

Supplementary article data

2-year follow-up report on micromotion of a short tibia stem

A prospective, randomized RSA study of 59 patients

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Table 1. Inclusion criteria

1. Patient suffering exclusively from OA, stage II–V (Ahlback 1968).
2. Patient requiring knee prosthesis, suitable for use of either the Duracon or Triathlon knee system.
3. Patient understands the conditions of the study; is willing and able to comply with the scheduled postoperative clinical and radiographic evaluations and the prescribed rehabilitation.
4. Patient has signed the ethics committee approved informed consent form before surgery.

Table 3. Demographic data

	Standard stem	Short stem
Age, mean (SD), years	66 (7)	66 (6)
Gender (F/M)	15/14	16/14
Height, mean (SD), cm	172 (9)	170 (10)
Weight, mean (SD), kg	82 (16)	85 (13)
BMI, mean (SD)	28 (4.6)	29 (3.4)
Affected side (L/R)	17/12	14/16
Ahlbäck grade I/II/III/IV	1/12/16/1	1/12/16/0
Duration of surgery, mean (SD), min	79 (11)	60 (10)
Duration of hospital stay, mean (SD), days	4.5 (1.0)	4.7 (1.2)

Table 2. Exclusion criteria

1. Previous major knee arthroplasty.
2. Significant disabling problems from the musculoskeletal system other than in the knees.
3. Obese patient where obesity is severe enough to affect subject's ability to perform activities of daily living (body mass index (BMI) ≥ 35 kg/m²).
4. Patient with active or suspected infection.
5. Patient with malignancy – active malignancy.
6. Patient with severe osteoporosis, Paget's disease, or renal osteodystrophy.
7. Patient immunologically suppressed, or receiving steroids in excess of physiological dose requirements.
8. Patient with a neuromuscular or neurosensory deficit which would limit the ability to assess the performance of the device, or which interferes with the patient's ability to limit weight bearing or places an extreme load on the implant during the healing period.
9. Female patient planning a pregnancy during the course of the study.
10. Patient with systemic or metabolic disorder leading to progressive bone deterioration.
11. Patient who, as judged by the surgeon, is mentally incompetent or unlikely to be compliant with the prescribed postoperative routine and follow-up evaluation schedule.
12. Patient with other severe concurrent joint involvement which can affect the outcome.
13. Patient with other concurrent illness, which is likely to affect the outcome—such as sickle-cell anemia, systemic lupus erythematosus, or renal disease requiring dialysis.
14. Patient under the protection of law (e.g. guardianship).

Table 4. Mean translation (A), rotation (B), and MTPM (C) of the tibial component measured by RSA at 3 months, 1 year, and 2 years; mm (SD) for translation and MTPM, and degrees (SD) for rotation. Signed values were used. Independent-samples test, Levene's test for equality of variances, t-test for equality of means

	Standard stem	Short stem	p-value	Mean difference	95% CI of the difference
Medial – lateral translation					
3 months	-0.05 (0.29)	-0.05 (0.22)	1.0	0.00	-0.14 to 0.15
1 year	-0.08 (0.44)	-0.15 (0.34)	0.5	0.11	-0.15 to 0.29
2 years	-0.12 (0.47)	-0.25 (0.42)	0.3	0.13	-0.13 to 0.38
Caudal – cranial translation					
3 months	-0.03 (0.17)	0.02 (0.16)	0.3	-0.05	-0.14 to 0.04
1 year	-0.02 (0.28)	0.04 (0.25)	0.4	-0.07	-0.21 to 0.08
2 years	0.02 (0.25)	0.06 (0.23)	0.6	-0.04	-0.17 to 0.10
Posterior – anterior translation					
3 months	0.08 (0.19)	0.13 (0.35)	0.5	-0.05	-0.21 to 0.11
1 year	0.08 (0.23)	0.11 (0.49)	0.8	-0.03	-0.24 to 0.18
2 years	0.08 (0.23)	0.15 (0.46)	0.5	-0.08	-0.28 to 0.13
Anterior tilt					
3 months	-0.02 (0.13)	-0.10 (0.17)	0.8	0.08	-0.01 to 0.16
1 year	-0.04 (0.19)	-0.05 (0.24)	0.9	0.02	-0.12 to 0.13
2 years	-0.05 (0.21)	-0.08 (0.25)	0.7	0.03	-0.11 to 0.16
Internal rotation					
3 months	0.00 (0.16)	-0.02 (0.2)	0.7	0.02	-0.09 to 0.12
1 year	-0.01 (0.24)	-0.08 (0.34)	0.4	0.07	-0.10 to 0.23
2 years	0.05 (0.23)	-0.07 (0.28)	0.1	0.12	-0.03 to 0.26
Varus					
3 months	-0.01 (0.19)	-0.01 (0.15)	0.9	-0.01	-0.10 to 0.09
1 year	0.02 (0.29)	-0.04 (0.22)	0.4	0.06	-0.09 to 0.21
2 years	0.02 (0.31)	-0.07 (0.24)	0.3	0.09	-0.07 to 0.25
MTPM					
3 months	0.36 (0.16)	0.42 (0.24)	0.3	-0.06	-0.18 to 0.05
1 year	0.51 (0.27)	0.59 (0.43)	0.4	-0.08	-0.28 to 0.11
2 years	0.54 (0.28)	0.61 (0.39)	0.5	-0.07	-0.27 to 0.12

Table 5. Hip-knee-ankle index

HKA	Standard stem		Short stem	
	Preop.	3 months	Preop.	3 months
Mean (SD), degrees	174 (6)	179 (3)	173 (4)	179 (3)
Median, degrees	173	179	173	179
Minimum value	162	174	163	173
Maximum value	193	187	185	185

Table 6. Clinical outcome scores according to AKSS and KOOS

		Preoperatively		3 months		1 year		2 years	
		Standard stem	Short stem	Standard stem	Short stem	Standard stem	Short stem	Standard stem	Short stem
AKSS	Knee score (SD)	45 (13)	46 (9)	88 (16)	91 (13)	97 (4)	93 (8)	99 (2)	97 (4)
	Function score (SD)	56 (12)	61 (17)	78 (13)	81 (14)	93 (11)	93 (16)	98 (8)	92 (17)
KOOS	Mean pain score (SD)	46 (15)	46 (15)	78 (16)	69 (20)	87 (17)	81 (16)	91 (15)	88 (14)
	Mean symptom score (SD)	52 (19)	47 (17)	71 (15)	60 (21)	80 (16)	74 (16)	87 (12)	86 (15)
	Mean ADL score (SD)	49 (11)	49 (11)	80 (17)	70 (19)	86 (17)	79 (18)	88 (16)	86 (12)
	Mean sports/recreation score (SD)	11 (12)	9 (13)	32 (22)	27 (24)	43 (23)	35 (29)	50 (28)	40 (27)
	Mean QOL score (SD)	25 (14)	28 (13)	64 (23)	51 (24)	76 (22)	68 (23)	82 (22)	75 (23)