



ISAKOS
CONGRESS
2025



MUNICH
GERMANY
June 8-11

Mid-term outcomes of arthroscopically assisted **lower trapezius tendon transfer** with associated partial cuff repair in the treatment of functional irreparable posterior-superior rotator cuff tears

Gia Rodriguez Vaquero, MD, MSc,
Head of Shoulder and Elbow Unit
Hospital Rey Juan Carlos, Madrid, SPAIN

Vanesa López Fernández, PhD, Madrid SPAIN
Pablo Jiménez Baena, MD, Madrid SPAIN
Fernando Cabanes Villajos, MD, Madrid SPAIN
Emilio Calvo, MD, PhD, MBA, Madrid SPAIN
Cristina Delgado, MD, PhD, Madrid SPAIN



Hospital Universitario
Rey Juan Carlos

Faculty Disclosure Information

- My disclosure are:
Consultant of Stryker, Smith and Nephew, Johnson and Johnson.
- Nothing to disclosure for this research.



ISAKOS
CONGRESS
2025



MUNICH
GERMANY
June 8-11



Hospital Universitario
Rey Juan Carlos

Introduction:

Reparability and healing of Rotator Cuff Tears

FIRCT (Funtional Irreparable Rotator Cuff Tear)

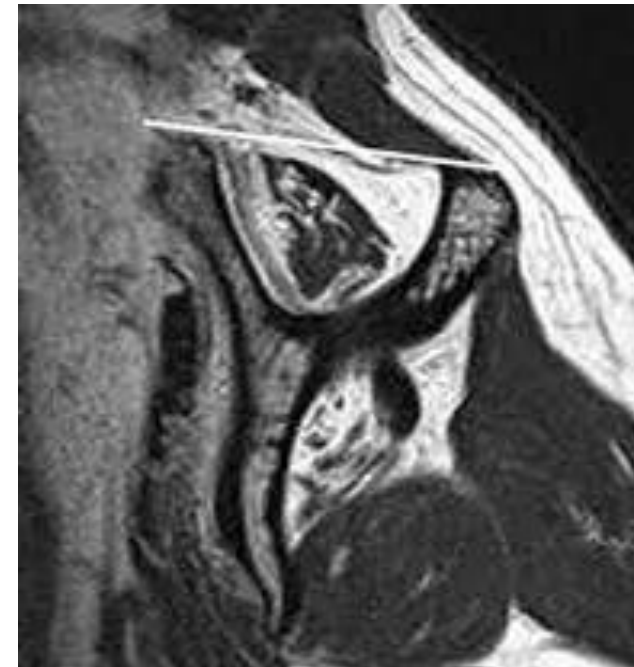
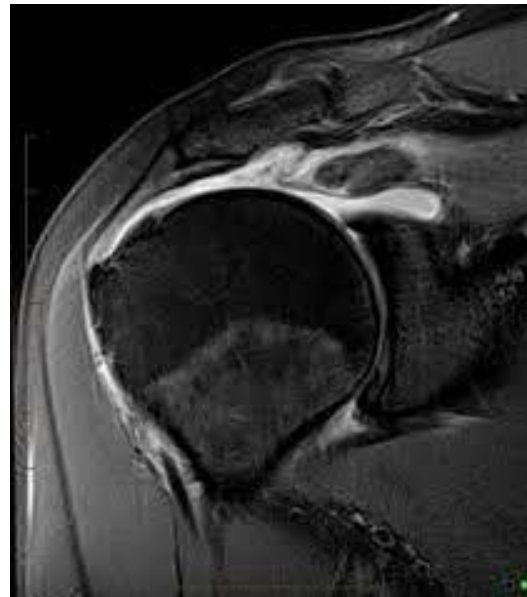
Age

Tendon Length
<15mm

Tendon
retraction

Fatty Infiltration
Muscle Atrophy

HH –Acromion
Distance
GH OA (*Hamada*>3)



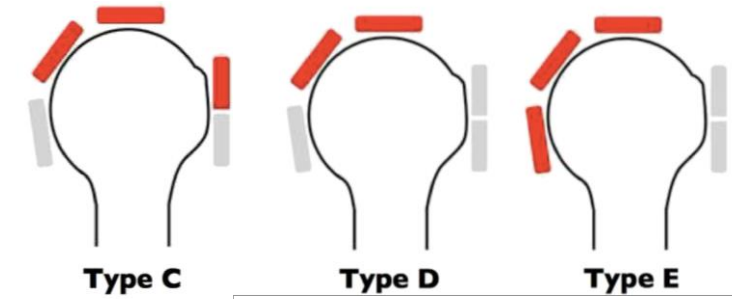
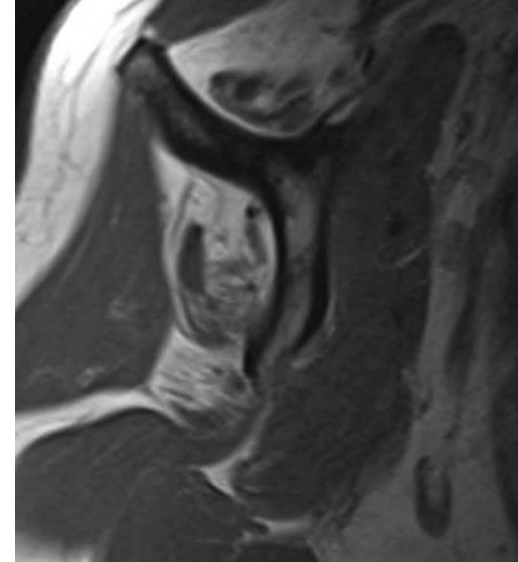
ISAKOS
CONGRESS
2025



MUNICH
GERMANY
June 8–11

When is Tendon transfer indicated?

- Irreparable MRCT
- Not Advance GH OA
- Dynamic imbalance (ILER, CLEER)



AIM

- ❖ The purpose of this study was to assess the mid-term clinical outcomes of arthroscopy-assisted lower trapezius transfer (aaLTT) in the setting of a FIRCT.
- ❖ We hypothesized that the aaLTT would provide pain relief and improved functional outcomes and range of movement.



ISAKOS
CONGRESS
2025



MUNICH
GERMANY
June 8-11

Methods

Inclusion Criteria

- Posterior-superior FIRCT confirmed by MRI
- Pain and shoulder dysfunction without stiffness, refractory to conservative treatments
- Loss of active ER, ER weakness (external rotation lag sign)
- Intact subscapularis or repairable subscapularis tear
- No or minimal arthritic changes in the x-ray defined as Hamada <3.

- Multicentric prospective study
- Patient with FIRCT who underwent aaLTT
- Minimum 1-year follow-up

Exclusion Criteria

- Previous infectious
- Neurologic disorders
- Trapezius or deltoid palsy
- Patients with previous surgeries others than rotator cuff repair

- Patient-reported outcomes: VAS, SSV, Constant Score , ROM
- Imaging evaluation preop and PO→ Rx, MRI or US
- Return to work



ISAKOS
CONGRESS
2025



MUNICH
GERMANY
June 8-11

Oper Orthop Traumatol
<https://doi.org/10.1007/s00064-021-00756-1>
Received: 25 April 2021
Revised: 15 June 2021
Accepted: 8 July 2021
© The Author(s), under exclusive licence to
Springer Medizin Verlag GmbH, ein Teil von
Springer Nature 2021
Editor
Andreas B. Imhoff, München
Illustrator
Rüdiger Himmelhan, Mannheim

Lower trapezius transfer for massive posterosuperior rotator cuff defects

Gia Rodríguez-Vaquero¹ · Vanesa López-Fernández² · Emilio Calvo²
¹Upper Extremity Surgery Unit, Department of Orthopedic Surgery and Traumatology, Hospital
Universitario General de Villalba, Madrid, Spain
²Shoulder and Elbow Reconstructive Surgery Unit, Department of Orthopedic Surgery and Traumatology,
Fundación Jiménez Díaz, Universidad Autónoma, Madrid, Spain



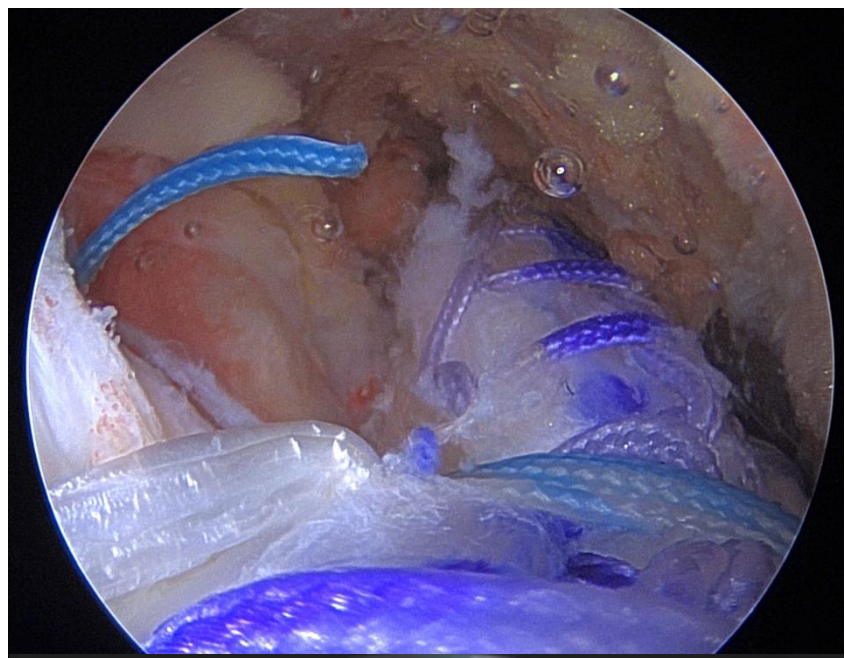
Beach chair position

Surgery

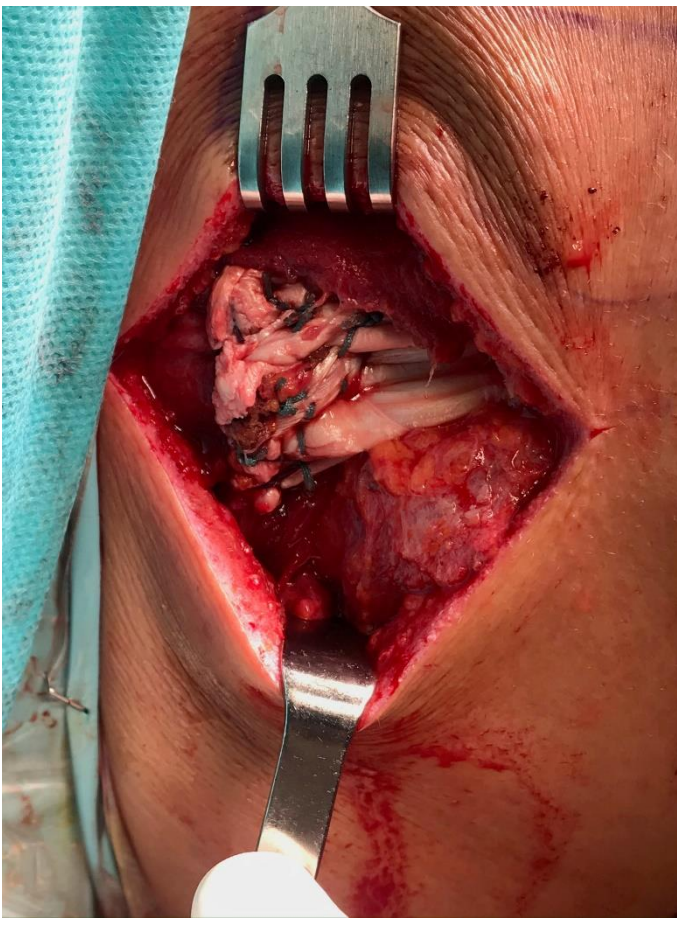
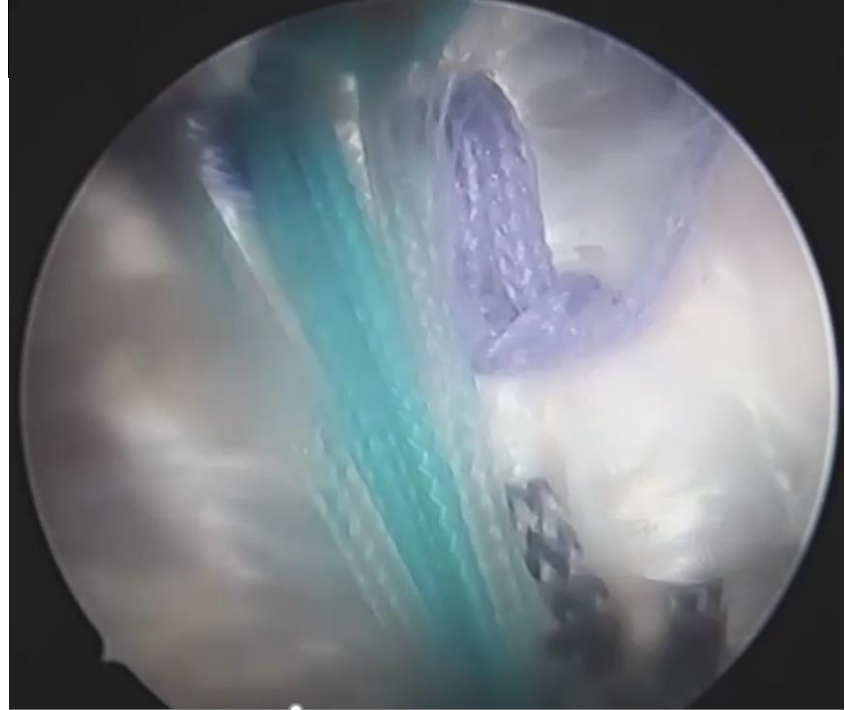
Achilles Allograft



Intraarticular Achilles graft fixation @ assisted



Final fixation of Lower trapezius to Achilles allograft (pulvertaft wave)

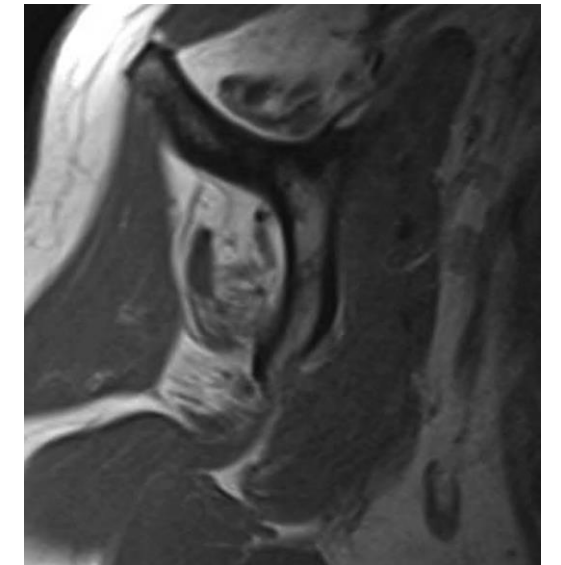


Lower trapezius harvesting



OUR EXPERIENCE

- 22 Patients (EC, GRV)
- FIRCT → @aLTT
- 2019-2023
- Median age 58 y (51-70)
- Mean FU 30,1 m (range 12-61 m)
- VAS, SSV, Constant Score , ROM
- Imaging evaluation preop and PO→ Rx, MRI or US
- Return to work



ISAKOS
CONGRESS
2025

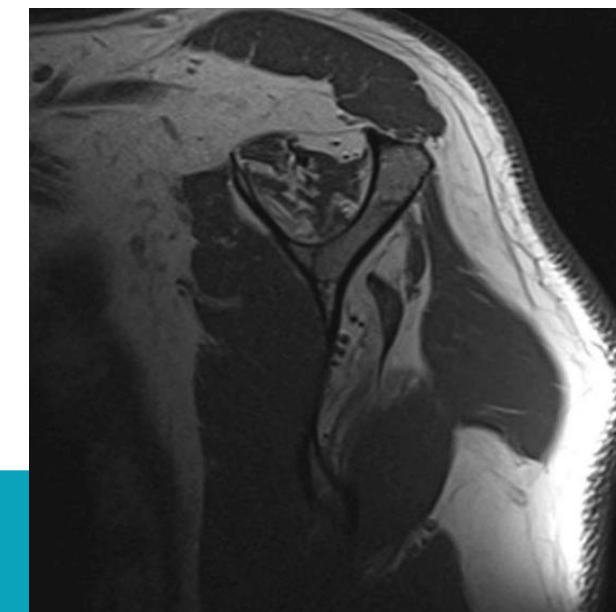


MUNICH
GERMANY
June 8-11



Hospital Universitario
Rey Juan Carlos

Result: Demografics

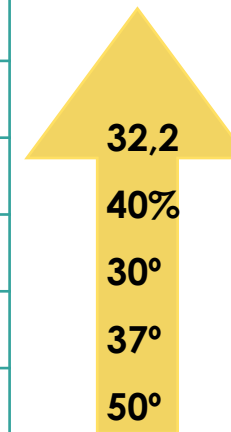


Gender	
Male	12 (54.5%)
Female	10 (45.5%)
Side	
Right	21 (95.5%)
Left	1 (4.5%)
Smoking	
Yes	11 (50%)
No	11 (50%)
Work	
Labor-intense	18 (81.8%)
Nonlabor-intense	4 (18.2%)
Previous surgeries	
Yes	7 (31.8%)
No	15 (68.2%)
Preoperative pseudoparalysis	
Yes	5 (22.7%)
No	17 (77.3%)
Preoperative Hornblower	
Yes	9 (40.9%)
No	13 (59.1%)

Hamada grade	
Grade 1	15 (68.2%)
Grade 2	7 (31.8%)
Grade <u>≥</u> 3	0 (0%)
Preoperative SSP/ISP FI grade	
Grade 0 or 1	0
Grade 2	3 (13.6%)
Grade 3	13 (59.1%)
Grade 4	6 (27.3%)
Preoperative Tm FI grade	
Grade 0 or 1	14 (63.6%)
Grade 2	5 (22.7%)
Grade 3	1 (4.5%)
Grade 4	2 (9.1%)
Subscapularis concomitant repair	
Yes	15 (68.2%)
No	7 (31.8%)
Posterosuperior cuff concomitant partial repair	
Yes	20 (90.9%)
No	2 (9.1%)

Results

Variable	Preoperative	Final follow-up	P
VAS	8 (5-10)	1 (0-5)	<.001
Constant	41.5 (9-54)	74 (43-98)	<.001
SSV	40 (10-60)	80 (40-100)	<.001
FE	145 (30-180)	175 (150-180)	.001
ER1	10 (-40 -60)	47.5 (0-90)	<.001
ER2	20 (0-80)	70 (20-90)	<.001
IR			
T12			
L1	2	3	
	12	11	
L3	3	3	=.42



- LAG SIGN reversed 91.9% (19/22)
- Pseudoparalysis reversed 100%
- Return to work 81,8% (18 p)
- 15 in labor-intense occupation
- NO difference outcomes in Hornblower or teres minor tear group



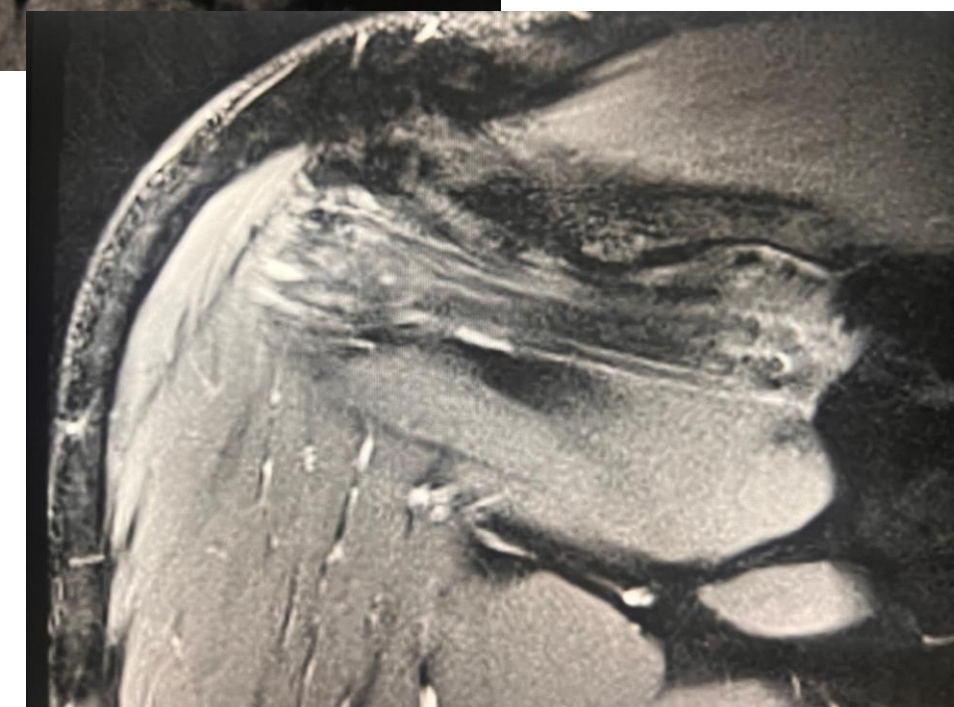
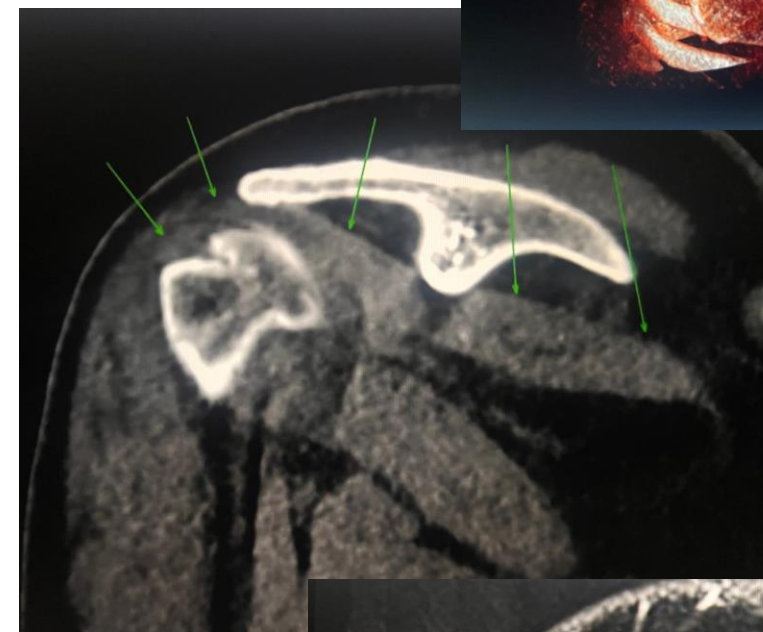
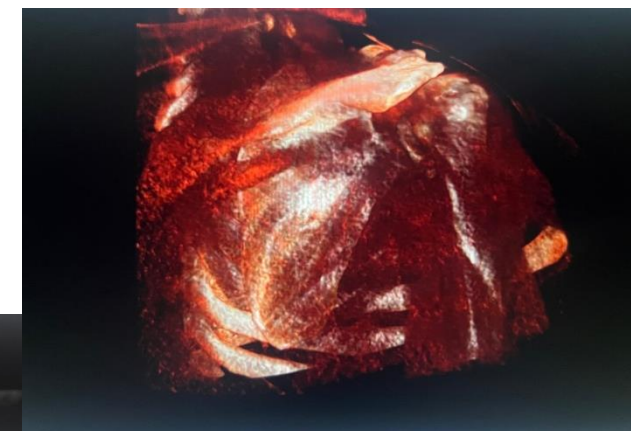
ISAKOS
CONGRESS
2025



MUNICH
GERMANY
June 8-11

Imaging Evaluation

- AO progression
 - RX 5% (1 p) evolved from Hamada II to Hamada III
- Healing → Images po 72,7%
 - MRI 14p
 - US 2 p
 - Healing 75%
 - NO difference in aROM even ER but have persistent ER weakness



ISAKOS
CONGRESS
2025

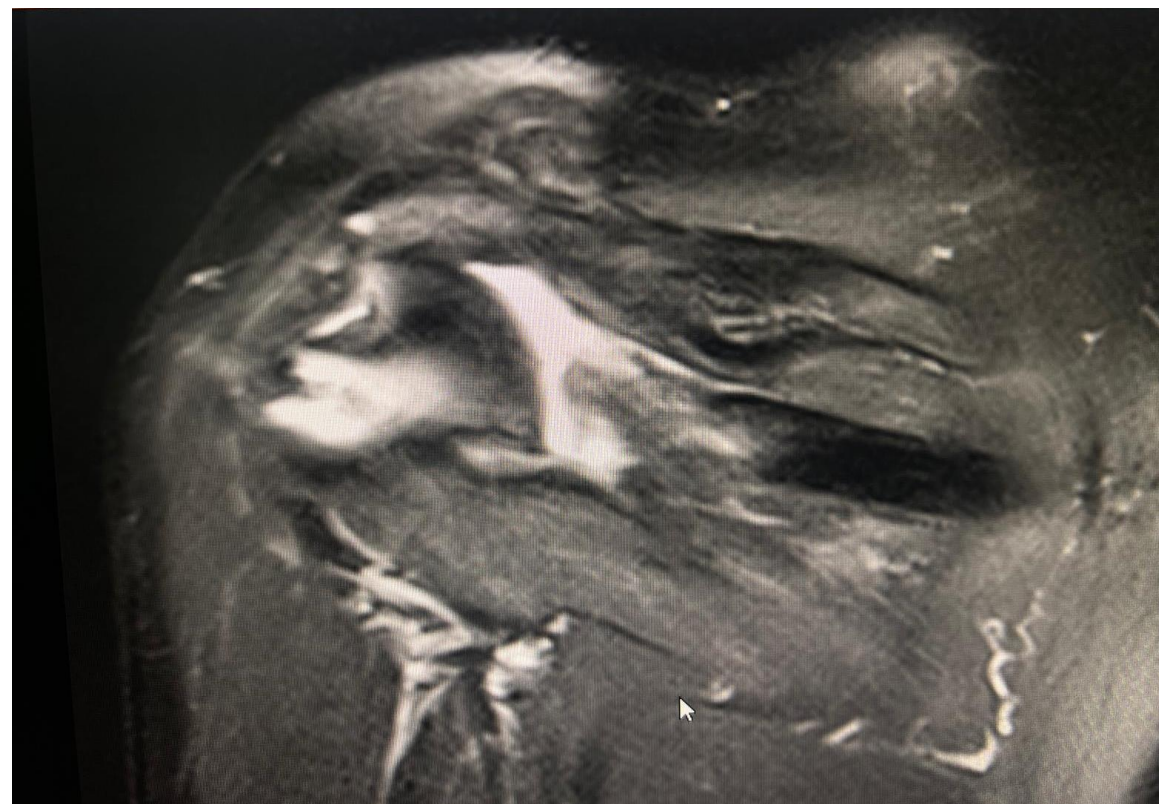


MUNICH
GERMANY
June 8-11

Complication

- 1 seroma
- 4 lateral avulsion 25%
 - 1 traumatic 3 m po → revisión surgery
 - 3 atraumatic

→ Any conversión to RSA



ISAKOS
CONGRESS
2025



MUNICH
GERMANY
June 8-11



Hospital Universitario
Rey Juan Carlos

UNPUBLISHED DATA – DO NOT COPY OR DISTRIBUTE

Conclusion

- ❖ Arthroscopic-assisted lower trapezius transfer provides satisfactory clinical and functional short-term outcomes in patients with posterosuperior functionally irreparable cuff tears.



ISAKOS
CONGRESS
2025



MUNICH
GERMANY
June 8-11



Hospital Universitario
Rey Juan Carlos

References

- Baek CH, Kim BT, Kim JG, Kim SJ (2024) Mid-term outcomes of arthroscopically assisted lower trapezius tendon transfer using Achilles allograft in treatment of posterior-superior irreparable rotator cuff tear. *Journal of Shoulder and Elbow Surgery* 33:1293-1305
- Baek CH, Lee DH, Kim JG (2022) Latissimus dorsi transfer vs. lower trapezius transfer for posterosuperior irreparable rotator cuff tears. *J Shoulder Elbow Surg* 31:1810-1822
- Boileau P, Brassart N, Watkinson DJ, Carles M, Hatzidakis AM, Krishnan SG (2005) Arthroscopic repair of full-thickness tears of the supraspinatus: does the tendon really heal? *J Bone Joint Surg Am* 87:1229-1240
- Calvo E, Rebolón C, Itoi E, Imhoff A, Savoie FH, Arce G (2022) Reliable interobserver and intraobserver agreement of the International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine (ISAKOS) classification system of rotator cuff tears. *Journal of ISAKOS* 7:56-61
- Chopra A, Wright MA, Murthi AM (2024) Outcomes after arthroscopically assisted lower trapezius transfer with Achilles tendon allograft. *J Shoulder Elbow Surg* 33:321-327
- Elhassan BT, Alentorn-Geli E, Assenmacher AT, Wagner ER (2016) Arthroscopic-Assisted Lower Trapezius Tendon Transfer for Massive Irreparable Posterior-Superior Rotator Cuff Tears: Surgical Technique. *Arthrosc Tech* 5:e981-e988
- Elhassan BT, Sanchez-Sotelo J, Wagner ER (2020) Outcome of arthroscopically assisted lower trapezius transfer to reconstruct massive irreparable posterior-superior rotator cuff tears. *Journal of Shoulder and Elbow Surgery* 29:2135-2142
- Elhassan BT, Wagner ER, Werthel JD (2016) Outcome of lower trapezius transfer to reconstruct massive irreparable posterior-superior rotator cuff tear. *J Shoulder Elbow Surg* 25:1346-1353
- Goutallier D, Postel JM, Bernageau J, Lavau L, Voisin MC (1994) Fatty muscle degeneration in cuff ruptures. Pre- and postoperative evaluation by CT scan. *Clin Orthop Relat Res* 78-83
- Hamada K, Yamanaka K, Uchiyama Y, Mikasa T, Mikasa M (2011) A radiographic classification of massive rotator cuff tear arthritis. *Clin Orthop Relat Res* 469:2452-2460
- Hartzler RU, Barlow JD, An KN, Elhassan BT (2012) Biomechanical effectiveness of different types of tendon transfers to the shoulder for external rotation. *J Shoulder Elbow Surg* 21:1370-1376
- Jensen AR, Taylor AJ, Sanchez-Sotelo J (2020) Factors Influencing the Reparability and Healing Rates of Rotator Cuff Tears. *Curr Rev Musculoskelet Med* 13:572-583
- Omid R, Heckmann N, Wang L, McGarry MH, Vangsness CT, Jr., Lee TQ (2015) Biomechanical comparison between the trapezius transfer and latissimus transfer for irreparable posterosuperior rotator cuff tears. *J Shoulder Elbow Surg* 24:1635-1643
- Patte D (1990) Classification of rotator cuff lesions. *Clin Orthop Relat Res* 81-86
- Rodríguez-Vaquero G, López-Fernández V, Calvo E (2022) Lower trapezius transfer for massive posterosuperior rotator cuff defects. *Oper Orthop Traumatol* 34:34-44
- Stone MA, Kane LT, Ho JC, Namdari S (2021) Short-Term Outcomes of Lower Trapezius Tendon Transfer With Achilles Allograft for Irreparable Posterosuperior Rotator Cuff Tears. *Arthroscopy, Sports Medicine, and Rehabilitation* 3:e23-e29



ISAKOS
CONGRESS
2025



MUNICH
GERMANY
June 8-11



Hospital Universitario
Rey Juan Carlos