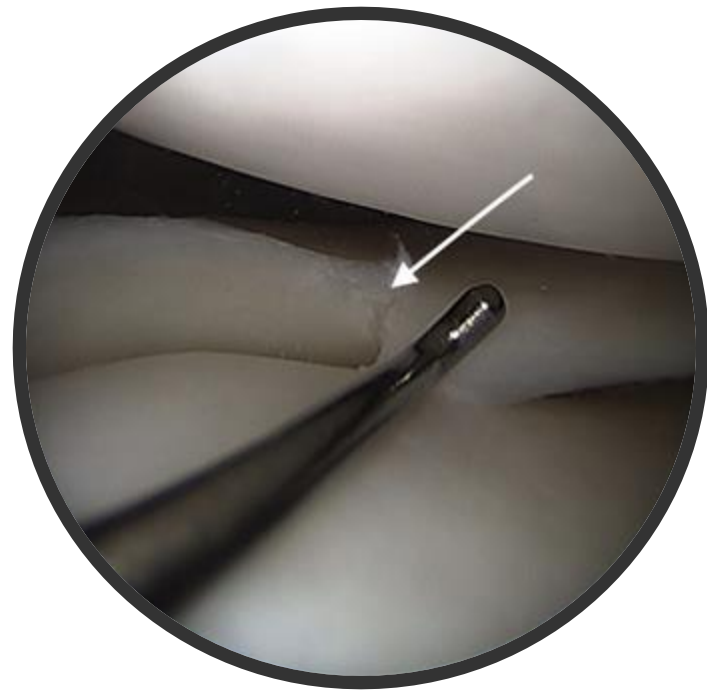




Description Of A Novel Surgical Technique For Repairing Complete Radial Tears Of The Lateral Meniscus And Results Of Our Series

Zicaro JP, Zapata M, Revah M, Costa Paz M, Zicaro O



DISCLOSURE

Juan Pablo ZIcaro, Mariano Zapata, Mariano Revah, Matías Costa Paz, Oscar ZIcaro

The authors declare no conflicts of interest

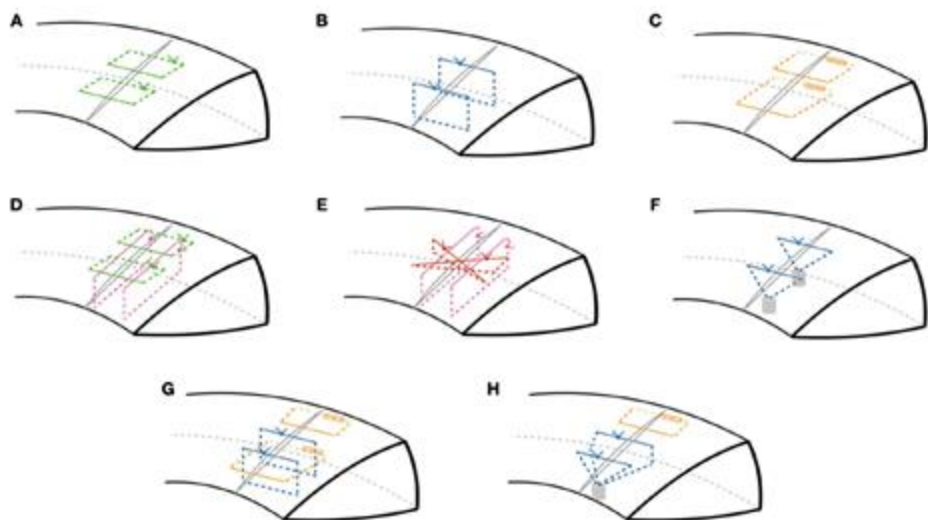


INTRODUCRION & OBJETIVE

Complete radial tears of the lateral meniscus are complex to treat (Stender et al 2018 – Orthop J Sports Med).

Ideally, they should be REPAIRED.

Multiple techniques with different strategies have been described:



Mameri ES, Jackson GR, Gonzalez F, Kaplan DJ, Jawanda H, Batra A, Khan ZA, Chahla J. Meniscus Radial Tears: Current Concepts on Management and Repair Techniques. Curr Rev Musculoskelet Med. 2023 May;16(5):182-191. doi: 10.1007/s12178-023-09831-5. Epub 2023 May 9. PMID: 37157051; PMCID: PMC10188782

OBJETIVE:

To describe a novel surgical technique for repairing a complete radial tears of the lateral meniscus using **side-to-side + capsular fixation**

Failure rates range from **11%** to **23%** (Fillingham et al 2018 – AJSM; Grant et al 2012 – AJSM; Nepple et al 2012 – JBJS)



MATERIAL & METHODS

We describe the step-by-step approach of our technique for
LATERAL MENISCUS REPAIR

Methods

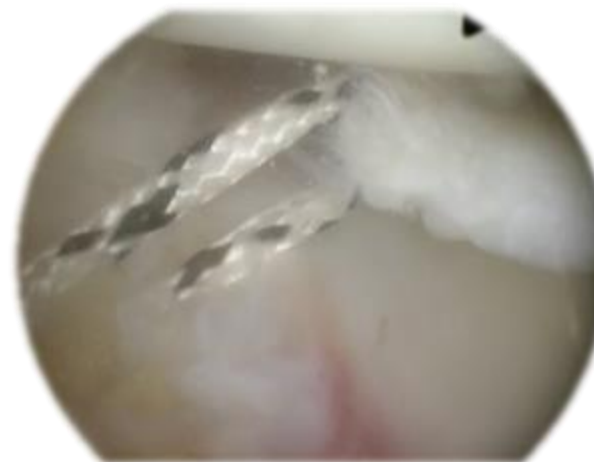
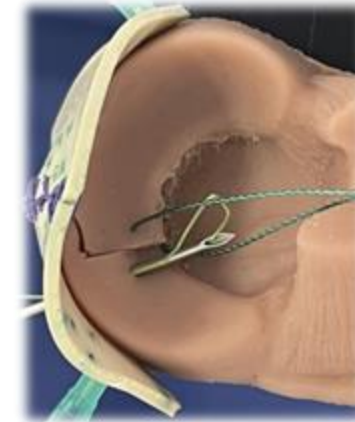
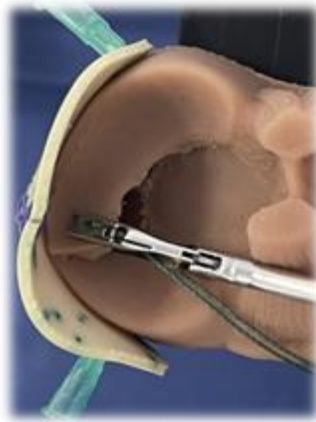
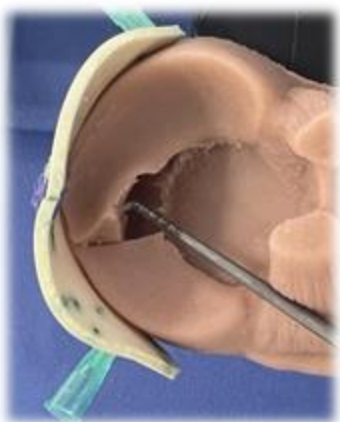
- ✓ Retrospective study
- ✓ Surgeries performed between 2019–2023
- ✓ Complete radial tears of the Lateral Meniscus

Variables evaluated

- ✓ Failure rate
- ✓ Return to pre-injury competitive level
- ✓ Lysholm Score
- ✓ IKDC Score

SURGICAL TECHNIQUE

Step-by-step



1

Identification of the lesion

2

All-inside stitch on the posterior flap

3

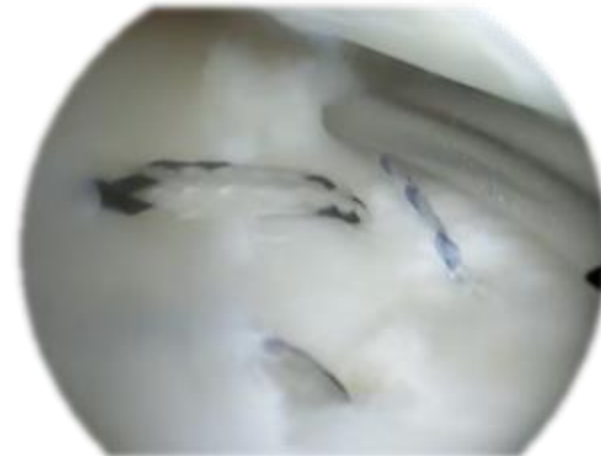
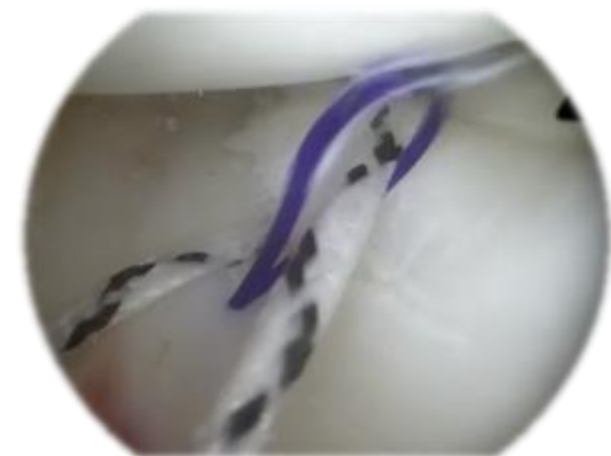
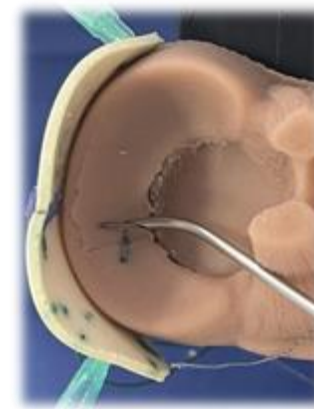
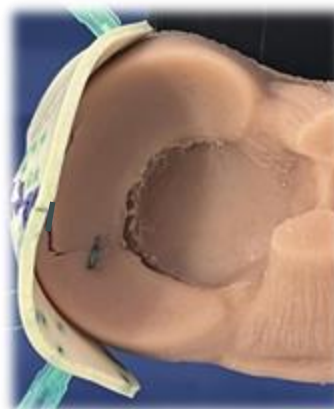
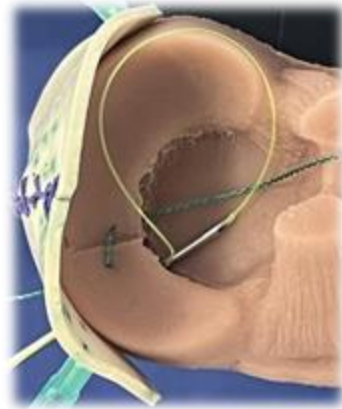
Replace the point with TAPE suture el punto por sutura TAPE

4

Outside-in stitch from capsule to upper edge of the anterior flap

SURGICAL TECHNIQUE

Step-by-step



5

Pull the upper edge suture through the anterior portal

6

Outside-in stitch from capsule to lower edge of the distal flap

7

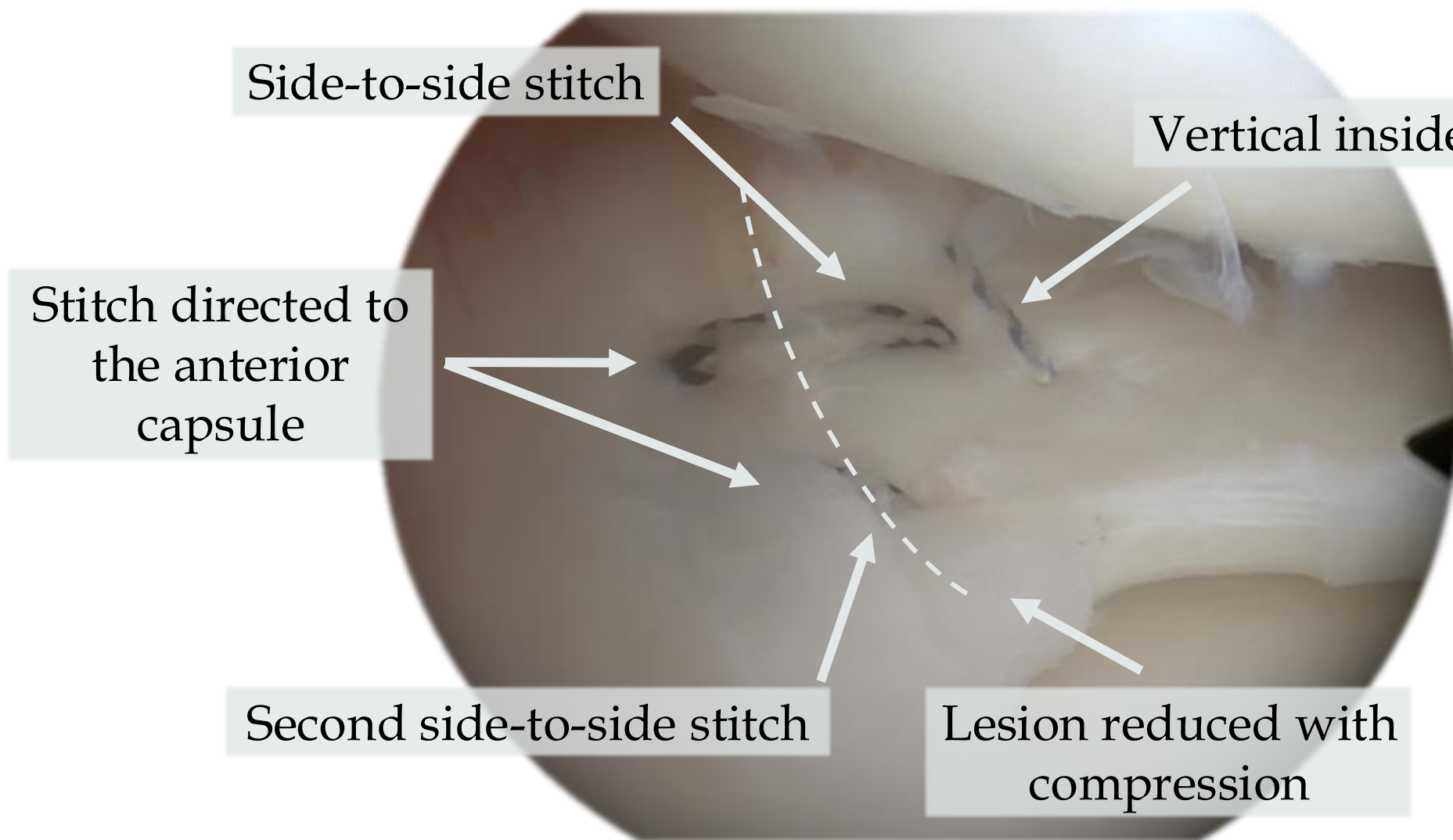
Repeat steps for a second stitch closer to the free edge

8

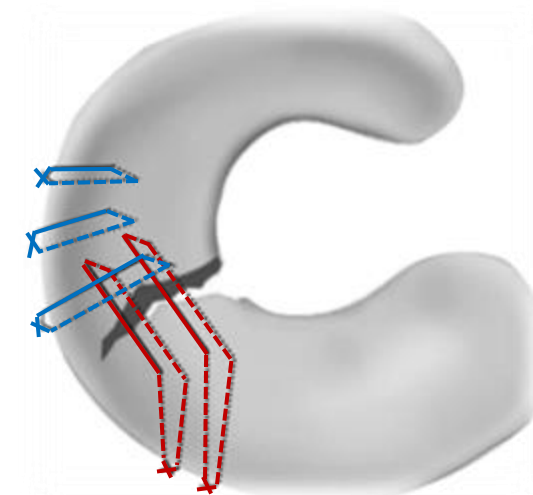
Vertical inside-out meniscocapsular sutures

SURGICAL TECHNIQUE

Final repair



Additional inside-out stitches can be added as needed





RESULTS

Our series...

n = 13 patients

FU (mean): 23.6 months (IC95% 8.2 months)

Age (mean): 25 years (IC95% 5.2 years)

3 cases associated with ACL injury

COMPLICATIONS

Failure: 1 case (7.7%)

DVT: 1 case (7.7%)

RETURN TO SPORTS: 100%

- 9 (70%) at the same level
- 4 (30%) at a lower level

SCALES

Lysholm:

- Pre: 11.25

- Post: 75.12

IKDC:

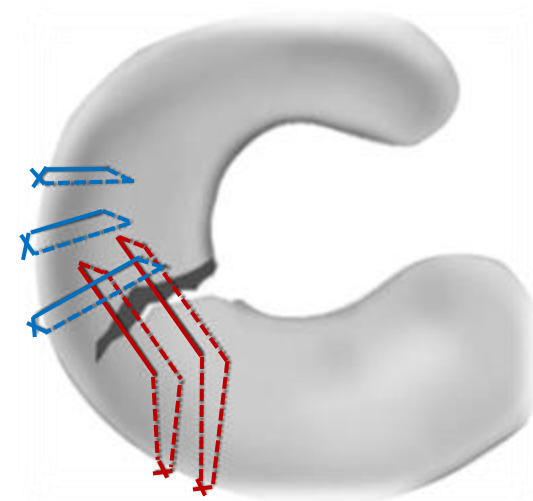
- Pre: 24.31

- Post: 60.26



CONCLUSIONS

- ✓ Novel technique for complete radial tear repair of the lateral meniscus
 - ✓ Requires inside-out, all-inside, and outside-in techniques
 - ✓ **Advantages: Side-to-side fixation + capsular fixation**
 - ✓ **Failure rate: 7%**
 - ✓ **Return to sport: 100%** (70% at same level)
 - ✓ Improvement in Lysholm and IKDC scores





BIBLIOGRAPHY

- Stender ZC, Cracchiolo AM, Walsh MP, Patterson DP, Wilusz MJ, Lemos SE. Radial Tears of the Lateral Meniscus-Two Novel Repair Techniques: A Biomechanical Study. *Orthop J Sports Med.* 2018 Apr 27;6(4):2325967118768086. doi: 10.1177/2325967118768086. PMID: 29780840; PMCID: PMC5954321.
- Ohori T, Mae T, Shino K, Fujie H, Hirose T, Tachibana Y, Yoshikawa H, Nakata K. Different effects of the lateral meniscus complete radial tear on the load distribution and transmission functions depending on the tear site. *Knee Surg Sports Traumatol Arthrosc.* 2021 Feb;29(2):342-351. doi: 10.1007/s00167-020-05915-8. Epub 2020 Mar 10. PMID: 32152692.
- Chahla J, Papalamprou A, Chan V, Arabi Y, Salehi K, Nelson TJ, Limpisvasti O, Mandelbaum BR, Tawackoli W, Metzger MF, Sheyn D. Assessing the Resident Progenitor Cell Population and the Vascularity of the Adult Human Meniscus. *Arthroscopy.* 2021 Jan;37(1):252-265. doi: 10.1016/j.arthro.2020.09.021. Epub 2020 Sep 23. PMID: 32979500; PMCID: PMC7829352.
- Erhart-Hledik JC, Favre J, Andriacchi TP. New insight in the relationship between regional patterns of knee cartilage thickness, osteoarthritis disease severity, and gait mechanics. *J Biomech.* 2015 Nov 5;48(14):3868-75. doi: 10.1016/j.jbiomech.2015.09.033. Epub 2015 Oct 8. PMID: 26475218.
- Hall M, Wrigley TV, Metcalf BR, Hinman RS, Cicuttini FM, Dempsey AR, Mills PM, Lloyd DG, Bennell KL. Mechanisms underpinning the peak knee flexion moment increase over 2-years following arthroscopic partial meniscectomy. *Clin Biomech (Bristol, Avon).* 2015 Dec;30(10):1060-5. doi: 10.1016/j.clinbiomech.2015.09.006. Epub 2015 Sep 18. PMID: 26428315.
- Thorlund JB, Holsgaard-Larsen A, Creaby MW, Jørgensen GM, Nissen N, Englund M, Lohmander LS. Changes in knee joint load indices from before to 12 months after arthroscopic partial meniscectomy: a prospective cohort study. *Osteoarthritis Cartilage.* 2016 Jul;24(7):1153-9. doi: 10.1016/j.joca.2016.01.987. Epub 2016 Feb 2. PMID: 26836286.