



ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18–June 21

ASSESSMENT OF THE ANTEROLATERAL LIGAMENT OF THE KNEE IN MAGNETIC RESONANCE MRI - CASE SERIES

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None of the authors declare conflict of interests

INTRODUCTION

- High frequency in anterior cruciate ligament (ACL) injuries. (1,2)
- Intra-articular arthroscopic reconstruction with a tendency for extra-articular reinforcement using the anterolateral ligament (ALL). (4,5)
- Reinforcement indication based on clinical parameters (5)
- Magnetic resonance imaging (MRI) specific protocols is highly sensitive, specific and accurate for detecting ALL abnormalities in adults (10,11)
- The present study points to the questioning of the efficiency of conventional MRI in our environment for this evaluation.

OBJECTIVE

To evaluate the citation of the ligament in the MRI imaging reports and confirm its presence and lesion in the images of exams performed in the acute phase in a retrospective way.

METHODS

- Observational cross-sectional study
- Patients of both sexes, over 18 years old, operated on for primary anterior cruciate ligament injury without association with associated ligament reconstruction
- Surgical treatment in 2019, with preoperative MRI performed within 1 month after sprain with ACL injury (acute phase).
- Patients without MRI examination after the acute phase were excluded.

METHODS

- Reassessment of all 2019 reports
- Two radiologists, separately, reanalyzed the MRI images, in a single time, in search of visualization of the ALL and lesions in the ALL.
- The definition of injury used was previously described as changes in thickness, path and/or edema around the ligament region.

- No exam was considered of poor quality or excluded.

METHODS

Were compared:

- The number of description of ALL in the reports before the study with those found by the radiologists during the reanalysis
- The ALL injury diagnoses before and after the reanalysis, considering the injury as the case reported in the MRI report before the study and the cases of agreement between the two radiologists in the reanalysis.

- The concordance in diagnosis between the two radiologists

RESULTS

- 221 patients operated in 2019 by the group, 103 participants were included; 118 were excluded for not performing an MRI within a month after a sprain with ACL injury.

	<u>Prior analysis</u> (N = 103)	<u>Reanalysis - Radiologist A</u> (N = 103)	<u>Reanalysis - radiologist B</u> (N = 103)
<u>Visualization on ALL-</u> N (%)	1 (0,97)	98 (95)	100 (97)

	<u>Prior analysis</u> (N = 103)	<u>Reanalysis - Radiologist A</u> (N = 103)	<u>Reanalysis - radiologist B</u> (N = 103)	<u>P value</u>
<u>ALL injury diagnosis-</u> N (%)	1 (0,97)	53 (51,5)	56 (54,4)	< 0,05

RESULTS

-There was agreement in the diagnosis and considered an injured ligament in 39 cases (37.9%), one of which was already observed in the report made before the study.

	Prior analysis (N = 103)	Reanalysis - radiologists (N = 103)	P value
ALL injury diagnosis- N (%)	1 (0,97)	39 (37,9)	< 0,0001

- There was only moderate agreement between them with a kappa coefficient of 0.411.

	Value	Asymptotic standardized error ^a	Approximate t ^b	Approximate significance
Kappa concordance measure	0,411	0,093	4,026	0,000
Number of valid cases	96	-	-	-

DISCUSSION

- High sensitivity for visualization of the ligament (15,16)
- The impasse of standardization of lesion detection due to the difficulty in observing its entire extension due to the presence of accessory structures (16)
- Controversies about the location of frequent ligament abnormalities. (17)
- Ineffectiveness of the standard MRI sequence for such visualization, which also makes diagnosis difficult. (16)
- Increase the active search for the ALL during the evaluation of images by radiologists in our midst
- Report the presence of the ALL and changes in thickness, path, surrounding edema, if any, indicating the probable lesion.

DISCUSSION

Limitations and biases found the following:

1- Retrospective analysis of images taken in different radiology services with different resonance machines and with resolutions between 0.5 and 1.5 Tesla

2- Series of cases from a single center

3- Large number of patients operated on with ACL injury, but who had not undergone imaging tests in the acute phase and had to be

excluded from the analysis.

CONCLUSION

The reports failed to describe the ligament and diagnose a significant number of injuries. The analysis of conventional resonance images still generates divergences in the diagnosis of ALL injury associated with the ACL among radiologists.

Thank you!



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