Clinical outcomes of arthroscopic superior capsular reconstruction using long head of the biceps with rotator cuff repair

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COI

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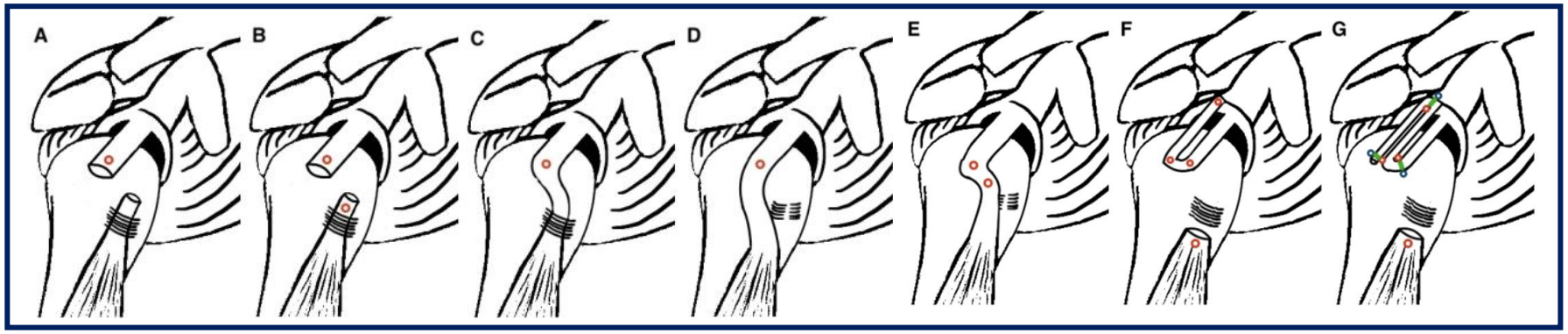
COI Disclosure Information

Presenter： Daichi Morikawa

I have no financial relationships to disclose.

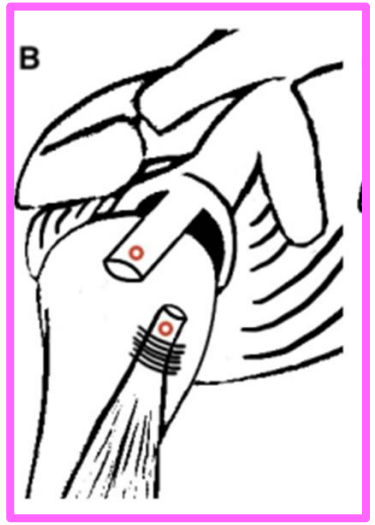
Background: SCR using Long Head of Biceps Tendon

- ✓ Recently, arthroscopic superior capsule reconstructions (ASCR) using the long head of the biceps (LHB) tendon were reported.
- ✓ However, there were several variations for fixing method of SCR and LHB.



Kitridis et al.
Medicina 2021

- ✓ My prefer technique
  - Proximal LHB:SCR
    - ➢ decrease superior migration of humeral head
  - Distal LHB: Tenodesis at intra-groove
    - ➢ decrease the risk of postoperative anterior pain
  - Tenotomy between proximal and distal LHB
    - ➢ decrease the risk of failure of SCR



Purpose

To compare the clinical outcomes and re-tear rate between ASCR using LHB with RCR and ARCR in large to massive RCT.

Methods: Retrospective study (Jan 2021 to Mar 2023)

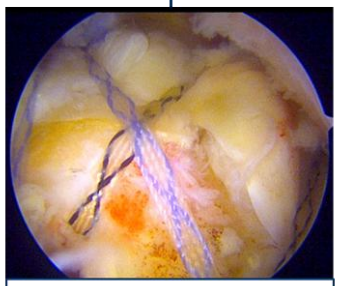
✓ Flowchart of surgical criteria

Preoprerative MRI, Cofield and Goutallier classification
large or massive RCT w/o severe muscle atrophy

LHB findings (MRI and AS)

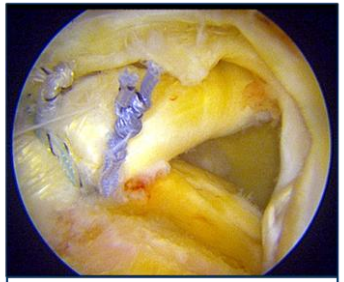
intact or torn

degenerated or dislocated



ARCR

Group A (N:13)



ASCR using LHB

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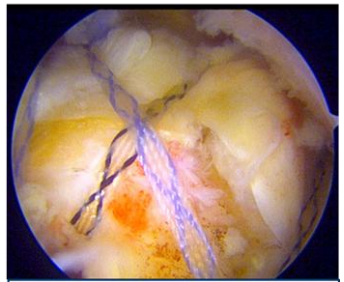


ARCR

Group B (N:7)

minimum f/u
12 months

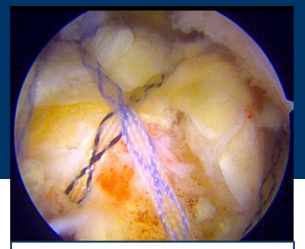
Methods

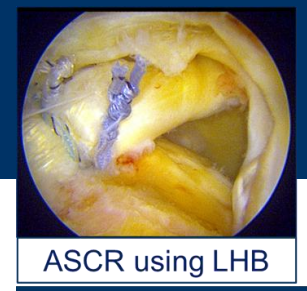
- ✓ Patient's characteristics
  - Age, Sex, R/L, dominant

- ✓ Preoperative findings
  - Active ROMs (AE, ER, IR)
  - Clinical scores (JOA and UCLA scores)
  - MRI – tear size (coronal and sagittal)
  - MRI – muscle atrophy (SSC, SSP, ISP, TM, Goutallier classification)

- ✓ Postoperative findings
  - Active ROMs (3, 6, and 12 months after surgery)
  - Clinical scores (12 months after surgery)
  - MRI (6m) – cuff integrity (Sugaya classification)

Results-1: Patients characteristics





✓ Patient's characteristics

	Group A	Group B	p-value
Age. Y	63.1 ± 12.8	69.9 ± 9.2	0.33
Sex (male, %)	10 (76.9)	6 (75.0)	0.87
Side			
Right (%)	6 (46.2)	3 (57.4)	0.96
Dominance (yes, %)	7 (53.8)	4 (42.9)	0.96

There were no significant differences in all patient's characteristics (age, sex, side, and dominance) between the two groups

Results-2: Preoperative findings

- ✓ Preoperative findings (ROMs and clinical scores)

	Group A	Group B	p-value
Active ROMs			
Forward flexion (deg)	86.5 ± 56.8	110.7 ± 48.3	0.33
External rotation (deg)	39.6 ± 18.0	32.9 ± 20.6	0.71
Internal rotation (level)	L2 (Th10-S)	L2 (Th4-S)	0.60
JOA score (points)	61.6 ± 16.3	59.8 ± 8.8	0.81
UCLA score (points)	15.0 ± 7.6	15.7 ± 3.4	0.84

There were no significant differences in all preoperative findings (active ROMs and clinical scores) between the two groups

Results-3: Preoperative MRI findings

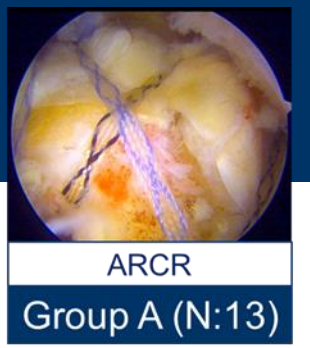
- ✓ Preoperative MRI findings (tear size and atrophy)

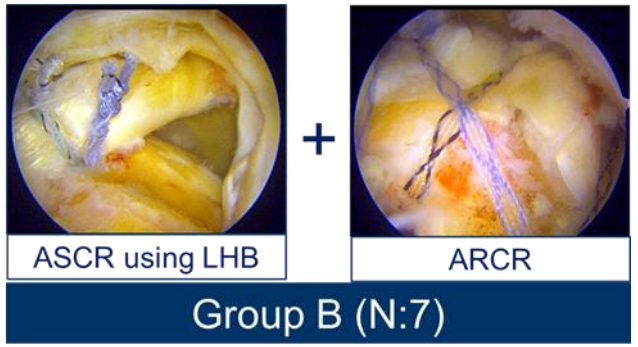
	Group A	Group B	p-value
Tear size (coronal, mm)	38.2 ± 4.3	35.0 ± 4.3	0.18
Tear size (sagital, mm)	34.9 ± 4.5	30.1 ± 7.3	0.08
Goutallier classification			
SSC	1.1 ± 0.9	0.5 ± 0.8	0.39
SSP	1.5 ± 0.5	1.5 ± 0.5	0.79
ISP	1.2 ± 0.4	1.0 ± 0.0	0.42
TM	0.1 ± 0.3	0.1 ± 0.4	0.24

There were no significant differences in all preoperative MRI findings (tear size and RC atrophy) between the two groups

Results-4: Postoperative ROMs

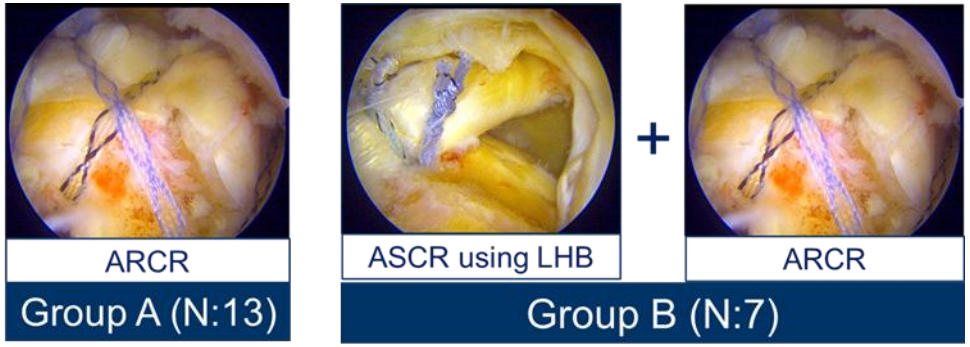
	Group A	Group B	p-value
Active			
Forward flexion, deg			
3m	114.6 ± 38.8	98.6 ± 17.7	0.45
6m	150.0 ± 26.9	138.6 ± 13.5	0.43
12m	167.9 ± 14.7	161.7 ± 17.9	0.68
External rotation			
3m	32.9 ± 16.6	28.6 ± 12.2	0.47
6m	47.1 ± 16.0	47.1± 11.1	0.75
12m	58.3 ± 17.5	61.7 ± 13.3	0.78
Internal rotation			
3m	L2 (Th7-S)	L2 (L1-S)	0.24
6m	L2 (Th4-L5)	L2 (L1-S)	0.09
12m	Th9 (Th4-L1)	Th12 (Th10-L5)	0.11





There were no significant differences in all postoperative ROMs (AE, ER, and IR) between the two groups

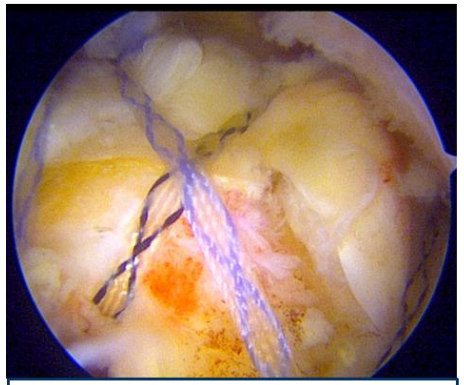
Result-5: Postoperative clinical scores



	Group A	Group B	p-value
JOA score (12m)	95.4 ± 5.7	95.7 ± 2.9	0.92
UCLA score (12m)	33.6 ± 1.8	31.8 ± 3.0	0.27

There were no significant differences in clinical scores (JOA and UCLA scores) between the two groups

Results-6: Postoperative MRI findings



ARCR

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ASCR using LHB

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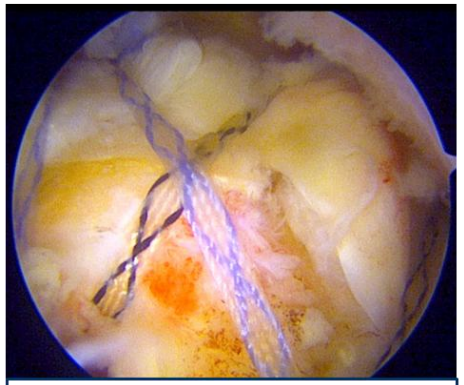
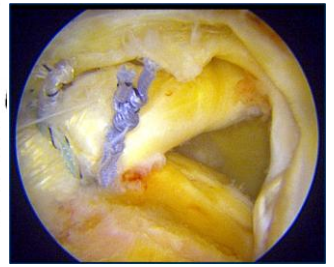


ARCR

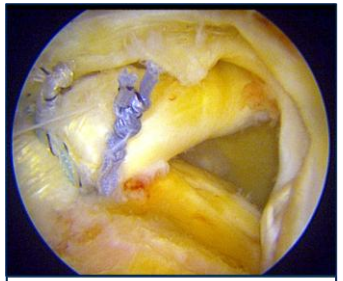
	Group A (N:13)	Group B (N:7)	
re-tear (Sugaya 4 or 5)	5 cases (38.5%)	1 case (14.3%)	*P=0.35*
re-operation	1 case (RSA)	0 case	

Discussions: re-tear rate and clinical outcomes of SCR using LHB

	Barth AJSM 2020	Chiang Arthroscopy 2021	Rhee Arthroscopy 2021	Seo J of Ortho 2021	Kawashima ASMR 2022	Llinas AJSM 2022	Our study
							
Re-tear rate	9.3%	16.7%	18.6%	4.9%	42%	14%	14.3%
control	39.3%	40.9%	48.1%	7.1%	80%	46%	38.5%
Clinical outcomes vs control	N.S	N.S	N.S	N.S	N.S	P <0.01	N.S
scores	ASES SST SSV	ASES UCLA	ASES UCLA Constant	ASES	ASES UCLA	ASES	JOA UCLA

Conclusions

- ✓ SCR using LHB with ARCR was one on the good option for treatment of large to massive rotator cuff tear without severe muscle atrophy to decrease the risk of retear.



ASCR using LHB

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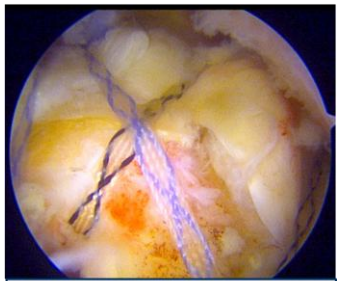

ARCR

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