COMPARATIVE STUDY BETWEEN PATELLAR RETRACTION AND PATELLAR EVERSION IN TOTAL KNEE REPLACEMENT EXPOSURE

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INTRODUCTION

Total knee replacement is one of the most common elective surgeries worldwide. However, the outcomes of TKR are dissatisfactory in up to 20% of the patients. Mobilization of the extensor mechanism including the patella is an important step of the exposure in total knee replacement.

Patellar eversion has been routinely used in total knee replacement. Lateral retraction of the patella is another technique recently used in total knee replacement exposure. There is controversy in the literature as to which technique is better.

Moreover, there is shortage of randomized studies that particularly compare the functional outcomes as well as the complications between patellar retraction and eversion during total knee replacement. Anterior knee pain which can be related to the extensor mechanism can be one of the causes of these dissatisfactory results.

AIM OF THE WORK

The aim of this study was to compare the early functional outcomes as well as the complications in patients treated by total knee replacement through patellar retraction versus eversion.

PATIENTS AND METHODS

- We prospectively compared the early functional outcomes as well as the complications between two groups of patients admitted to Elhadr a University Hospital for elective total knee replacement.
- The inclusion criteria included end stage osteoarthritis of the knee and varus or valgus deformity < 20 degrees. The exclusion criteria included previous ipsilateral knee surgery, revision total knee arthroplasty and patients unfit for surgery.
- The total number of patients was forty patients.

- The patients were randomly divided into two groups of twenty patients each according to the patellar mobilization technique during total knee replacement surgery: Group (A) treated with patellar retraction technique and Group (B) treated with patellar eversion technique.
- All patients were followed up for a minimum of six months. At six months postoperatively we compared the functional outcomes between the two groups according to the presence of extension lag and flexion contracture, knee range of motion, the Oxford Knee Score and visual analogue score for anterior knee pain.
- All patients had follow up x-rays immediately after surgery and at 1 month, 3 months and six months postoperatively.

RESULTS

1- Comparing the two groups according to Oxford Knee Score:

For the patellar retraction group the Mean ± SD OKS at 6 months postoperatively was 47.05 ± 1.10. While in patellar eversion group the results were 44.50 ± 2.87. The results were compared according to the Student t-test and were found to be statistically significant in favor of the retraction group with a p value of 0.001.

Table 1: Comparison between the two studied groups according to Oxford Knee Score:

Oxford Knee Score	Retraction (n = 20)	Eversion (n = 20)	t	p
Min. – Max.	45.0 – 48.0	38.0 – 48.0	3.706*	0.001*
Mean ± SD.	47.05 ± 1.10	44.50 ± 2.87		
Median (IQR)	47.50 (46.0 – 48.0)	44.50 (43.0 – 47.0)		

t: **Student t-test**
p: p value for comparing between **Retraction and Eversion**
*: Statistically significant at p ≤ 0.05
IQR: **Inter quartile range**
SD: **Standard deviation**

2- Comparing the two studied groups according to VAS for anterior knee pain:

The Mean ± SD VAS score for anterior knee pain in the patellar retraction group was 0.70 ± 0.73 while in eversion group it was 1.90 ± 0.97. The results were compared according to Mann Whitney test, the p value was <0.001 and the results were statistically significant in favor of the patellar retraction group.

Table 2: Comparison between the two studied groups according to VAS for anterior knee pain

VAS for anterior knee pain	Retraction (n = 20)	Eversion (n = 20)	U	p
Min. – Max.	0.0 – 2.0	0.0 – 4.0	69.50*	<0.001*
Mean ± SD.	0.70 ± 0.73	1.90 ± 0.97		
Median (IQR)	1.0 (0.0 – 1.0)	2.0 (1.0 – 2.50)		

U: **Mann Whitney test**
p: p value for comparing between **Retraction and Eversion**
*: Statistically significant at p ≤ 0.05
IQR: **Inter quartile range**
SD: **Standard deviation**

CONCLUSION

The use of patellar retraction technique for exposure in primary TKR:
- Can offer better early postoperative ROM.
- Is associated with better Oxford knee functional score compared to patellar eversion technique.
- Is associated with less anterior knee pain compared to patellar eversion technique.