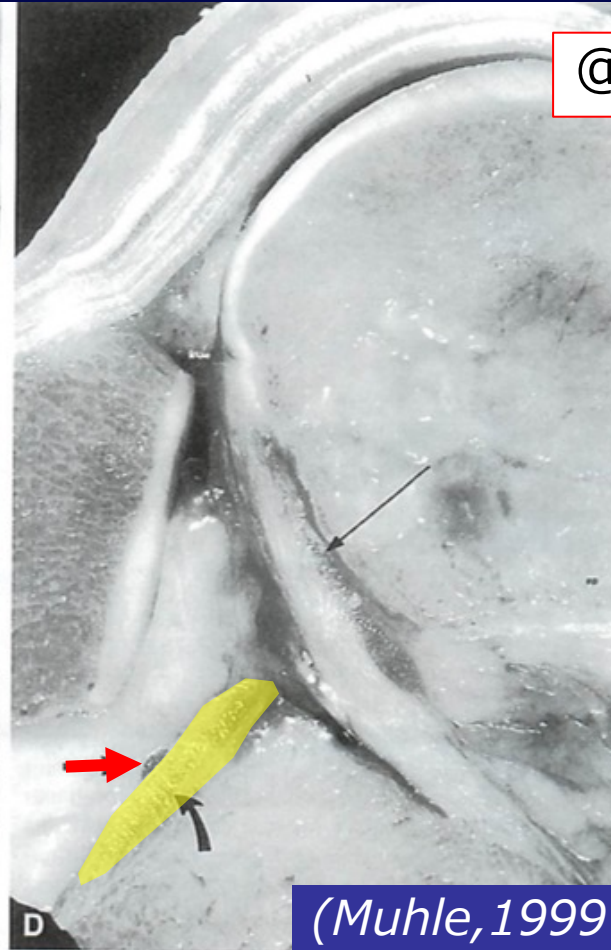
Cause of adhesion

Mobility of Transverse ligament

@Full extension



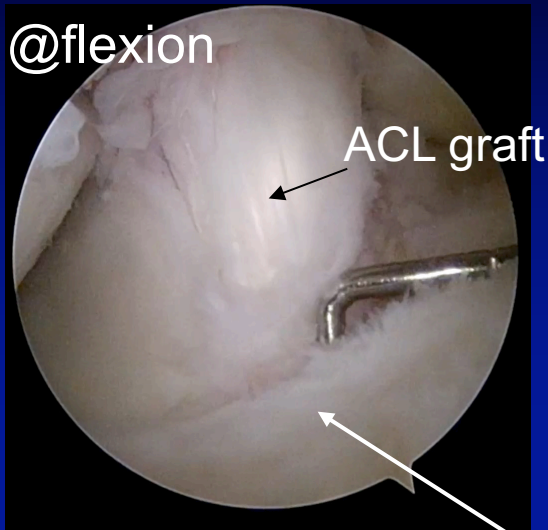
@Full flexion



(Muhle, 1999 invest Radiol)

Transverse lig. is located in front of ACL at full extension, but above the ACL at full flexion

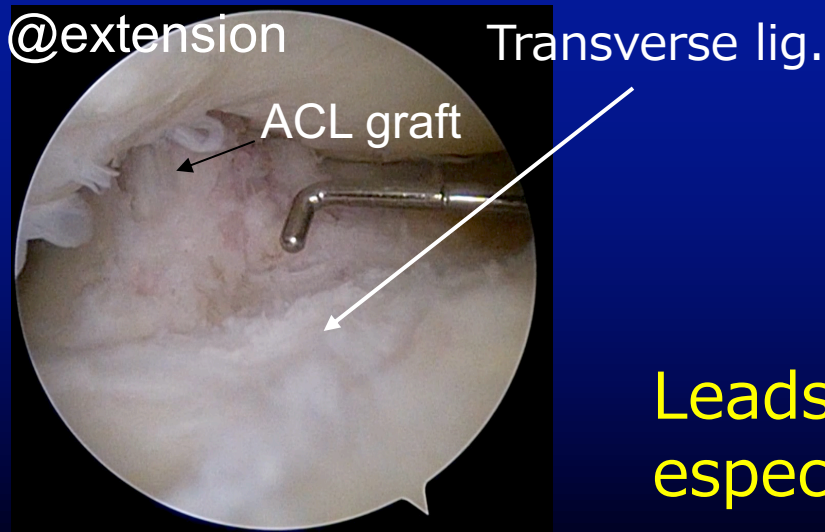
Effect of surgical release



Regaining normal mobility
of the transverse ligament

Apparent @ extension

Move forward,
independently from ACL



Leads to symptomatic improvement
especially @ extension

Conclusion

- After ACL reconstruction, adhesion occurred between the transverse ligament and the ACL graft at high rate.
- Surgical release of adhesion resulted in subjective improvement of the symptom by regaining normal mobility of the transverse ligament.

Reference

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