

Repair of Isolated Traumatic Lateral Meniscal Injury Yields Comparable Clinical Outcomes in Young and Middle-aged Patients

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Competing interest

The authors declare that they have no competing interests



Introduction 1

✓ Lower rate of meniscal healing at 2nd look evaluation in patients aged > 40 years following arthroscopic repair

Dai W, OJSM, 2021

✓ Clinical outcome in mid-term (postoperative 63 months) after lateral meniscal repair (LMR) is good

→ Subjects are young patients (Ave. 29.5 years)

Uzun E, OJSM, 2020

Clinical outcomes of isolated lateral meniscal injuries in middle-aged patients remain unclear



Introduction 2

Objectives

This study aimed to compare the clinical outcomes after meniscal repair for isolated lateral meniscus tear in young and middle-aged patients

Hypothesis

Both young and middle-aged patients could achieve satisfactory clinical outcomes following the repair of isolated traumatic lateral meniscal injuries



Methods

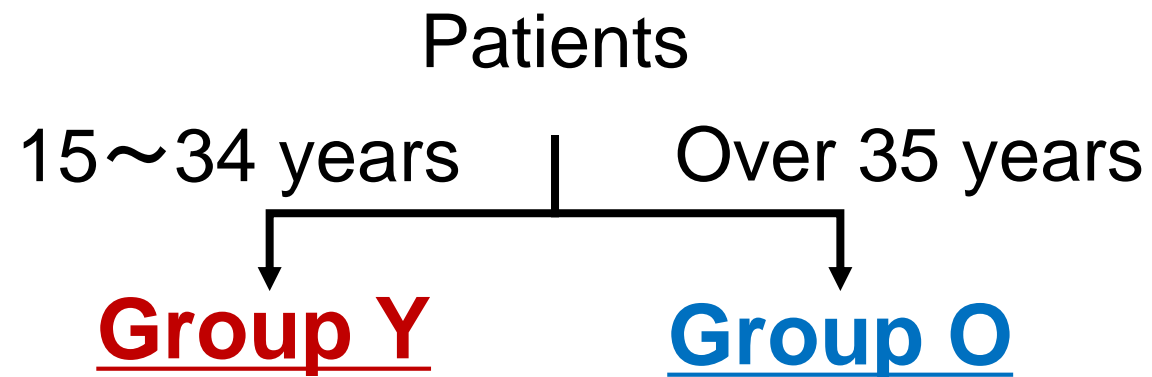
Patients: underwent isolated arthroscopic meniscal repair for lateral meniscal tear in our hospital between 2013 and 2021 were enrolled

Inclusion criteria

- (1) Patients older than 15 years
- (2) Minimal follow-up of 2 year postoperatively
- (3) Kellgren-Lawrence (K-L) grade ≤ 2
- (4) Traumatic meniscus tear

Exclusion criteria

- (1) Discoid lateral meniscus
- (2) Degenerative and horizontal lesion





Clinical evaluations 1

① Demographic data

- ✓ Age
- ✓ Sex
- ✓ Body mass index (BMI)
- ✓ Duration from injury to surgery
- ✓ Follow-up (F/U) period
- ✓ Locking

② Radiographic data

- ✓ Femoral tibial angle (FTA)
- ✓ Medial proximal tibial angle (MPTA)
- ✓ Posterior tibial slope (PTS)
- ✓ K-L grade

③ Operative findings

- ✓ Meniscal tear pattern
- ✓ Suture technique



Clinical evaluations 2

④ Clinical outcomes

Patient-acceptable symptomatic state (PASS)
achievement rate of the Knee Injury and Osteoarthritis
Outcome Score (KOOS) at final follow-up

Statistical analysis

- ✓ Mann–Whitney U test
- ✓ Fisher's exact test
- ✓ Wilcoxon signed-rank test

Statistical significance was set at $P < 0.05$ (*)

	PASS
Symptoms	75.0
Pain	80.6
ADL	92.7
Sports	80.0
QOL	56.3

Maheshwer B, Arthroscopy, 2021



Result ~Demographic data

Demographic data Median (IQR25, 75)	Group Y (n=40)	Group O (n=32)	P value
Age	17 (16, 21)	46 (42, 56)	0.01*
Sex (M/F)	27/13	14/18	0.06
BMI (kg/m ²)	22.0 (20.2, 24.6)	24.2 (21.3, 27.6)	0.10
Duration (m)	1.5 (0, 4.0)	1.0 (0, 8.0)	0.46
F/U period (m)	35.0 (25.5, 52.5)	45.0 (30.5, 60.0)	0.33
Locking (n,%)	12 (30.0)	16 (50.0)	0.10



Result ~Radiographic data

Radiographic data Median (IQR25, 75)	Group Y (n=40)	Group O (n=32)	P value
FTA (°)	176.0 (174.1, 178.0)	177.0 (175.0, 178.0)	0.58
MPTA (°)	86.0 (84.5, 87.0)	87.0 (85.0, 88.0)	0.23
PTS (°)	8.0 (6.0, 10.0)	7.0 (6.0, 9.7)	0.84
K-L grade (0/1/2)	38/2/0	5/18/9	0.01*

- Group O is more progression of osteoarthritis
- No significant difference of lower limb alignment



Result ~Operative findings

	Group Y (n=40)	Group O (n=32)	P value
Meniscal tear pattern			
Longitudinal	12	15	0.03*
Radial	17	4	
Complex	9	8	
Hypermobility	2	5	
Suture technique			
Inside-out	31	28	0.52
Outside-in	2	0	
Hybrid	7	4	



Result ~Clinical outcomes

PASS	Group Y (n=40)	Group O (n=32)	P value
Symptoms	90.0%	84.4%	0.50
Pain	82.5%	71.9%	0.39
ADL	82.5%	59.4%	0.04*
Sports	87.5%	46.9%	<0.01*
QOL	87.5%	75.0%	0.22

No significant difference of Symptoms, Pain and QOL



Discussion

Treatment of lateral meniscal tear for middle-aged patients

- ✓ Surgical treatment of meniscal repair for over 60 years
→ **Repair** > Meniscectomy (※included medial and lateral)

Hausen M, OJSM, 2022

- ✓ Failure rate of meniscal repair (post operative 2~5 years)
→ **Lateral 6.1%** < Medial 10.9% (※no criteria for age)

Schweizer C, AJSM, 2023

- ✓ This study
→ **Group O**: Good PASS achievement rate (Symptoms/Pain/QOL)

LMR can be considered beneficial for middle-aged patients



Conclusion

- ✓ PASS achievement rates for KOOS regarding Symptoms, Pain and QOL after arthroscopic repair for isolated lateral meniscal injuries showed no significant differences between young and middle-aged patients.
- ✓ Arthroscopic repair represents a potentially viable treatment option for isolated lateral meniscal injuries in middle-aged patients.