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Mid-Term Outcomes of Lateral Fixed-Bearing Unicompartmental Knee Arthroplasty

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Faculty Disclosure Information

- Nothing to disclosure

Introduction

- Unicompartmental Knee Arthroplasty (UKA) is an effective treatment for isolated knee osteoarthritis (OA)
- 20% of all knee arthroplasty
- Not only to medial OA but also to lateral OA
- Lateral UKA : only 1.4% to 5% of all UKA

- **Paucity of studies regarding lateral UKA**

Introduction

- Lateral UKA
  - Fixed bearing implants – superior survival rates than mobile bearing implants
  - Mild valgus alignment is associated with more favorable results
    - 2~5° valgus
      - 5 years f/u
    - >4° valgus
      - 8 years f/u
    - >3° valgus
      - 27 months f/u

Introduction

- Comprehensive long-term follow-up studies are limited, with most data focusing on short to mid-term outcomes.
  - Even these are not numerous

- **Purpose**
- This study aims to report the mid-term outcomes of fixed-bearing lateral UKA performed at a single institution and to analyze factors influencing prognosis.

Materials and methods

- Retrospective study
- Lateral UKA performed at a single institution
  - 2002-7-30~2021-8-12
  - Lateral fixed-bearing UKA : 61 cases
- Exclusion
  - Concomitant ACL : 2 cases (Exclusion)
  - Follow-up less than 2 years : 20 cases
- Total 39 cases included
  - Before 2012.10 : Zimmer Miller Galante
  - After 2012.10 : Zimmer High Flex Knee system

Materials and methods

- Baseline patient characteristics: sex, age, height, weight, BMI
- Follow up: latest OPD f/u – clinical outcomes & radiologic outcomes
- Clinical outcomes
  - ROM, WOMAC score
- Radiologic outcomes
  - HKA angle, OA progression(K-L grade, medial compartment and PFJ), Medial joint space width ratio
- Survivorship : TKA conversion (+ PE change)

Results

Variables	Number
Number	39
Age	54.5 ± 6.6
Gender (M/F)	18/21
Side (L/R)	14/25
Height	163.2 ± 7.7
Weight	64.8 ± 9.2
BMI	24.2 ± 2.3
Follow-up period (month)	83.0 ± 57.1

Variables	Preoperative	Postoperative	*p*-value
HKA (°)	181.0 ± 3.4	178.7 ± 2.8	**<0.001**
Medial joint space width ratio	0.18 ± 0.03	0.17 ± 0.04	0.259
Medial K-L grade (1/2/3/4)	6/32/1/0	3/32/3/1	**0.009**
PFJ K-L grade (1/2/3/4)	6/29/4/0	0/27/12/0	**0.002**
ROM(°)	149.1 ± 22.5	156.3 ± 4.8	0.093
WOMAC score	37.3 ± 21.1	20.9 ± 17.2	**0.019**

Results

Correlation between		*p*-value
Medial OA progression (by Kellgren et al.)	vs. Postoperative HKA	0.783
Patellofemoral OA progression (by Kellgren et al.)	vs. Postoperative HKA	0.490
Contralateral OA progression (by Kellgren et al.)	vs. WOMAC score	0.318
Patellofemoral OA progression (by Kellgren et al.)	vs. WOMAC score	0.498
Postoperative HKA(°)	vs. WOMAC score	0.398
Medial joint space width ratio	vs. WOMAC score	0.344
Medial joint space width ratio (difference)	vs. WOMAC score	0.946

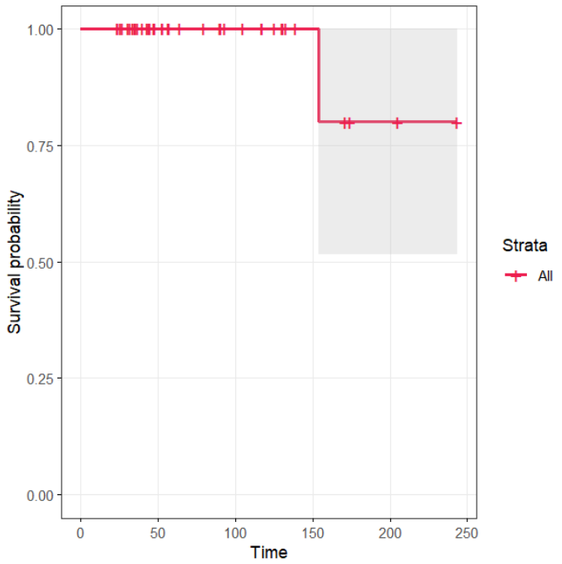
No correlation between radiologic outcomes and WOMAC scores

No correlation between OA progression and HKA

Results

Variables	Post Op. WOMAC	*p*-value
Postoperative HKA axis (177°~183°) (n=25)	16.2 ± 12.5	**0.049**
Postoperative HKA axis (<177°, >183°) (n=14)	29.4 ± 21.5	
Medial joint space width ratio (-) (n=14)	20.6 ± 11.0	0.913
Medial joint space width ratio (+) (n=25)	21.1 ± 20.1	
Medial joint OA progression (+) (n=6)	27.3 ± 20.7	0.329
Medial joint OA progression (-) (n=33)	19.8 ± 16.6	
PFJ OA progression (+) (n=14)	18.1 ± 15.6	0.458
PFJ OA progression (-) (n=25)	22.5 ± 18.2	

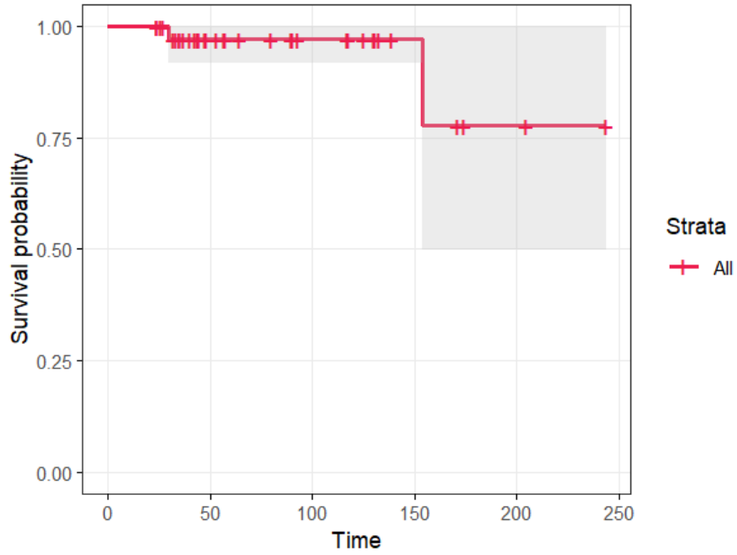
Results



<Revision surgery (Conversion)>

10-year survivorship : 100%

13-year survivorship : 80%



<Conversion + PE change>

10-year survivorship : 97%

13–year survivorship : 78%

Conclusion

- The mid-term results (mean 83 months) of lateral fixed-bearing UKA showed significant correction of valgus alignment; satisfactory clinical results were observed.

- It is recommended that the HKA be maintained within 3 degrees of neutral alignment following the lateral UKA.

References

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