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The Single-Stage Multiple-Ligament Knee Reconstructions Can Significantly Improve Clinical and Radiographic Outcomes

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Faculty Disclosure Information

- Nothing to disclosure



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Purpose

- The mid-term clinical and radiographic results of **single-stage reconstruction** in cases of knee dislocation and multiple-ligament knee injury.



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- Inclusion criteria:
 - 2022~2024, CGMH, Linkou
 - Knee dislocation or MLKI patients
 - **Single-stage reconstructions (at least 2 major)**
 - Follow-up 12 months
 - Exclusion criteria:
 - Previous knee injury or surgery
 - Skeletal immaturity



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Variables

- Demographic data
- Clinical outcome:
 - ROM
 - VAS
 - IKDC (International Knee Documentation Committee)
 - SANE (Single Assessment Numeric Evaluation)



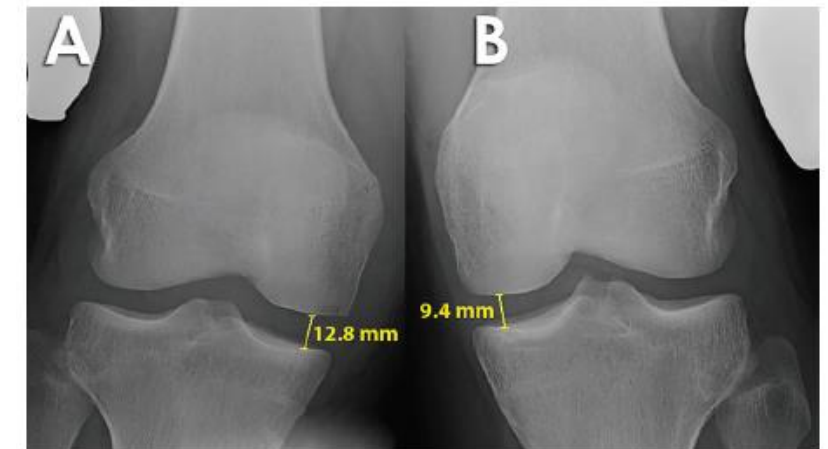
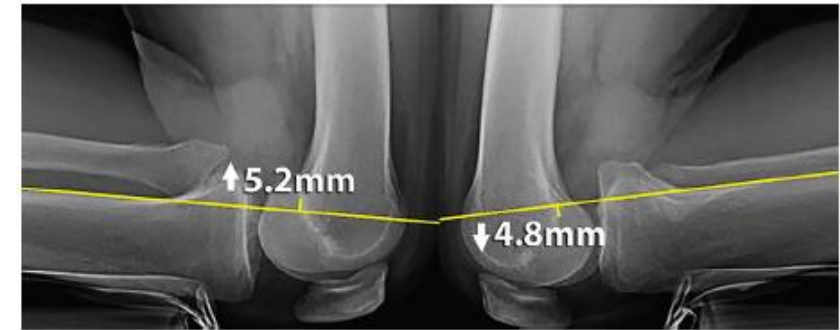
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Variables

- Radiographic outcome:
 - Stress view (side-to-side difference)
 - Varus, valgus, posterior
 - Post-op 6 months
 - MRI
 - Post-op 1 year



Laprade, et al.



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Age	Gender	BMI	Dislocation	Ligament	Meniscus	Others
65	M	28.5	KD IV	ACL + LET + SB PCL + LCL + PCL + sMCL	MM, LM	
31	F	27.4	KD IIIM	ACL + ALL + SB PCL + sMCL + dMCL + POL	LM, MM	
26	F	23.8	-	SB PCL + LCL + PLC (Laprade)		
22	M	18.1	-	SB PCL + LCL + PLC (Laprade)		
34	M	23.5	KD IV	Patella tendon repair ACL + LET + SB PCL + LCL + PLC (Larpade) + sMCL + dMCL	MM root	Patella tendon tear
23	M	34.0	KD IV	Open reduction, ESF ACL + DB PCL + LCL + PLC (Laprade) + sMCL		Open dislocation
18	M	28.3	KD I	Patella ORIF SB PCL + LCL + PLC (Laprade)	MM root	Patella and acetabulum fx
39	F	20.8	-	ACL + LET + SB PCL + LCL + PLC (Laprade)	LM	
45	M	26.0	-	ACL + LET + SB PCL		
43	M	28.7	-	ACL + LET + SB PCL + sMCL + dMCL		
57	M	26.5	-	ACL + SB PCL + popliteus		Fibular head fx with CPN palsy
60	F	39.7	KD IIIM	ACL + dMCL + sMCL + POL	LM	Morbid obesity
59	F	26.0	KD IIIM	ACL + PCL avulsion repair + sMCL		
31	F	23.1	-	ACL + sMCL + dMCL + POL		
34	F	25.2	-	ACL + sMCL + dMCL	LM	
23	F	22.4	KD IIIM	ACL + SB PCL + sMCL + POL	MM root	
36	M	29.4	-	ACL + ALL + sMCL	MM, LM	
19	M	21.0	KD IIIL	ACL + SB PCL + popliteus + LCL		Pelvic fracture



Results

- 18 patients
- M:F = 10:8
- Age: 33.7
- BMI: 26.7
- Dislocation as present: 9
- All single-stage
 - Acute : Delayed = 6:12



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Results

- Clinical outcomes
 - IKDC: 38.7 → 69.0
 - SANE: 37.2 → 73.3
 - VAS: 8 → 1
 - Post-op ROM: 125.6
 - All $p < 0.001$
 - No differences in acute and chronic cases



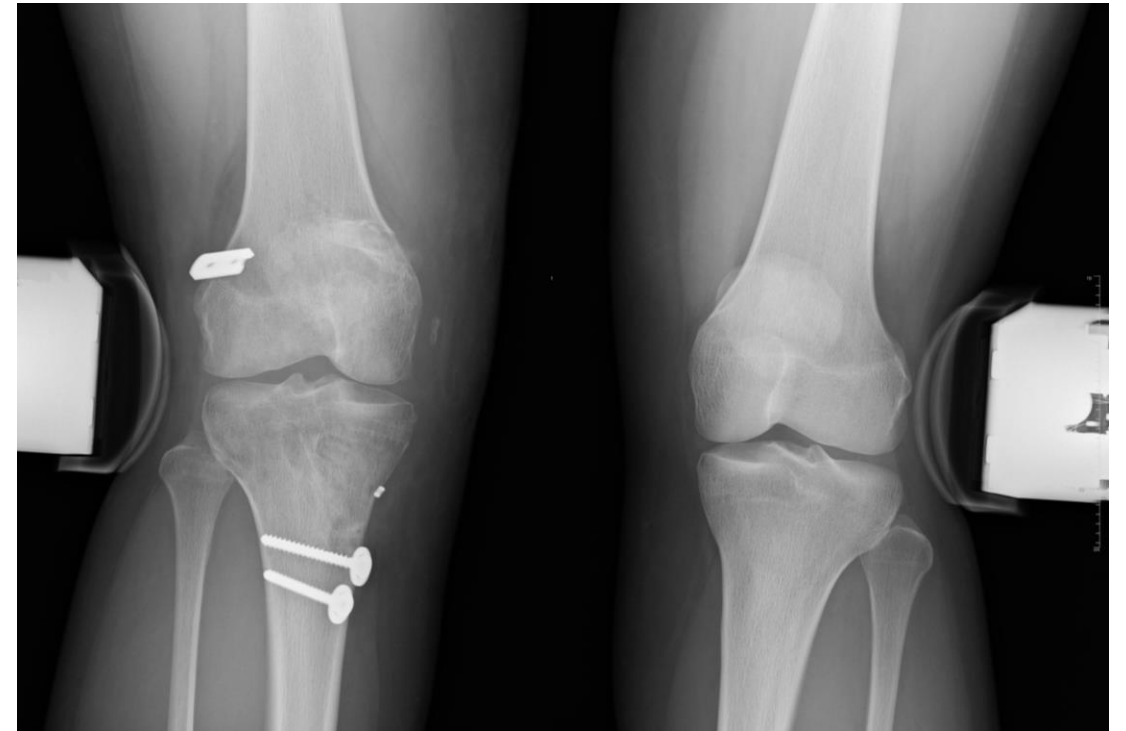
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Results

- Radiographic outcomes
 - Stress view
 - Varus: 3.2 mm → 2.0 mm
 - Valgus: 2.9 mm → 1.1 mm
 - Posterior: 13.6 mm → 6.1 mm
 - All $p < 0.05$



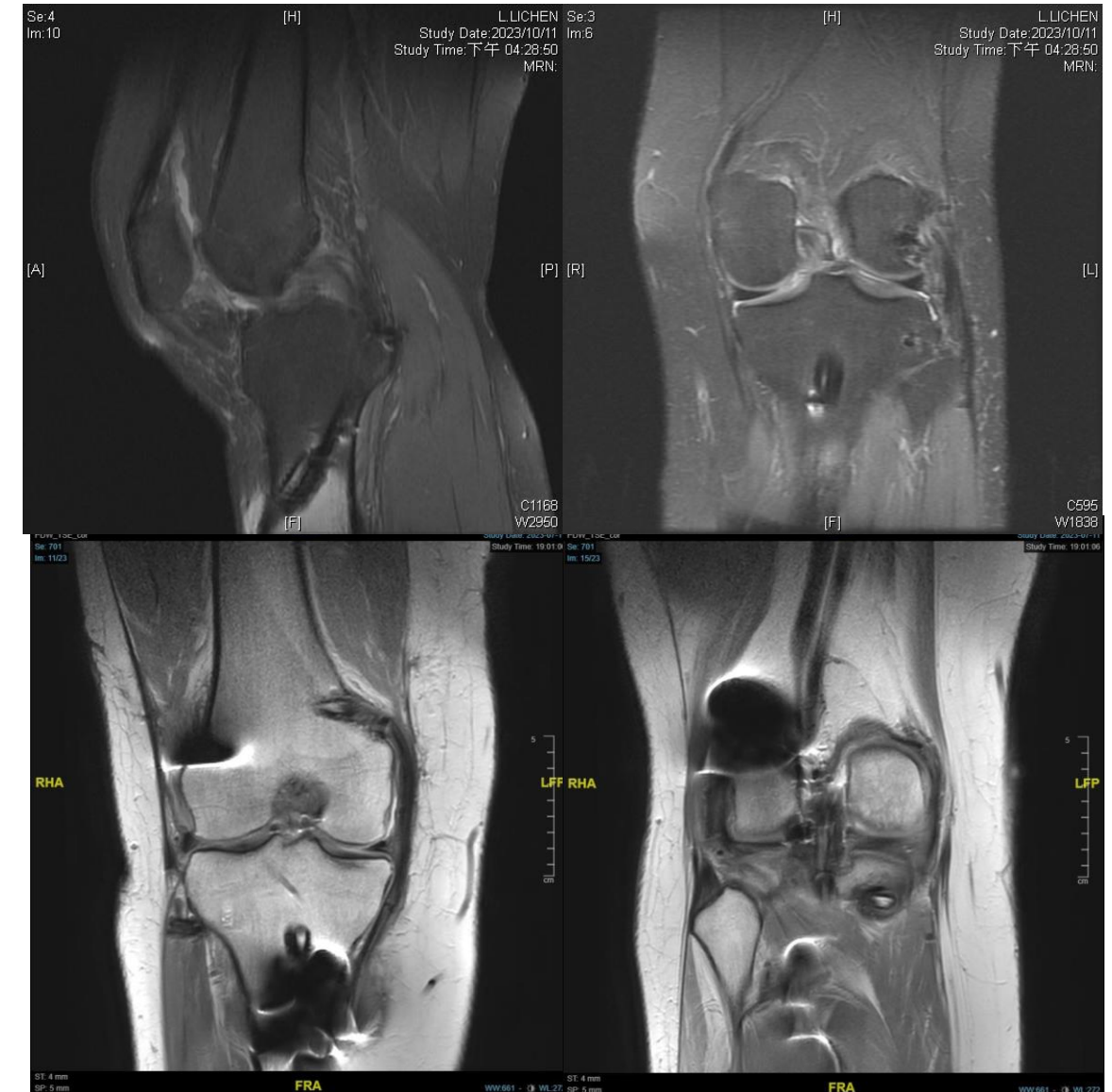
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Results

- Radiographic outcomes
 - MRI:
 - All grafts healed in 1 year, except..
 - Two cases with KD IV
→ Both PCLR retear
- Complication:
 - One rhabdomyolysis (KD IV)



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Conclusion

- **Single-stage** anatomic-based knee ligament reconstructions with **immediate postoperative rehabilitation** yielded **significantly improved clinical and radiographic outcomes.**



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