

Low Failure Rate in a Young Cohort of Patients Undergoing Anterior Cruciate Ligament Reconstruction with Quadriceps Tendon is Independent of Graft Fixation Methods

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Disclosures

Volker Musahl, MD:

- Education: Smith & Nephew, Arthrex, DePuy Synthes, Conmed
- Consulting: Smith & Nephew; Newclip; Osteosys
- Royalties: Springer
- Shareholder: Osteosys
- KSSTA (Deputy Editor-in-chief)
- Co-developer of iPad app (Serial No. 61/566,761)
- NIH Grant Support: U01AR076144, W81XWH-16-PRORP-ICTA

Introduction

- Younger age = risk factor for anterior cruciate ligament (ACL) injury and ACL reconstruction (ACL-R)¹
- Quadriceps tendon (QT) autograft is being increasingly used during ACL-R²
 - Comparable outcomes with other graft choices³
 - Less donor site morbidity compared to patellar tendon³



1. Monaco, AJSM 2022
2. Rizvanovic, KSSTA 2022
3. Mouarbes, AJSM 2019

Purpose

- To determine failure rate and clinical outcomes following QT ACL-R in a young cohort of patients at short-term 1 year follow-up
- To determine if femoral and tibial fixation method impacts outcomes

Methods

- All patients age 14-30 years old who underwent primary QT ACL-R between 2010-2021 were analyzed
- Patient characteristics, operative details, ACL-R failure, pre- and post-operative International Knee Documentation Committee (IKDC) scores, and complications were recorded
- Patients further categorized based on femoral and tibial fixation: suspensory/suspensory (Group 1), suspensory/aperture (Group 2), aperture/aperture (Group 3)

Methods

- **Primary outcome = ACL-R failure**
- **Secondary outcomes = post-operative IKDC score and additional complications**

Results

- 350 patients included
- Mean age = 19.4 years
- Mean follow-up = 12.6 months
- **Failure rate = 4.9%**
- Post-op IKDC = 76.2

Table 1. Descriptive characteristics and outcomes of study population

Variable	Total Cohort (n = 350)
Age (yrs), mean (SD)	19.4 (4.3)
Male, n (%)	194 (56)
BMI, mean (SD)	25.1 (4.8)
Follow-Up (months), mean (SD)	12.6 (7.0)
Revision, n (%)	17 (4.9)
IKDC Pre-Op	38.9 (17.5)
IKDC Post-Op	76.2 (20.8)

BMI = body mass index

IKDC = International Knee Documentation Committee

Results

- Stiffness requiring re-operation in 10% of patients
- Low rates of contralateral ACL tear or future meniscus tear
- Very low rates of infection and neurovascular injury

Table 2. Descriptive characteristics of post-operative complications

Post-Operative Complications	Total Cohort (n = 350)
Stiffness, n (%)	36 (10.3)
Contralateral ACL Tear, n (%)	5 (1.4)
Meniscus Tear, n (%)	11 (3.1)
Superficial Infection, n (%)	6 (1.7)
Neurovascular Injury, n (%)	0 (0.0)

Results

- **No difference in failure rate or PROs based on fixation type**

Variable	Fixation Type			p
	Susp/Susp (n=122)	Susp/Aper (n=191)	Aper/Aper (n=37)	
Age (yrs), mean (SD)	19.1 (4.3)	19.3 (4.3)	20.6 (4.5)	0.154
Male, n (%)	74 (60.7)	103	17	0.238
BMI, mean (SD)	25.7 (5.5)	24.7 (4.4)	24.9 (3.7)	0.191
Revision, n (%)	8 (6.6)	9 (4.7)	0 (0)	0.264
Post-Op IKDC, mean (SD)	74.2 (20.7)	77.1 (21.3)	79.2 (19.8)	0.467

Susp = suspensory fixation (fixed loop, adjustable loop, and screw and washer)

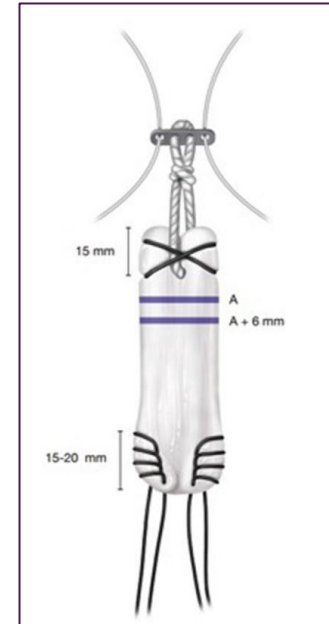
Aper = aperture fixation (interference screw)

BMI = body mass index

IKDC = International Knee Documentation Committee

Conclusion

- Data from this short-term follow-up study of QT ACL-R in young (mean 19 y.o.) patients shows **5% failure rate, improved PROs, and low complication rates**
 - Not influenced by fixation methods
- This study did not utilize LET
- Long-term follow-up with this cohort is planned
- Surgeons may utilize this information during pre-operative planning and graft selection



Hughes, ATECH 2020

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Thank you!

