No Significant Difference in Medial Meniscus Root Repair Failure Rates or Patient Reported Outcomes for Patients Greater than 60 Years Old

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Disclosures

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Historical Perspective of Medial Meniscus Root Repairs

- Reported that older age was a predictor of poor prognosis following posterior medial meniscus root tear (MMRT) repairs[1]
- Repair of posterior MMRTs had superior outcomes to partial meniscectomy or non-operative treatment[2]
- Failure rates of MMRTs range from around 4-23%[3-9]
- Recent systematic Review found that:
  - 1) Repair had superior outcomes to partial meniscectomy in acute meniscus root tears
  - 2) Age was not a predictor of functional outcomes for either treatment group[10]

Purpose

- To determine whether medial meniscus root repair failure rates and patient-reported outcomes (PROs) differed between groups older and younger than 60 years
- We hypothesized that neither failure rates nor PROs would differ between the two age groups

Materials and Methods

- Retrospective chart review identified 105 patients who underwent medial meniscus root repair surgery and met inclusion and exclusion criteria

Inclusion Criteria	Exclusion Criteria
• Underwent surgery between 2012 and 2019 • Age was at least 12 years at time of surgery	• Did not undergo a transosseous meniscus root repair technique

- Phone interviews were conducted to collect long term PROs (IKDC, KOOS, Marx, and Tegner) and failures treated at outside hospitals

TABLE 1
Baseline Characteristics of the Entire Cohort

	All Patients (n=105)	Younger than 60 Years (n=86)	Older than 60 Years (n=19)	p-value
Sex (% Female)	66 (62.9%)	55 (63.9%)	11 (57.9%)	0.62
BMI (Mean ± SD)	32.8 ± 7.8	33.5 ± 8.1	29.7 ± 5.3	**0.02**
Age at Surgery in Years (Mean ± SD)	48.9 ± 12.5	45.7 ± 11.5	63.3 ± 2.7	**<0.001**
Delay to Surgery in Months (Mean ± SD)	3.1 ± 3.9	3.0 ± 3.3	3.8 ± 6.0	0.55
Time to Follow-Up in Years (Mean ± SD)	3.8 ± 2.5	3.8 ± 2.5	3.8 ± 2.1	0.93
Concomitant ACL Reconstruction (N (%))	13 (12.4%)	11 (12.8%)	2 (10.5%)	0.79

*SD = standard deviation; BMI = body mass index (kg/m^2)

**For continuous variables, independent t-test is performed, while for nominal variables Fischer's exact tests were used.

TABLE 2
Baseline Characteristics of the Entire Cohort Stratified by Repair Status

	All Patients (n=105)	Repair Failure (n=10)	No Known Repair Failure (n=95)	p-value
Sex (% Female)	66 (62.9%)	5 (50.0%)	61 (64.2%)	0.38
BMI (Mean ± SD)	32.8 ± 7.8	35.9 ± 10.0	32.4 ± 7.5	0.32
Age at Surgery in Years (Mean ± SD)	48.9 ± 12.5	51.3 ± 12.7	48.6 ± 12.5	0.54
Delay to Surgery in Months (Mean ± SD)	3.1 ± 3.9	2.6 ± 3.4	3.2 ± 4.0	0.63
Time to Follow-Up in Years (Mean ± SD)	3.8 ± 2.5	4.3 ± 2.4	3.8 ± 2.5	0.52
Concomitant ACL Reconstruction (N (%))	13 (12.4%)	0 (0.0%)	13 (13.7%)	0.21

*SD = standard deviation; BMI = body mass index (kg/m^2)

**For continuous variables, independent t-test is performed, while for nominal variables Fischer's exact tests were used.

TABLE 3
Outcomes by Age Group Older or Younger than 60 Years

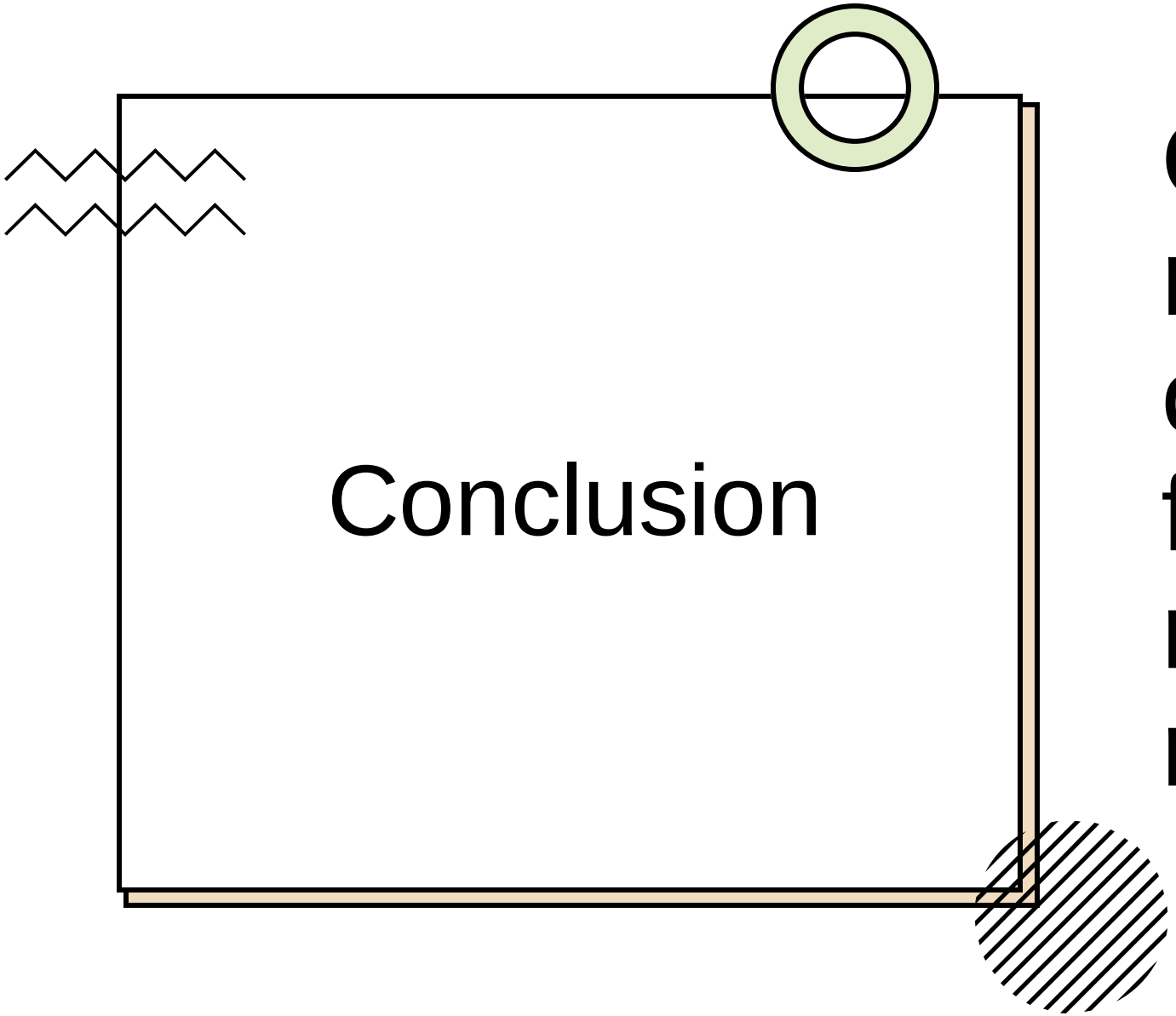
	All Patients (n=105)	Younger than 60 Years (n=86)	Older than 60 Years (n=19)	p-value
Repair Failure (N (%))	10 (9.5%)	7 (8.1%)	3 (15.8%)	0.30
Time to Failure (yrs; mean ± SD)	1.8 ± 1.5	1.2 ± 1.4	3.1 ± 1.0	0.06
Subsequent Arthroplasty (%)	7 (6.7%)	7 (8.1%)	0 (0.0%)	0.20
Time to Arthroplasty (yrs; mean ± SD)	4.0 ± 2.8	4.0 ± 2.8	n.a	n.a
Contralateral Knee Surgery (N (%))	21 (20.0%)	17 (19.8%)	4 (21.1%)	0.90
Time to Contralateral Surgery (yrs; mean ± SD)	2.7 ± 1.5	2.7 ± 1.6	2.7 ± 1.6	0.99
Patient Reported Outcomes (PROs)				
IKDC (mean ± SD)	73.6 ± 20.2	73.0 ± 21.8	75.1 ± 17.0	0.79
KOOS (mean ± SD)	81.8 ± 16.7	80.6 ± 17.8	84.6 ± 14.4	0.55
Tegner Activity Scale (Median (IQR))	4 (3-5)	5 (3-6)	3.5 (3-5)	0.57
Marx Activity Scale (Median (IQR))	0 (0-4)	0 (0-4)	0 (0-4)	0.89

*SD = Standard Deviation; IQR = Interquartile Range; IKDC = International Knee Documentation Committee; KOOS = Knee Injury and Osteoarthritis Outcome Score
**For continuous variables, independent t-test is performed, while for nominal variables Fischer's exact tests were used.

Discussion

Repair failure, subsequent arthroplasty, and contralateral knee surgery rates were all similar between patients older and younger than 60 years.

PROs, including two measures of knee function (KOOS and IKDC) and two measures of activity level (Tegner and Marx) were also similar between patients older and younger than 60 years.



Older age may not contribute to outcomes following medial meniscus root repair.

Limitations

1

Retrospective nature

2

Small sample size, particularly for long-term PROs

3

Lack of preoperative PROs meant comparisons couldn’t be made between the preoperative and postoperative time periods

Future Directions

Expand the sample size for appropriate power to compare failure rates between age groups

Collect preoperative PROs so that pre- to postoperative comparisons can be made

Explore possible causes for different times to failure between older and younger cohorts

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