

ISAKOS 14th Biennial Congress 2023

**A PROSPECTIVE STUDY OF CLINICAL
AND RADIOGRAPHIC OUTCOMES OF
ARTHROSCOPIC REPAIR OF
ROTATOR CUFF TEAR**

(ABSTRACT # 22054)



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Presenters Financial Disclosure

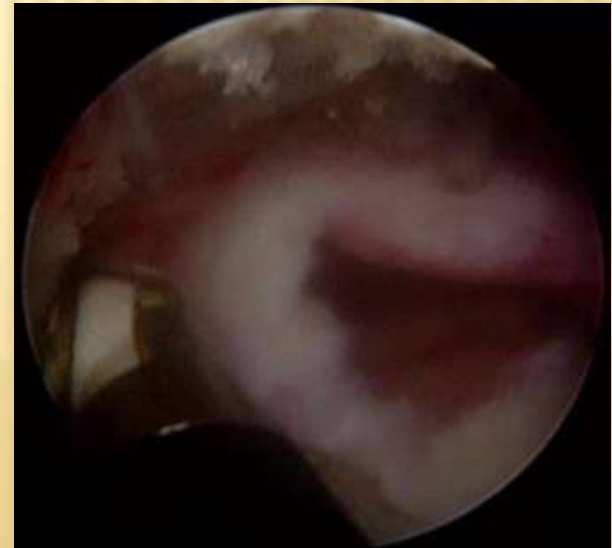
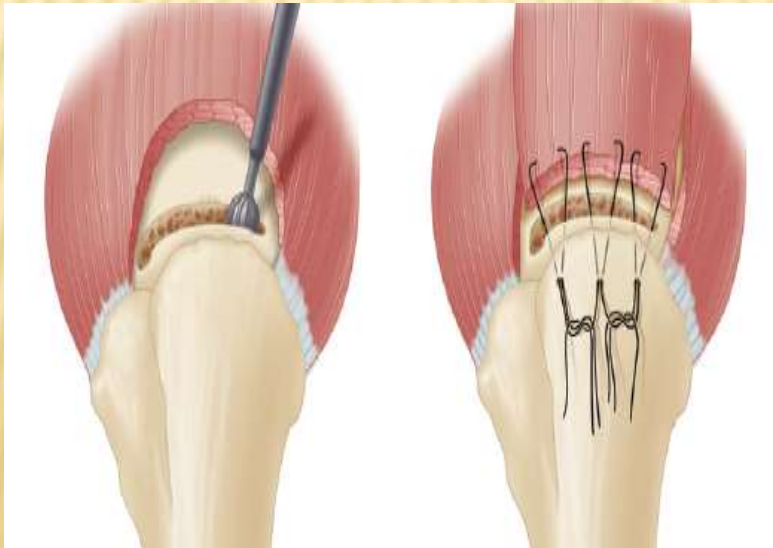
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INTRODUCTION

- ✗ Rotator cuff tears - common source of shoulder pain.
- ✗ Supraspinatus tendon- most commonly involved
- ✗ **Conservative treatment**
 - results inconclusive and unpredictable
 - never lead to tendon bone healing.
- ✗ Chronic symptomatic complete rotator cuff tears
 - **surgical repair** remains the **treatment of choice.**

PURPOSE OF STUDY

1. To assess anatomic healing after arthroscopic rotator cuff repair using magnetic resonance imaging.
2. To correlate functional outcome with anatomical healing of the repaired tendon.



MATERIALS AND METHODS

- ❑ **Interventional prospective study.**
- ❑ **CASES: 24 Patients**

✓ **INCLUSION CRITERIA**

- ❑ Symptomatic degenerative full or partial thickness ($\geq 50\%$) rotator cuff tears who failed conservative trial of 6 weeks.
- ❑ Symptomatic acute traumatic full or partial thickness ($\geq 50\%$) rotator cuff tears.

× **EXCLUSION CRITERIA**

- Symptomatic arthritic changes.
- Inflammatory or infective conditions.
- Fractures around the shoulder joint.
- Partial rotator cuff tears less than 50% in thickness.
- Full thickness tears not amenable to repair (fatty infiltration of Goutallier stage ≥ 4 MRI or retracted tendon that cannot be approx to anatomic footprint).
- Any previous open shoulder surgery.

METHODOLOGY

Clinical functional scoring system:

Preoperatively

- ❑ Visual analogue pain (**VAP**) score
- ❑ American shoulder and elbow surgeons (**ASES**) shoulder score
- ❑ Constant-Murley Shoulder (**CMS**) score
- ❑ University of California Los Angeles (**UCLA**) shoulder score

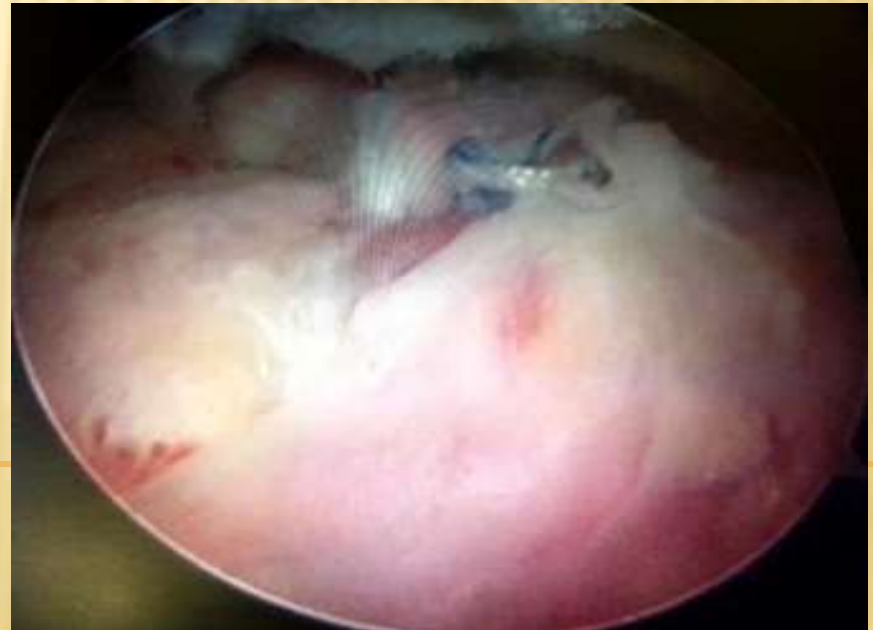
Magnetic resonance imaging: plain MRI

Preoperatively

- ❑ **Confirmation** of rotator cuff tear
- ❑ Type of tear : **partial or complete**
- ❑ Intramuscular fatty infiltration of rotator cuff muscles- **Goutallier grading.**
- ❑ Retraction of torn edge of rotator cuff tendon- **Patte classification system**
- ❑ Atrophy of rotator cuff muscles- **Warner classification**

OPERATIVE PROCEDURE

- **Four portals:** posterior, posterolateral, lateral/antero-lateral and anterior portals.
- A superolateral accessory portal.
- **Single row repair** technique.



POST OPERATIVE MANAGEMENT

- ✘ Arm in a **shoulder immobilizer for 4 weeks in 30 deg abduction.**
- ✘ **One day post op:** passive flexion of shoulder joint and pendulum exercises
- ✘ **Six weeks:** active assisted range of motion
- ✘ **Eight week:** Rotator cuff muscles strengthening exercises
- ✘ **Three months:** light sports activities.
- ✘ **After six month:** Full strength sports or labour allowed.



POSTOPERATIVE FOLLOW UP

- ✗ VAP Score at 6 weeks, 3 months, 6 months and 1 year.
- ✗ Shoulder scoring systems (ASES, CMS, UCLA) at 3 months, 6 months and 1 year.
- ✗ Plain MRI at 6 months:
 - + Integrity of repaired rotator cuff tendon- Sugaya et al.
 - + Intramuscular fatty infiltration of rotator cuff muscles- Goutallier grading.
 - + Atrophy of rotator cuff muscles- Warner classification

RESULTS

CLINICAL (FUNCTIONAL) OUTCOME MEASUREMENTS

Score (mean \pm SD)	Preop	Postop 6 wks	Post op 3 mo	Postop 6 mo	Postop 1 yr	P value
VAPS	6.67 \pm 1.15	3.25 \pm 1.21	1.25 \pm 0.75	0.42 \pm 0.67	0.39 \pm 0.56	0.000
ASES	34.44 \pm 12.31		80.42 \pm 7.59	92.22 \pm 7.89	94.16 \pm 7.91	0.000
CMS	29.33 \pm 7.25		62.75 \pm 7.72	77.50 \pm 7.83	86.46 \pm 7.92	0.000
UCLA	10.08 \pm 2.50		25.17 \pm 2.58	31.42 \pm 3.09	33.84 \pm 3.27	0.000

RADIOGRAPHIC OUTCOME

Integrity of the repaired tendon on postop MRI :

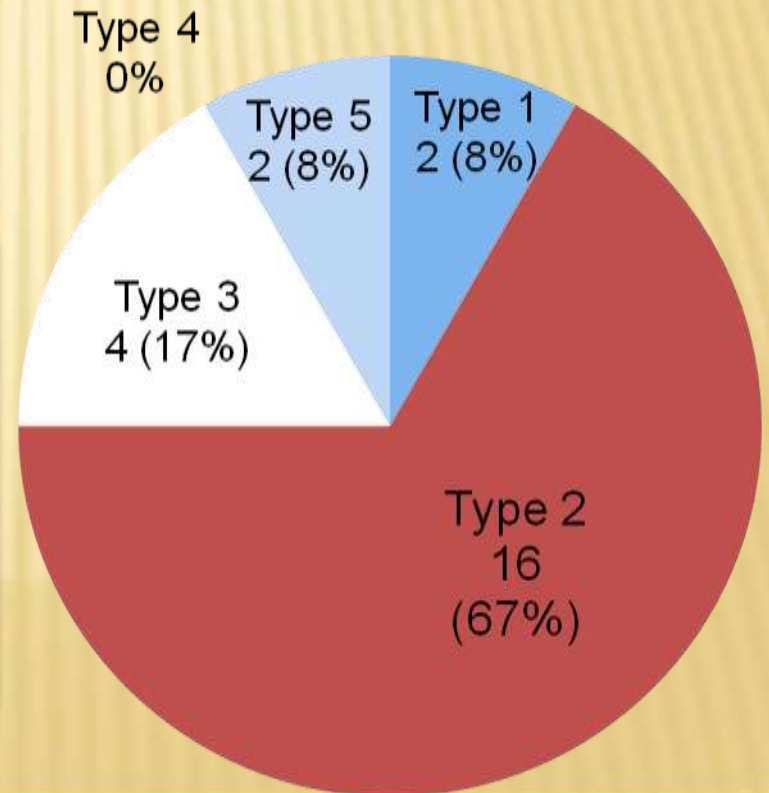
- + **Intact** tendon : 22 (91.67%) patients
- + Full thickness **retear**: 2 (8.33%) patients

Sugaya Classification

Criteria developed by Sugaya et al. to evaluate tendon healing.

Sugaya classification

Type I	Sufficient thickness, homogeneous tendon (low signal on T2 images)
Type II	Sufficient thickness, partial high-intensity from within the tendon
Type III	Insufficient thickness without discontinuity
Type IV	Minor discontinuity on more than one slice, suggesting a small tear
Type V	Major discontinuity suggesting a moderate or large tear



CONCLUSION

- ✓ MRI is a good tool for postoperative evaluation of tendon healing.
- ✓ Patients with healed tendon have statistically better functional outcome than patients with retear.
- ✓ There is significant postoperative functional score improvement even in case of retear.

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THANK YOU!