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Treatment Of Anteromedial Rotatory Instability Associated With Anterior Or Posterior Cruciate Ligament Injury. Cohort Study With A 2-Year Follow-Up.

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Disclosures:

Ramos L.A. - Medical Education - Arthrex

Background

- Often, posteromedial corner (PCM) lesions are underdiagnosed, which can generate residual instability , consequently leading to the occurrence of new associated joint injuries and hindering the return to sports practice because of the persistence of symptoms

- In addition, in the presence of concomitant lesions, underestimating or neglecting them may contribute to the failure of reconstruction of the cruciate ligaments, making their identification and treatment fundamental for the reestablishment of knee functionality and stability

Hypothesis/Purpose

- This work aims to evaluate and compare the medial function and stability of the knee of patients undergoing medial collateral ligament (MCL) reconstruction combined with the technique of distal re-tensioning of the direct arm of the semimembranosus associated with anterior cruciate ligament (ACL) or posterior cruciate ligament (PCL) reconstruction.

- We hypothesise that the two associated lesions, ACL with MCL or PLC with MCL, can be treated with the reconstruction of both ligaments, concomitantly with distal and anterior tenodesis of the semimembranosus, aiming the treatment of anteromedial rotatory instability (AMRI), with satisfactory subjective and objectives results.

Methods

- This is a retrospective cohort of a total of 34 eligible patients submitted to surgical reconstruction of MCL grade 3 injury with AMRI associated with ACL or PCL injury between 2016 and 2019, and who completed at least two years of postoperative follow-up.
- Lysholm questionnaire (LYS) and stress radiographs (X-ray) were performed in the pre- and 2 years of postoperative evaluation
- The patients included in the study were treated by the same surgeon (LAR), with surgical correction occurring between 8 and 12 weeks after the injury.
- The individuals were divided into groups according to the injury of the affected cruciate ligament:
  - ACL + PMC (group 1)
  - PCL + PMC (group 2)

Methods

- Surgical Technique
  - The anatomical reconstruction of the ACL and the PCL: autologous quadriceps tendon with 10 mm in diameter. The femoral fixation was performed with an adjustable cortical button
  - The technique of repositioning the direct arm of the semimembranosus with tenodesis in the anterior position and distal to its anatomical insertion (figure A.1 and A.2), together with the POL in order to re-establish its dynamic stabilizer function.
  - For the reconstruction of the MCL, the anatomical points and technique described by LaPrade et al were respected, performing fixation of the gracilis and semitendinosus grafts previously removed with two interference screws – size: 8x25mm - with knee at 30º of flexion, neutral rotation and without adduction
  - The procedure is finalized with tibial fixation of the ACL and PCL using a 11X30 mm interference screw in extension and flexion of 90° of the knee, respectively, with anatomical reduction of the tibiofemoral relationship.


A.1


A.2

Results

- At the end, of the 34 eligible cases, 9 were excluded:
  - Twenty-five patients were included:
    - Group 1 (ACL + PMC) : 14
    - Group 2 (PCL + PMC): 11
- There was an improvement ($p<0.05$) between the pre- and post- operative evaluations for subjective analysis (LYS) (table 1) and significant decrease in medial opening (table 2) in both groups

Table 1: Moment comparison by groups for LYS

LYS		MEAN	MEDIAN	STANDARD DEVIATION	N	CI	P-VALUE
GROUP 1	T0	41,5	43	5,5	14	2,9	<0,001
	T6	69,0	64	18,8	14	9,9	
	T12	93,2	96	9,4	14	4,9	
	T24	94,3	96	8,0	14	4,2	
GROUP 2	T0	41,9	40	7,7	11	4,6	<0,001
	T6	70,1	74	19,9	11	11,8	
	T12	90,0	96	10,8	11	6,4	
	T24	91,1	96	10,4	11	6,2	

Table 2: Moment comparison by groups for X-Ray

X-Ray		MEAN	MEDIAN	STANDARD DEVIATION	N	CI	P-VALUE
GROUP 1	T0	5,15	5,10	0,84	14	0,44	<0,001
	T12	0,94	0,75	0,78	14	0,41	
	T24	0,90	0,75	0,79	14	0,42	
GROUP 2	T0	5,59	5,50	0,76	11	0,45	<0,001
	T12	1,18	1,00	1,03	11	0,61	
	T24	1,18	1,00	1,03	11	0,61	

Discussion

- The results obtained with this study support the hypothesis that the reconstruction of ACL or PCL associated with distal tenodesis of the direct arm of the semimembranosus in combined with grade 3 MCL injuries, when also present in AMRI, provide good subjective and objective results ($p<0,001$)
  - LYS: there was an improvement in the mean value, after 2 years follow-up:
    - Group 1 (ACL): 41,5 → 94,3
    - Group 2 (PCL): 41,9 → 91,1
  - X-ray: there was a reduction in the mean preoperative value of:
    - Group 1 (ACL): 5.15 mm → 0.90 mm
    - Group 2 (PCL): 5.59 mm → 1.18 mm

Conclusion

The PMC advancement technique used in this study, when associated with the reconstruction of the MCL with ACL or PCL, , provide good subjective and objective results after 2 years in KD1 cases with clinical signs of AMRI.

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