Epidemiology of combined injuries of the secondary stabilizers in ACL-deficient knees:

Medial meniscus ramp lesion, lateral meniscal root tear and ALL tear

A Prospective Case Series of 602 Patients with ACL Tears FROM the SANTI study Group

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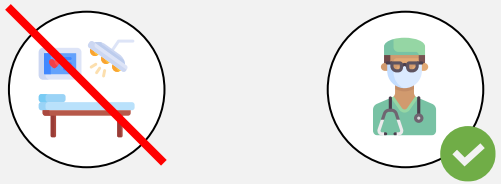
SANTI SCIENTIFIC ACL NETWORK INTERNATIONAL

MARCAV CIRURGIA ESPORTIVA DE GENOLL

ACL Study Group

We are Surgeons



Our job is not to suture a meniscus or replace an ACL

Our job is:

- As Researchers, to improve knowledge
- As Surgeons, to treat *people* (not only their ACL) and to help them get back to their sport

IT MEANS THAT WE HAVE TO IDENTIFY EVERYTHING THAT IS INJURED

Introduction

Hypothesis

Frequency of combined injuries is high, especially in younger subjects

Objective

To define the individual and combined prevalence for MMRL, LMRT and ALL tear in a case series of patients undergoing ACL reconstruction

Material and methods

➡ **Type of study:**
Prospective case series study between January 2019 to June 2020

➡ **Material:**
All patients over 15 years undergoing primary **ACL reconstruction**

➡ **Exclusion:**

- Concurrent reconstruction PCL / Collateral

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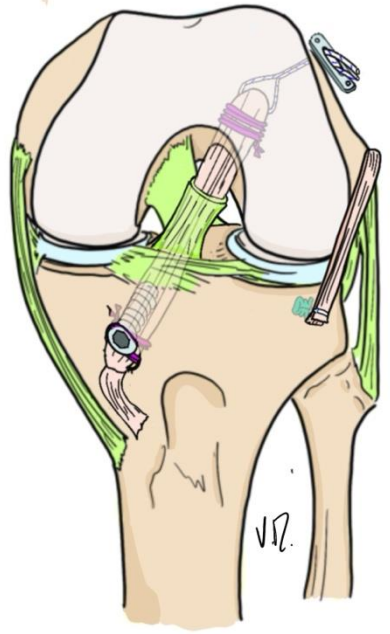
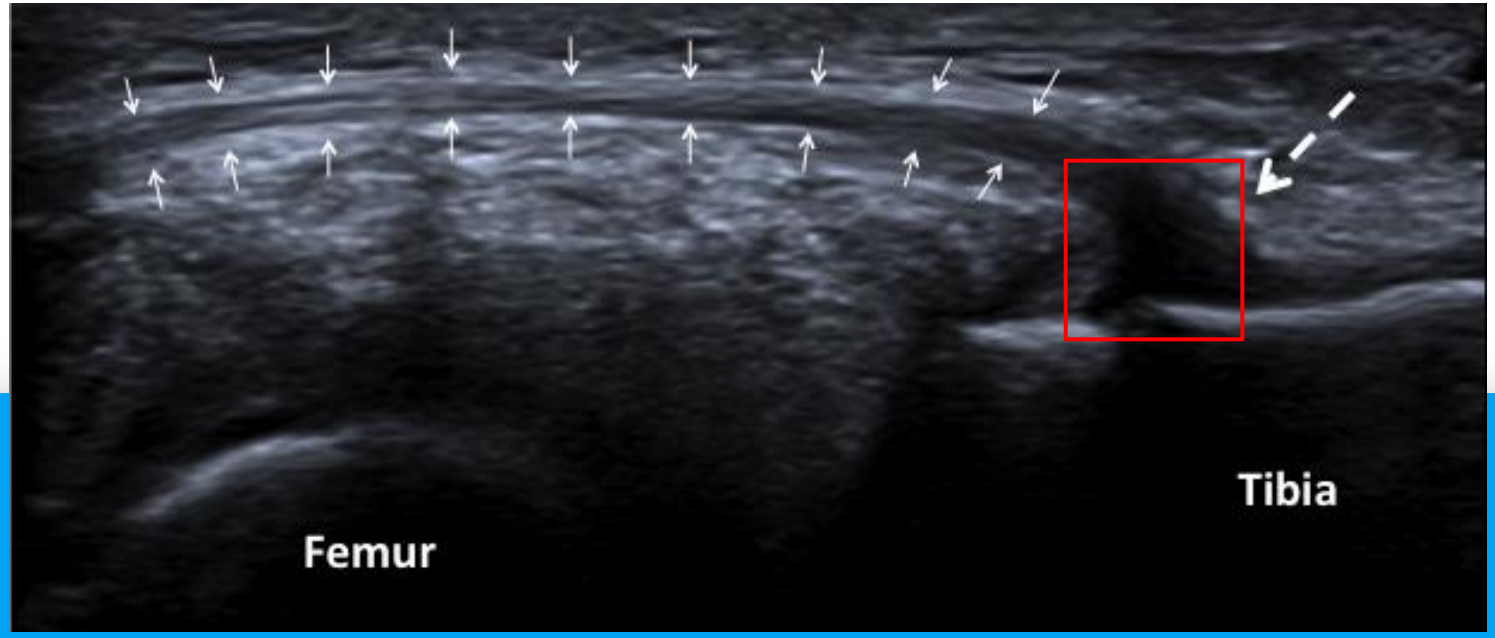


Material and methods

US examination preoperatively to look for **ALL tear**

Validated protocol

Immediately Prop done by Surgeon (EC)



Eur Radiol
DOI 10.1007/s00330-017-4955-0

ULTRASOUND

Anterolateral ligament injuries in knees with an anterior cruciate ligament tear: Contribution of ultrasonography and MRI

Marie Faruch Bilfeld[1] · Etienne Cavaignac[2] · Karine Wytrykowski[2] · Olivia Constans[1] · Franck Lapègue[1] · Hélène Chiavassa Gandois[1] · Ahmed Larbi[3] · Nicolas Sans[1]

Ultrasonographic Identification of the Anterolateral Ligament of the Knee

Etienne Cavaignac, M.D., Karine Wytrykowski, M.D., Nicolas Reina, M.D., Regis Pailhé, M.D., Jérôme Murgier, M.D., Marie Faruch, M.D., and Philippe Chiron, M.D., Ph.D.

Ultrasonographic Evaluation of Anterolateral Ligament Injuries: Correlation With Magnetic Resonance Imaging and Pivot-Shift Testing

Etienne Cavaignac, M.D., Marie Faruch, M.D., Ph.D., Karine Wytrykowski, M.D., Olivia Constant, M.D., Jérôme Murgier, M.D., Emilie Berard, M.D., and Philippe Chiron, M.D., Ph.D.

Knee Surgery, Sports Traumatology, Arthroscopy
https://doi.org/10.1007/s00167-018-5072-6

KNEE

The anterolateral complex of the knee: results from the International ALC Consensus Group Meeting

Alan Getgood[1] · Charles Brown[2] · Timothy Lording[3] · Andrew Amis[4] · Steven Claes[5] · Andrew Geeslin[6] · Volker Musahl[7] on behalf of ALC Consensus Group

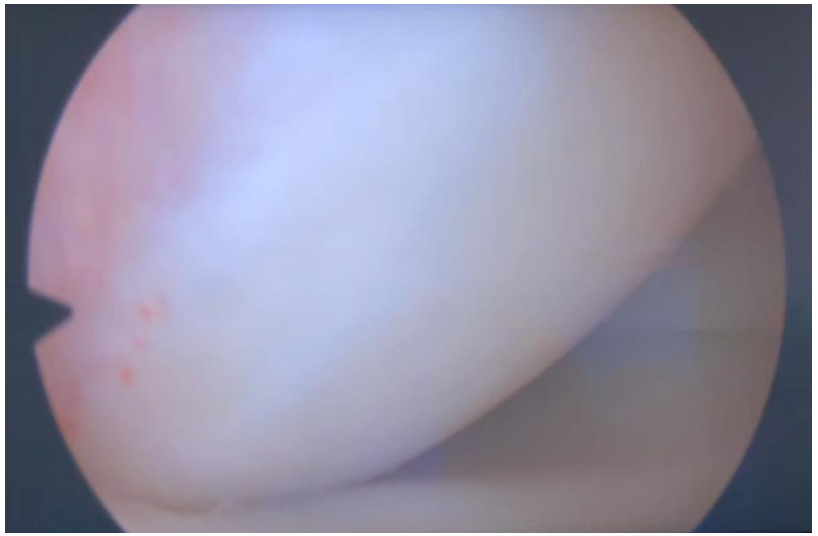
Editorial Commentary: Knee Anterolateral Ligament Bashing—Why So Much Negativity?

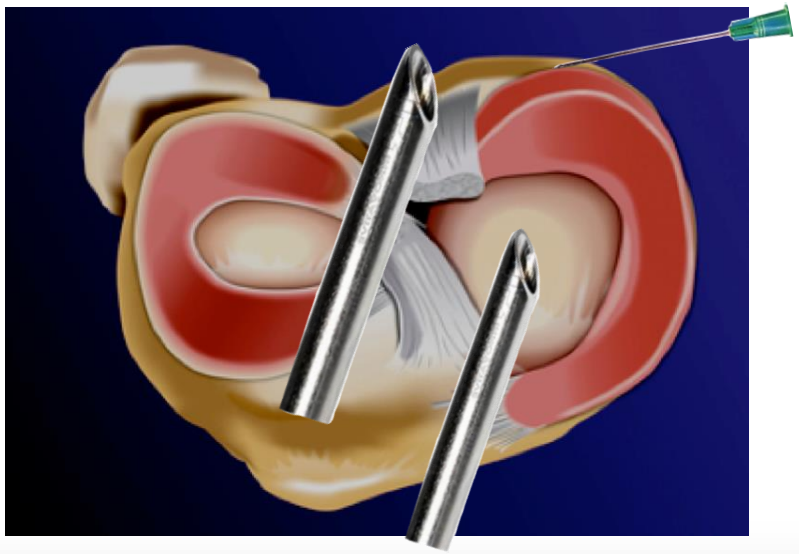
Etienne Cavaignac, M.D., Ph.D., and Philippe Chiron, M.D., Ph.D.

Regarding "Editorial Commentary: Ultrasound Barely Beats Magnetic Resonance Imaging in Knee Anterolateral Ligament Evaluation … But Does This Change the Treatment of the Anterior Cruciate Ligament-Deficient Knee?"

Material and methods

- Presence of **MMRL** was determined during a standardized arthroscopy exploration

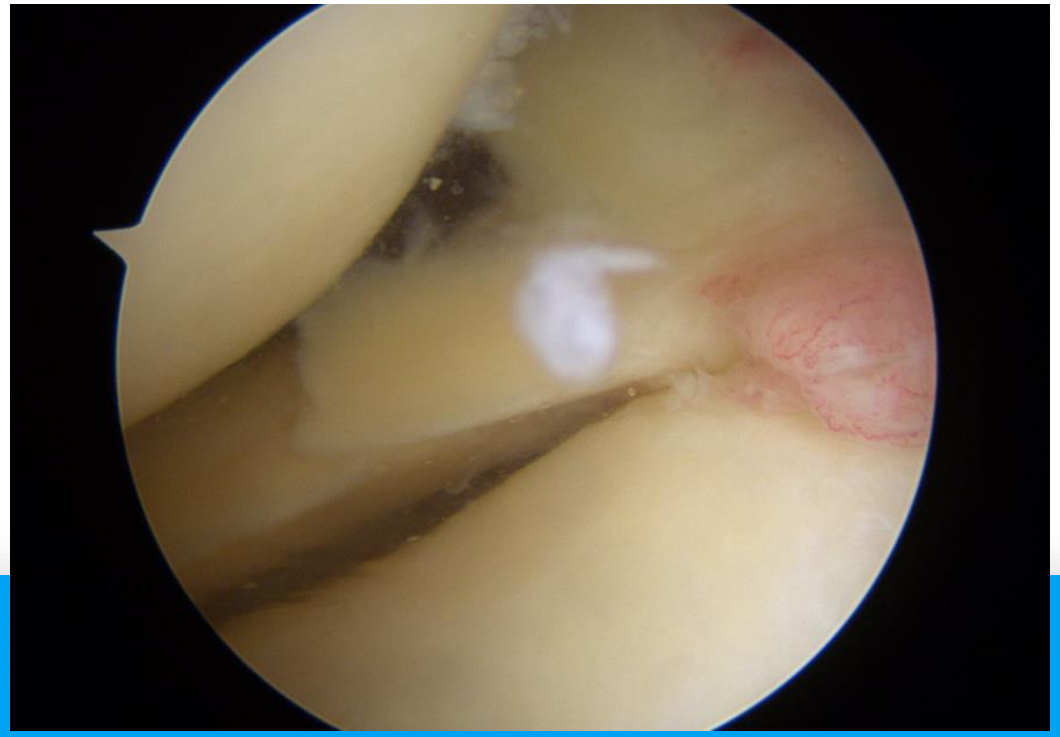




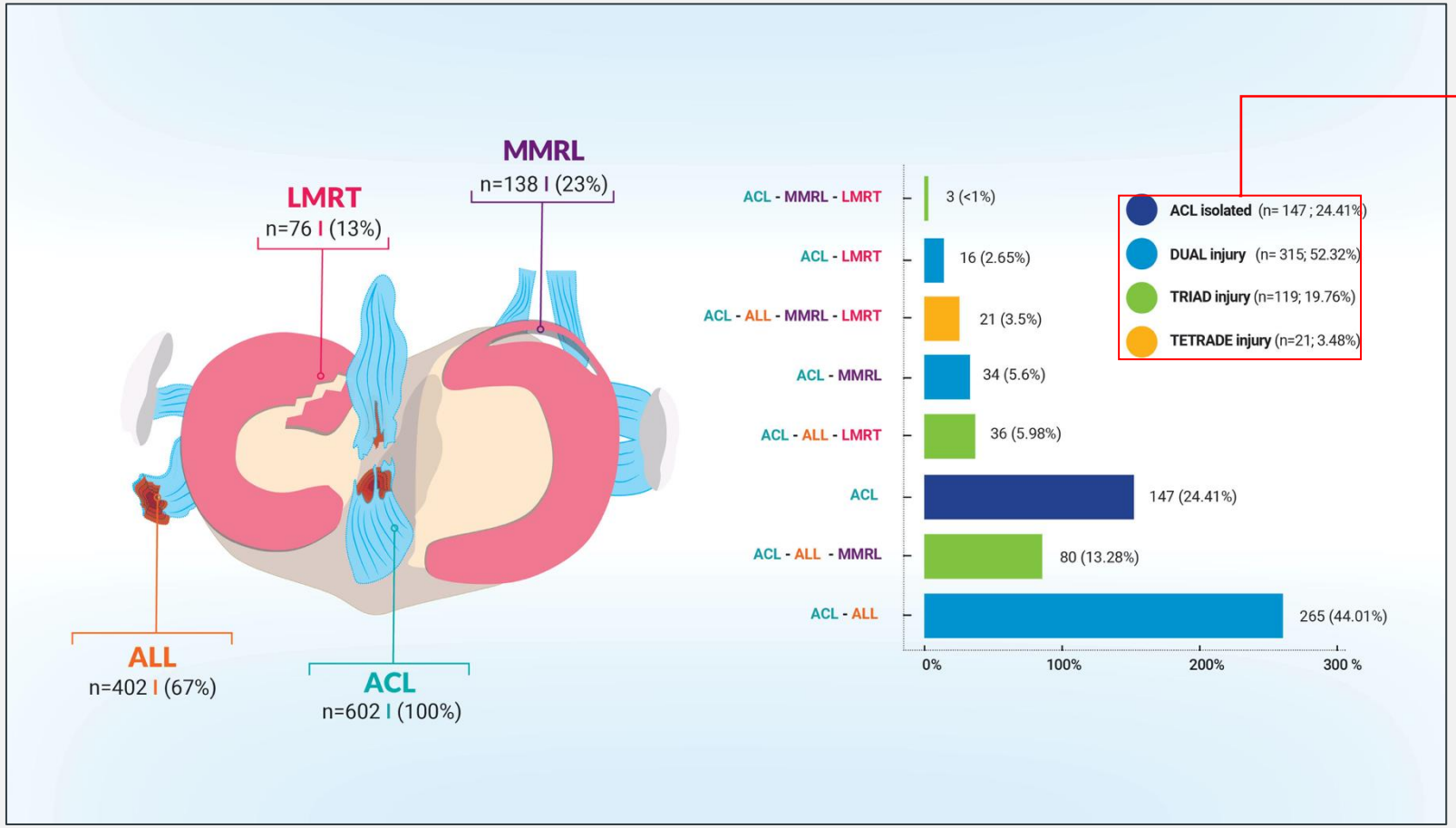
Hidden lesions of the Posterior Horn of the medial meniscus:
A systematic arthroscopic exploration of the concealed portion of the knee
Sonnery-Cottet et al. Am J Sport Med 2014

Material and methods

- Presence of **LMRT** was determined during a standardized arthroscopy exploration



Results


MMRL
n=138 I (23%)
LMRT
n=76 I (13%)
ALL
n=402 I (67%)
ACL
n=602 I (100%)
ACL - MMRL - LMRT
3 (<1%)
ACL - LMRT
16 (2.65%)
ACL - ALL - MMRL - LMRT
21 (3.5%)
ACL - MMRL
34 (5.6%)
ACL - ALL - LMRT
36 (5.98%)
ACL
147 (24.41%)
ACL - ALL - MMRL
80 (13.28%)
ACL - ALL
265 (44.01%)
0%
100%
200%
300 %
ACL isolated (n= 147 ; 24.41%)
DUAL injury (n= 315; 52.32%)
TRIAD injury (n=119; 19.76%)
TETRADE injury (n=21; 3.48%)

Results

Risk factors

Younger age is a risk factor for combined injuries

Female population was not correlated to combined injuries

INDEPENDENT DEMOGRAPHIC RISK FACTORS FOR ISOLATED ACL TEAR OR COMBINED INJURY PATTERN[a]

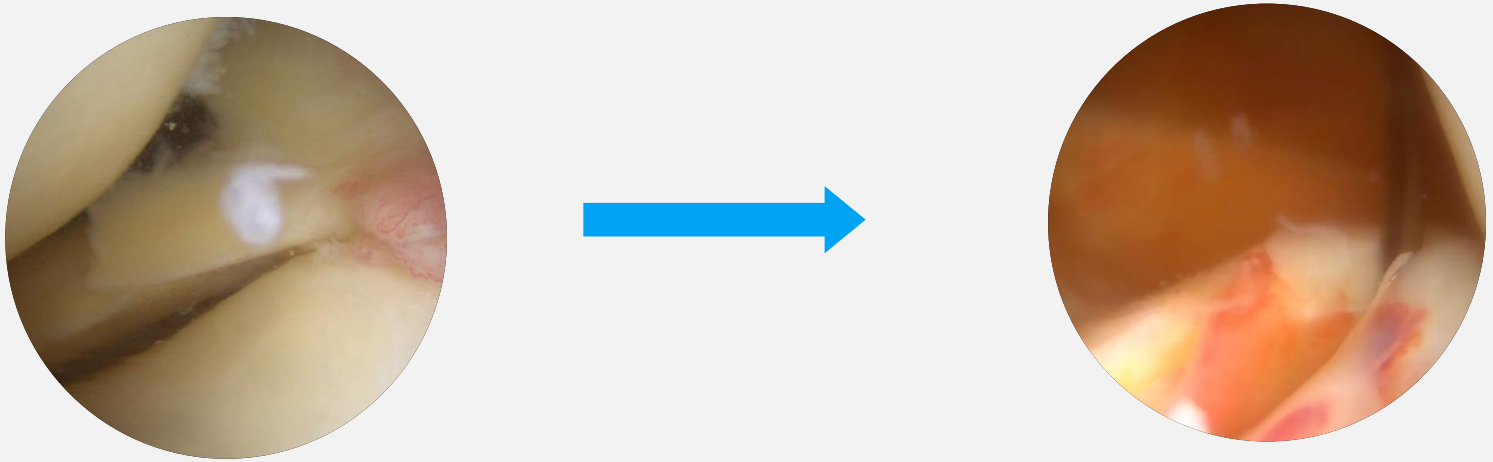
	Single Injury[b]	Dual Injury			Triad Injury			Tetrad Injury[c]
		MMRL-ACL	LMRT-ACL	ALL-ACL	MMRL-LRMT-ACL	MMRL-ALL-ACL	LMRT-ALL-ACL	
Sex: female aOR (95% CI)	1.14 (0.78-1.68)	1.19 (0.58-2.43)	1.50 (0.55-4.09)	1.30 (0.92-1.83)	0.95 (0.08-10.58)	0.55 (0.32-1.95)	0.61 (0.28-1.34)	0.44 (0.14-1.31)
P value	.491	.627	.427	.125	.969	.960	.225	.142
Age, by year aOR (95% CI)	1.05 (1.03-1.07)	1.06 (1.02-1.09)	1.01 (0.95-1.05)	0.97 (0.95-0.99)	1.07 (0.09-1.18)	0.95 (0.92-0.98)	0.99 (0.96-1.03)	0.93 (0.88-0.99)
P value	**<.001**	**<.001**	.901	**.001**	.148	**<.001**	.883	**.028**

[a]P values in bold are statistically significant (P < .05). ACL, anterior cruciate ligament; ALL, anterolateral ligament; aOR, adjusted odds ratio; LMRT, lateral meniscus root tear; MMRL, medial meniscal ramp lesion.
[b]ACL only.
[c]ACL, ALL, LMRT, and MMRL.

Results

The search for damaged secondary stabilizers of the knee must be meticulous and systematic, **especially when one injured structure has already been diagnosed.**

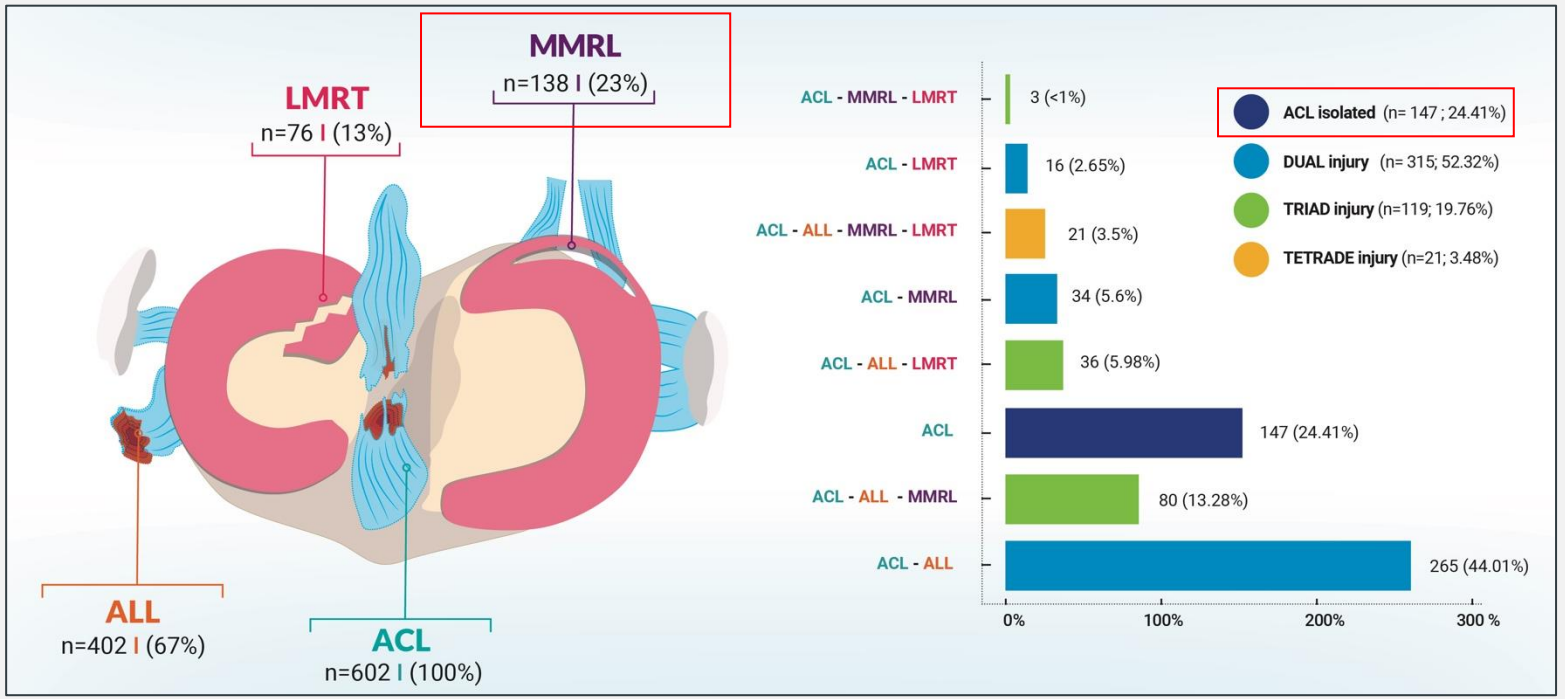
What DID I find?	What MIGHT I find? MMRL	LMRT	ALL
MMRL		1.35 (1.12; 2.43) p=0.018*	2.17 (0.14; 3.93) p=0.238
LMRT	1.35 (1.12; 2.43) p=0.018*		1.72 (0.73; 2.58) p=0.109
ALL	2.17 (0.14; 3.93) p=0.238	1.72 (0.73; 2.58) p=0.109	



Presence of a LMRT should prompt the surgeon to look meticulously for a MMRL +++

Be careful if you only find an ACL tear

You probably missed something!



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The American Journal of Sports Medicine

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Thank You

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