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คณะแพทยศาสตร์
ศิริราชพยาบาล

Effective Fixation for Bony Bankart Injuries with Double-Row Double Pulley Technique versus Single-Row Bony Bankart Repair: A Retrospective Study

Kasidith Leerunyakul,MD

Asst.prof. Ekavit Keyurapan,MD

Sport science, Department of Orthopedics, Faculty of Medicine,
Siriraj University



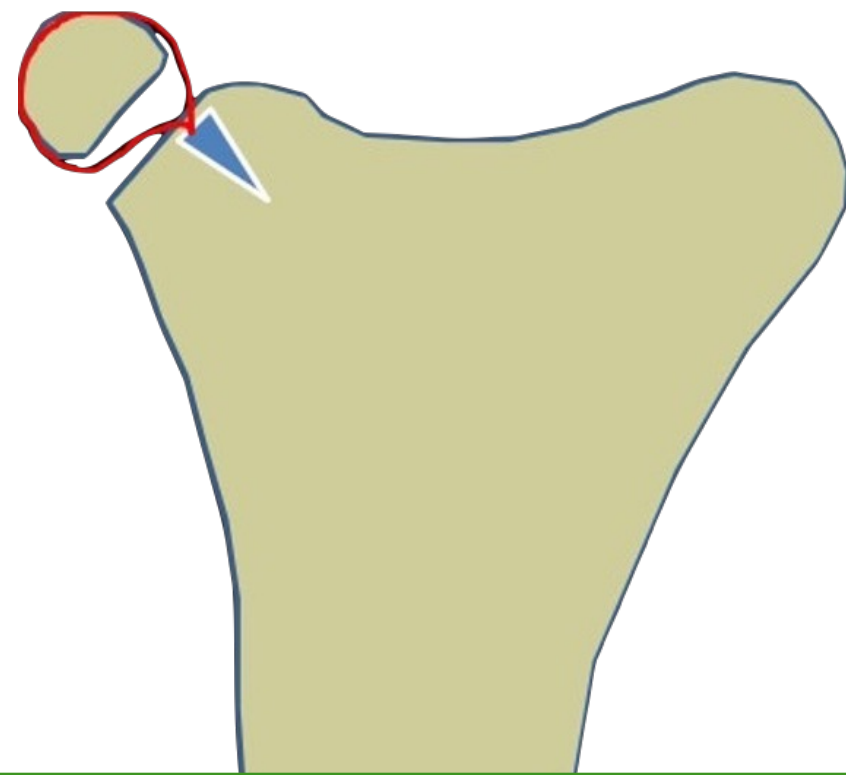
Acknowledgment

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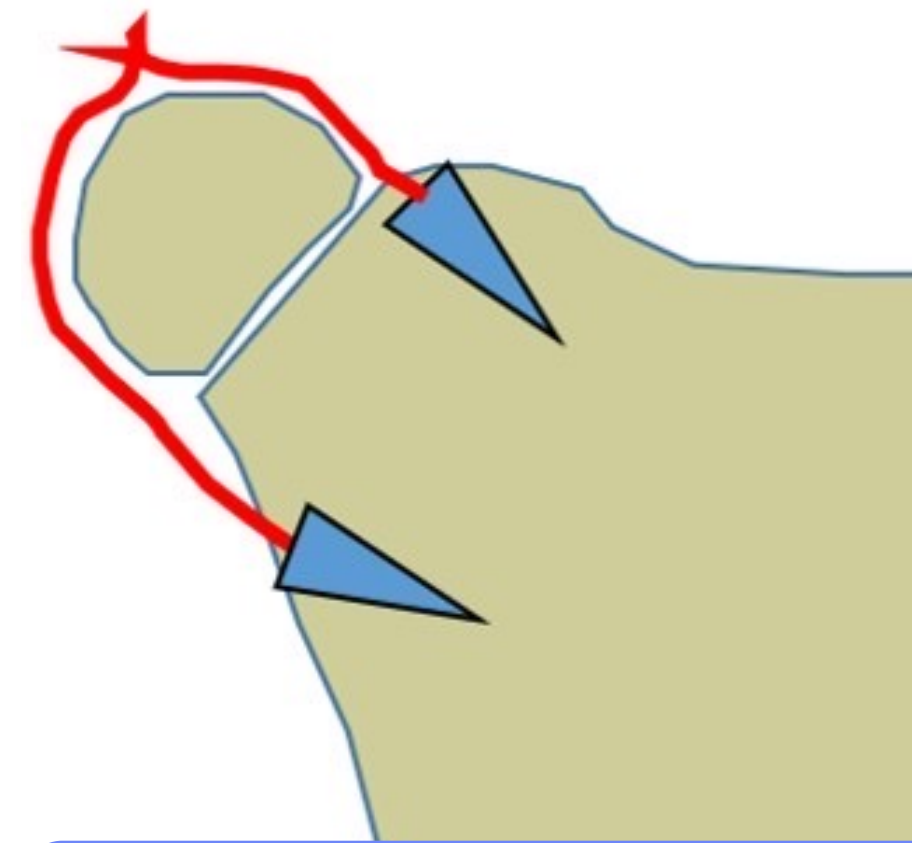


Background

- Bony bankart lesion are common finding
- Failure of bony fragment fixation may lead to recurrent dislocation
- Two surgical techniques proposed (single row vs double row)
provide good clinical outcome
- Double row fixation may have superior stability (Greenstein AS et al, 2021)



Single row repair



Double row repair



Conceptual framework

Inclusion criteria

1. Recurrent shoulder instability case with bony Bankart lesion
2. Underwent arthroscopic surgery at Siriraj hospital (2013 – 2023)

Bony bankart lesion
(Diagnosed in SI hospital)

Exclusion criteria

1. Bony bankart >25% Glenoid involvement
2. Additional procedure

Exclusion

29 surgery case in Bony bankart lesion

10 cases Single row technique

19 case Double pulley technique

Follow up at post operation
3 months, 6 months and 1 year

Follow up at post operation
3 months, 6 months and 1 year



Outcome

- Primary outcome
 - Rowe score
- Secondary outcome
 - Functional outcome
 - 1) American Shoulder and Elbow Surgeons (ASES) shoulder score
 - 2) Constant score
 - 3) The University of California-Los Angeles (UCLA) shoulder scale
 - Range of motion
 - Re-dislocation
 - Postoperative complication



ROWE score

Functional score	Time	Single-row bony Bankart repair technique				Double-row double pulley technique				<i>P</i> value*
		n	Min	Max	Median	n	Min	Max	Median	
Rowe score	Based line	N/A	N/A	N/A	N/A	10	10	60	30	N/A
	F/U 3 months	10	65	90	80	18	45	95	65	0.016
	F/U 6 months	9	75	95	95	18	50	100	90	0.3
	F/U 1 year	10	80	100	95	15	70	100	95	0.7

ROWE score

Different at 3 months follow up



Functional score

Functional score	Time	Single-row bony Bankart repair technique				Double-row double pulley technique				P value*
		n	Min	Max	Median	n	Min	Max	Median	
UCLA score	Based line	N/A	N/A	N/A	N/A	10	54	91	77	N/A
	F/U 3 months	10	66	94	83	18	49	94	70	0.024
	F/U 6 months	9	89	100	94	18	66	94	90	0.1
	F/U 1 year	10	91	100	94	15	77	100	100	0.4

Functional score	Time	Single-row bony Bankart repair technique				Double-row double pulley technique				P value*
		n	Min	Max	Median	n	Min	Max	Median	
ASES score	Based line	N/A	N/A	N/A	N/A	10	37	93	78	N/A
	F/U 3 months	10	57	97	80	18	28	90	68	0.031
	F/U 6 months	9	87	97	92	18	53	97	90	0.2
	F/U 1 year	10	90	98	97	15	75	100	95	0.6

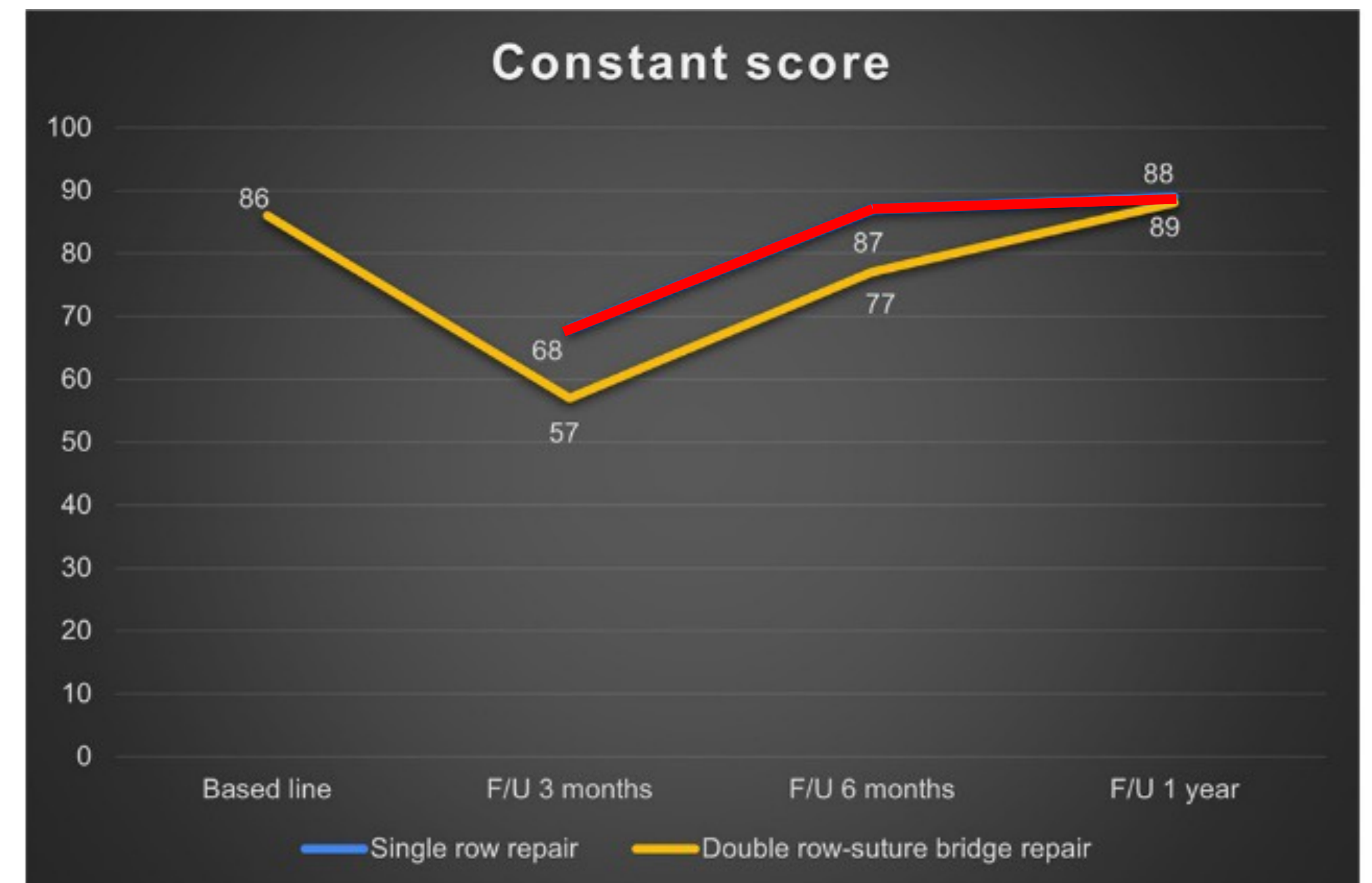
UCLA and ASES score
Only different at 3 months follow up



Functional score

Functional score	Time	Single-row bony Bankart repair technique				Double-row double pulley technique				P value*
		n	Min	Max	Median	n	Min	Max	Median	
Constant score	Based line	N/A	N/A	N/A	N/A	10	35	93	86	N/A
	F/U 3 months	10	35	87	68	18	18	80	57	0.1
	F/U 6 months	9	70	90	87	18	23	94	77	0.015
	F/U 1 year	10	77	93	89	15	50	99	88	0.6

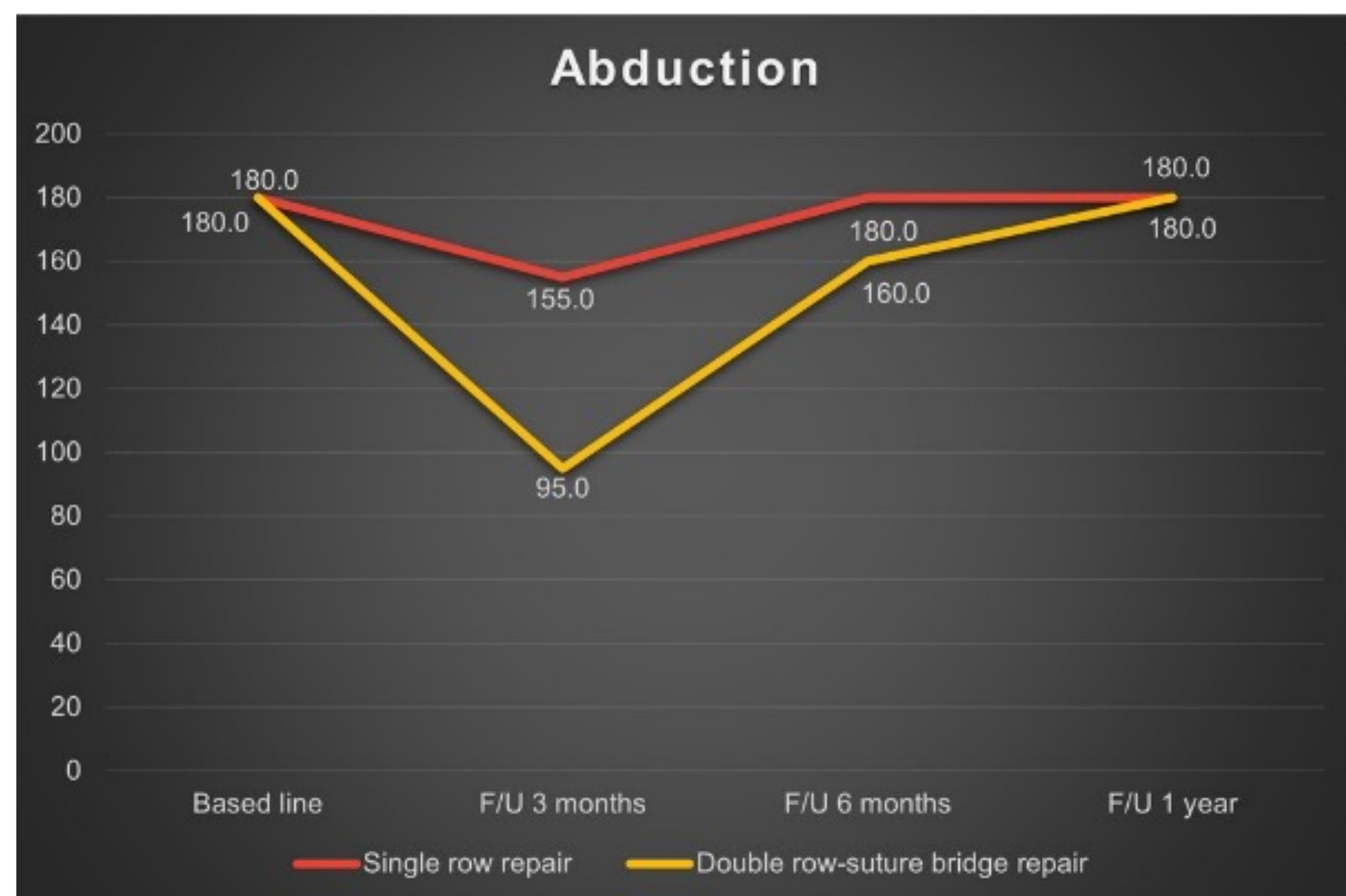
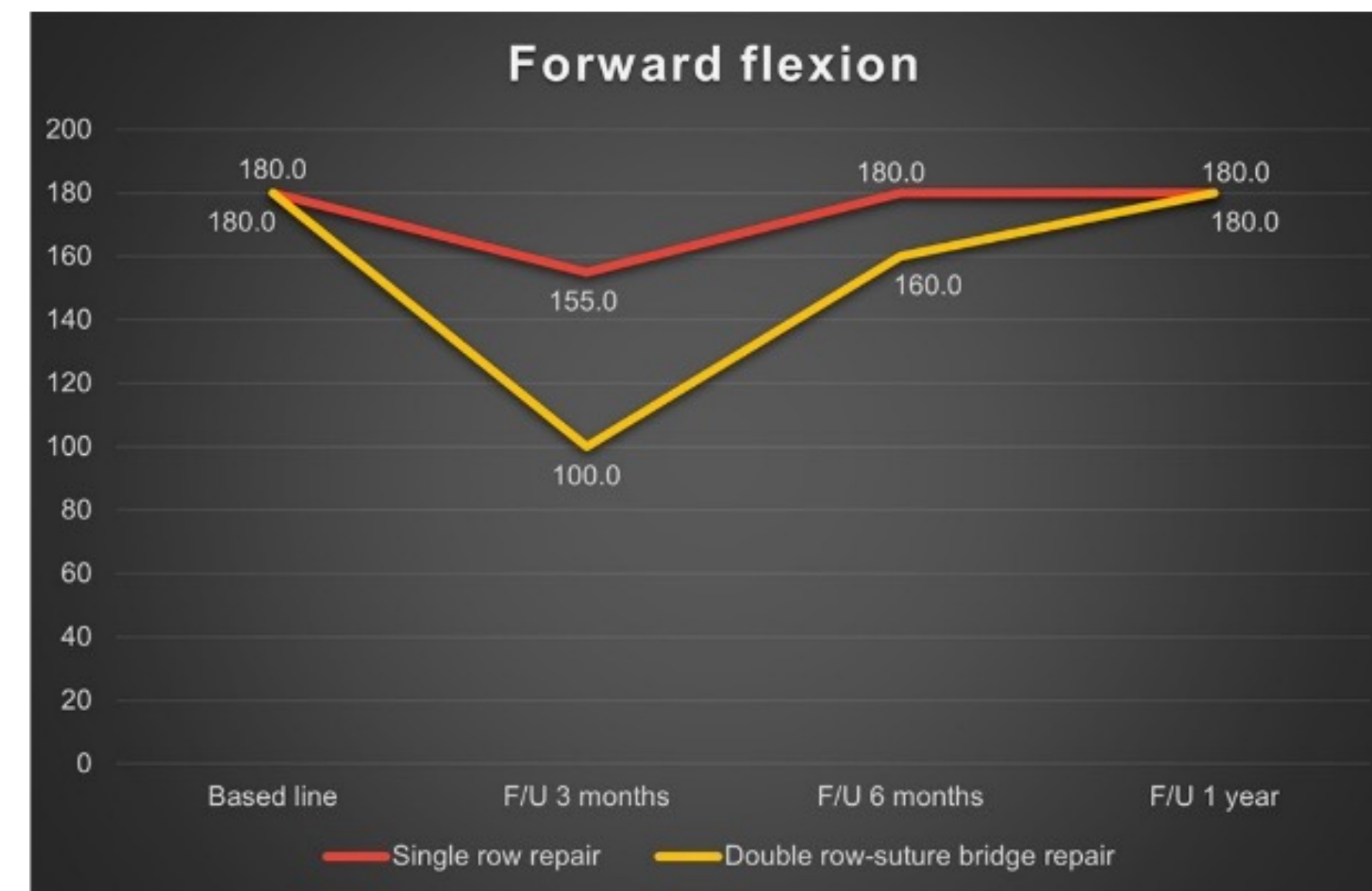
Constant score
Different at 6 months





Shoulder ROM

Shoulder motion	Time	Single-row bony Bankart repair technique				Double-row double pulley technique				P value*
		n	Min	Max	Median	n	Min	Max	Median	
Forward flexion	Based line	10	150	180	180	19	45	180	180	0.8
	F/U 3 months	10	90	180	155	18	50	180	100	0.019
	F/U 6 months	9	170	180	180	18	90	180	160	0.01
	F/U 1 year	10	180	180	180	15	120	180	180	0.1



Shoulder motion	Time	Single-row bony Bankart repair technique				Double-row double pulley technique				P value*
		n	Min	Max	Median	n	Min	Max	Median	
Abduction	Based line	10	120	180	180	19	45	180	180	0.8
	F/U 3 months	10	90	180	155	18	40	180	95	0.017
	F/U 6 months	9	170	180	180	18	90	180	160	0.01
	F/U 1 year	10	180	180	180	15	120	180	180	0.82

Forward flexion & Abduction
Different at 3,6 months



Shoulder ROM

Shoulder motion	Time	Single-row bony Bankart repair technique				Double-row double pulley technique				P value*
		n	Min	Max	Median	n	Min	Max	Median	
Internal rotation	Based line	10	50	70	70	19	30	75	75	0.9
	F/U 3 months	10	40	80	70	18	20	90	60	0.2
	F/U 6 months	9	70	90	80	18	30	90	70	0.008
	F/U 1 year	10	70	90	80	15	60	70	70	0.032

**Internal rotation –
Different at 6 m,1y**

Shoulder motion	Time	Single-row bony Bankart repair technique				Double-row double pulley technique				P value*
		n	Min	Max	Median	n	Min	Max	Median	
External rotation	Based line	10	30	45	45	19	10	70	70	0.051
	F/U 3 months	10	0	60	50	18	10	60	30	0.1
	F/U 6 months	9	30	70	60	18	10	70	50	0.7
	F/U 1 year	10	60	70	70	15	30	60	60	0.074

**External rotation
No Different**



Healing/Complication

Variable	Single row repair (n=10)	Double row-suture bridge repair (n=19)	<i>P</i> value*
Healing rate	9 (90%)	17 (89.5%)	0.9
Complication			
Stiffness	2 (20.0%)	3 (15.8%)	0.9
Traumatic re-dislocation	1 (10.0%)	2 (10.5%)	0.9

No significant different between Single & Double row repair



Conclusion

Functional score

A single-row repair provides better functional scores during the first three months.

There is no significant difference at the final follow-up.

Range of motion

The single-row repair group shows better results in internal rotation.

Healing and complication

No significant different in both two techniques.



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