

Original article:

Comparative study of functional outcome total knee arthroplasty with and without patellar resurfacing at 1 year follow up

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Abstract:

Introduction: The proposed indications for resurfacing have included obesity, preoperative anterior pain in the knee, rheumatoid arthritis, moderate or severe chondromalacia, patellar tilt or deformity, and patellar thickness.

Methodology: This study was performed at Dr. D Y Patil Hospital and Research Centre, Nerul, Navi Mumbai after approval of the ethical committee and after obtaining written informed consent from every patient. 1.50 patients—25 Total Knee Replacement with patellar resurfacing and 25 Total Knee Replacement without patellar resurfacing. All patients had undergone Total Knee Replacement from July 2012 to August 2014 using identical surgical protocol and identical implants by the same surgeon and post-operative care.

Results: 60% in the resurfaced group and 52% in the non resurfaced group had knee flexion of 90-99 degrees. 4% in resurfaced and 8% in non resurfaced had >110 degrees of flexion. 8% in the non resurfaced group had < 80 degrees as compared to 0% in the resurfaced group. Statistically there was no significant difference (p=0.629)

Conclusion: Based on this observational study the result is almost same regardless of whether patella had been resurfaced or not.

Introduction:

The proposed indications for resurfacing have included obesity, preoperative anterior pain in the knee, rheumatoid arthritis, moderate or severe chondromalacia, patellar tilt or deformity, and patellar thickness.³⁵ However, these indications have remained somewhat controversial. Postoperative anterior pain in the knee was reported as being more common in obese patients when the patella had not been resurfaced;²² in another study , however, such pain was reported as being more common in obese patients when the patella had been resurfaced.³⁷ Stair climbing ability is one of the most common specific

activities used to assess outcome of total knee replacement.^{1,2}

Cameron retrospectively studied patients who had had a total knee replacement; 68 had had resurfacing of the patella and 43 had had a non resurfacing only.³⁸ The patients who had not had resurfacing were considered to have had inferior results because fewer of them could climb stairs normally. Patellofemoral pain was experienced by 8 per cent of the patients who had had resurfacing compared with 18 per cent of those who had not, a difference that was not significant.³

This is a retrospective study comparing the functional outcomes in patients with patella

resurfacing and without patella resurfacing in total knee replacement.

Methodology

This study was performed at Dr. D Y Patil Hospital and Research Centre, Nerul, Navi Mumbai after approval of the ethical committee and after obtaining written informed consent from every patient. 1.50 patients—25 Total Knee Replacement with patellar resurfacing and 25 Total Knee Replacement without patellar resurfacing.

All patients had undergone Total Knee Replacement from July 2012 to August 2014 using identical surgical protocol and identical implants by the same surgeon and post-operative care.

INCLUSION CRITERIA

1. Age > 50 yrs.

Results:

Table No - 1: AP Instability Distribution

AP Instability	Count		Percentage		P Value
	Resurfaced	Non-resurfaced	Resurfaced	Non-resurfaced	
<5mm	25	25	100	100	
5-10mm	0	0	0	0	
>10 mm	0	0	0	0	
Total	25	25	100	100	

Table No - 2: ML Instability Distribution

ML Instability	Count		Percentage		P Value
	Resurfaced	Non-resurfaced	Resurfaced	Non-resurfaced	
Normal <5mm	25	25	100	100	
5-10mm	0	0	0	0	
>10 mm	0	0	0	0	
Total	25	25	100	100	

2. Tricompartmental Osteoarthritis of Knee with/without deformity

EXCLUSION CRITERIA

1. Rheumatoid arthritis
2. Post Septic arthritis
3. Revision TKR

Data was collected at 1 year post-operatively and assessment was done clinically and radiologically according to the subtitles on the Modified Knee Scoring System.

Patients from both groups were compared against each subheading.

A statistical analysis was done instead of giving a score. By doing a non parametric test the pvalue was calculated for every subheading.

Table No - 3: Alignment Distribution

Alignment	Count		Percentage		P Value
	Resurfaced	Non-resurfaced	Resurfaced	Non-resurfaced	
Normal	23	22	92	88	0.6[NS]
Varus	0	1	0	4	
Valgus	2	2	8	8	
Total	25	25	100	100	

60% in the resurfaced group and 52% in the non resurfaced group had knee flexion of 90-99 degrees. 4% in resurfaced and 8% in non resurfaced had >110 degrees of flexion. 8% in the non resurfaced group had < 80 degrees as compared to 0% in the resurfaced group. Statistically there was no significant difference (p=0.629)

Discussion:

The anterior knee pain that occurred postoperatively was predominantly of new onset; it had not been observed preoperatively in three of the four knees treated with resurfacing or in four of the eight treated without resurfacing. Six of the nonresurfaced knees with anterior pain were subsequently resurfaced, after the first postoperative year. The pain decreased in four of these six knees after the revision. No treatment options were offered to the patients with anterior knee pain following an arthroplasty that included patellar resurfacing.

Levitsky et al²³ (1993) reported a 19% incidence of mild anterior knee pain in the absence of resurfacing of the patella, and Soudry et al⁹² (1986) had noted impaired stairclimbing ability when the patella had not been resurfaced. The likelihood that anterior knee pain will develop postoperatively was about the same regardless of whether patellar resurfacing is performed. Neither obesity nor

preoperative anterior knee pain predicted a lower postoperative knee score or postoperative anterior knee pain^{4,5}

Schroeder-Boersch et al²⁷ reported better scores in stair climbing with patella resurfacing than without resurfacing and therefore recommended routine resurfacing.

Keblish et al³⁶ reported no difference in patient preference or performance on stairs at 5 years with bilateral LCS total knees with a mobile bearing patellar component on one side & no resurfacing on the other side. The prevalence of anterior knee pain in this study was consistent with the rates in previously reported studies^{6,7}. Thus resurfacing the patella does not guarantee a painless patellofemoral joint.

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Burnett et al¹¹² reported on 28 patients with osteoarthritis undergoing bilateral TKA with patella resurfacing on one knee and no patella resurfacing on the contralateral side. No significant difference was reported for global and anterior knee pain and patient's satisfaction between the two groups. Shoji et al⁹⁰ studied 35 patients with rheumatoid arthritis of both knees, but no gross deformity of the patellae, who had undergone bilateral total knee arthroplasty with patellar replacement on one side but not on the other. All patients were followed for a minimum of two years. The results, in terms of relief of pain and improvement

in function, arc of motion, and muscle power, were the same in the two knees.

In our study, at 1 year follow up, anterior knee pain was present in 8 patients in patella resurfacing group and in 9 patients in patella non resurfacing group. This difference was not found to be statistically significant. (p value=0.716)

Based on this observational study the result is almost same regardless of whether patella had been resurfaced or not. However, there can be no

definite conclusion because of many confounding factors such as component

designs, surgeon experience and surgical techniques. Also, the duration of follow-up was short and therefore studies with longer follow up will be required to prove the advantage of the patella resurfacing over non resurfacing with regard to long-term function.

Conclusion:

Based on this observational study the result is almost same regardless of whether patella had been resurfaced or not.

References:

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