(e) ISSN Online: 2321-9599

(p) ISSN Print: 2348-6805

ORIGINAL ARTICLE

Patellar resurfacing versus non-resurfacing in patients undergoing bilateral total knee arthroplasty

Sanjay Gupta

Assistant Professor, Department of Orthopaedics, Chirayu Medical College & Hospital, Bhopal, Madhya Pradesh, India

ABSTRACT:

Background: Total knee arthroplasty (TKA), also known as total knee replacement, is a surgical procedure performed to treat severe knee joint damage and relieve pain in individuals with conditions like osteoarthritis, rheumatoid arthritis, or other degenerative joint diseases. The present study compared patellar resurfacing and non-resurfacing in patients undergoing bilateral TKA. **Materials & Methods:** 70 patients undergoing TKA of both genderswere split into two groups of 35. Individuals in group I received patella resurfacing, while individuals in group II did not. A single orthopaedic surgeon performed all surgeries. Knee Society Score (KSS), Modified Samsung Medical Centre Score (MSMCS), and Feller patellar score were all recorded in both groups. **Results:** Group I had 17 males and 18 females and group II had 20 males and 15 females.MSMCS pain was 1.49 in group I and 1.61 in group II, KSS pain was 2.08 in group I and 2.81 in group II, KSS function was 3.12 in group I and 4.27 in group II, MSMCS function was 3.24 in group I and 3.6 1 group II, Feller patellar score was 2.85 in group I and 3.21 in group II, congruence angle was 2.32 in group I and 2.51 in group II and patellar tilt angle was 2.04 degree in group I and 2.17 degree in group II. The difference was non- significant (P> 0.05). **Conclusion:** Both groups' clinical and radiological parameters were equivalent. Thus, in patients receiving bilateral total knee arthroplasty, both patellar resurfacing and non-resurfacing can be performed.

Key words: total knee arthroplasty, Patellar resurfacing, radiological

Corresponding author: Sanjay Gupta, Assistant Professor, Department of Orthopaedics, Chirayu Medical College & Hospital, Bhopal, Madhya Pradesh, India

This article may be cited as: Gupta S. Patellar resurfacing versus non-resurfacing in patients undergoing bilateral total knee arthroplasty. J Adv Med Dent Scie Res 2017;5(3):173-175.

INTRODUCTION

Total knee arthroplasty (TKA), also known as total knee replacement, is a surgical procedure performed to treat severe knee joint damage and relieve pain in individuals with conditions like osteoarthritis, rheumatoid arthritis, or other degenerative joint diseases. The procedure involves replacing the damaged or worn-out parts of the knee joint with artificial components, which are typically made of metal and plastic.[1]

Patellar resurfacing and non-resurfacing are two different approaches to addressing the patella (kneecap) during a total knee arthroplasty (TKA) surgery.[2] The decision to resurface or not to resurface the patella is a matter of surgical technique and can depend on various factors, including the patient's condition, surgeon's preference, and specific considerations related to the individual's knee joint.In a long-term follow-up, patellar resurfacing might make a difference of KSS. While in other aspects, the benefit of patellar resurfacing was limited.[3]To address the effect on patellar cartilage, its radiological evaluation has been considered important. However, postoperative imaging of TKA using magnetic resonance imaging (MRI) is difficult due to the susceptibility of implants, which are generally made of cobalt-chrome, to generate artefacts despite recent metal artefact reduction techniques.[4]

TKA has proven to be highly effective in reducing pain, improving knee joint function, and enhancing overall quality of life for individuals with severe knee joint issues.[5] However, like any surgical procedure, TKA involves risks and potential complications, and not all patients may be suitable candidates. The decision to undergo TKA should be made in consultation with a qualified orthopedic surgeon, who can assess the individual's condition and recommend the most appropriate treatment options.[6]The present study compared patellar resurfacing and non-resurfacing in patientsundergoing bilateral TKA.

MATERIALS & METHODS

Thepresent study consisted of 70 patients undergoing TKA of both genders. All were informed regarding the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. The patients were split into two groups of 35. Individuals in group I received patella resurfacing, while individuals in group II did not. A single orthopaedic surgeon performed all surgeries. Knee Society Score (KSS), Modified Samsung Medical Centre Score (MSMCS), and Feller patellar score were all recorded in both groups. At the one-year follow-up, a radiological assessment was performed. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
Method	Resurfacing	Non- resurfacing
M:F	17:18	20:15

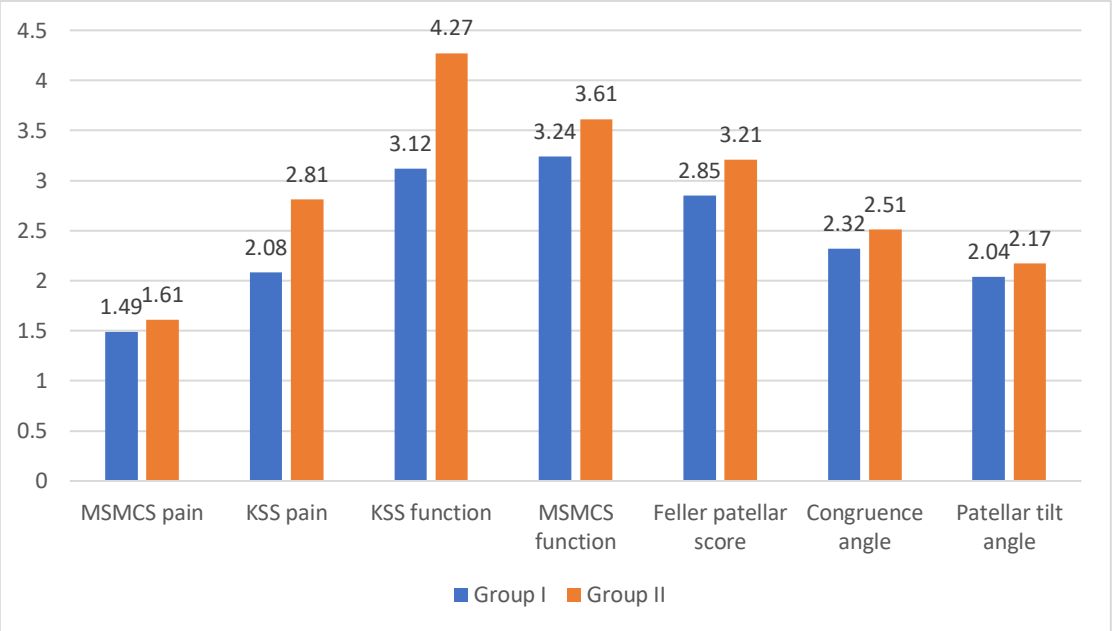
Table I shows that group I had 17 males and 18 females and group II had 20 males and 15 females.

Table II Comparison of parameters

Parameters	Group I	Group II	P value
MSMCS pain	1.49	1.61	0.97
KSS pain	2.08	2.81	0.91
KSS function	3.12	4.27	0.02
MSMCS function	3.24	3.61	0.87
Feller patellar score	2.85	3.21	0.92
Congruence angle	2.32	2.51	0.84
Patellar tilt angle	2.04	2.17	0.91

Table II, graph I shows that MSMCS pain was 1.49 in group I and 1.61 in group II, KSS pain was 2.08 in group I and 2.81 in group II, KSS function was 3.12 in group I and 4.27 in group II, MSMCS function was 3.24 in group I and 3.61 group II, Feller patellar score was 2.85 in group I and3.21 in group II, congruence angle was 2.32 in group I and 2.51 in group II and patellar tilt angle was 2.04 degree in group I and 2.17 degree in group II. The difference was non- significant (P> 0.05).

Graph I Comparison of parameters



DISCUSSION

Although total knee arthroplasty (TKA) is routinely used to treat end-stage osteoarthritis (OA) of the knee, orthopaedic doctors are still unsure about the indications for patellar resurfacing during this treatment.[7] At the moment, the decision to undergo patellar resurfacing is largely based on the surgeon's preference, experience, and training.[8] For patients with OA, some surgeons recommend selective non-resurfacing of the patella, and others advocate routine patellar resurfacing for more predictable results. Some authors recommend the non-resurfacing of patella approach during TKA due to the potential danger of patellar fracture leading to patellar resurfacing and the difficulty in controlling the resurfaced patella at revision.[9]

Various studies employ various outcome measures, including the Knee Society Score (KSS), KSS function score, range of mobility (ROM), postoperative anterior knee pain (AKP), and reoperation ratio. The varying conclusions of previous studies provide the foundation for various options on whether or not to resurface the patella.[10,11]The present study compared patellar resurfacing and non-resurfacing in patientsundergoing bilateral TKA.

We found that group I had 17 males and 18 females and group II had 20 males and 15 females. Chen et al[12] in their thirty-two trials assessing 6887 knees found significant difference in terms of reoperation (in

total and ≥ 5 years), Knee Society Score (KSS), function score (in total and ≥ 5 years) and noise. While no significant difference was found in the following items: reoperation (≤ 3 years), anterior knee pain (AKP), function score (≤ 3 years), range of motion (ROM), Oxford score, the Knee Injury and Osteoarthritis Outcome Score (KOOS), visual analogue score (VAS), Feller score, patellar tilt and the patients' satisfaction.Hozack et al[13] at five years of follow-up, the rate of patellar clunk syndrome was obviously lower in the patellar resurfacing side compared with the patellar non-resurfacing side. The surgical technique, patellar shape, abnormal patellar tracking, soft tissue imbalance, femoral component design, and positioning have been implicated in the aetiology of the patellar clunk syndrome.

We observed that MSMCS pain was 1.49 in group I and 1.61 in group II, KSS pain was 2.08 in group I and 2.81 in group II, KSS function was 3.12 in group I and 4.27 in group II, MSMCS function was 3.24 in group I and 3.6 1 group II, Feller patellar score was 2.85 in group I and 3.21 in group II, congruence angle was 2.32 in group I and 2.51 in group II and patellar tilt angle was 2.04 degree in group I and 2.17 degree in group II. Parvizi et al[14] reported no significant difference in the re-intervention rate between the resurfaced and non-resurfaced patella. The cumulative percentage revision rate for patellar resurfacing after non-resurfacing patella TKA was reported to be 10–15% after primary TKA within a 5–10-year follow-up period.

Feller et al[15] in their study 38 surviving patients were evaluated at three years using the HSS knee score and a new, specifically designed Patellar score. No TKA was revised, but two patients in the resurfacing group had a further unrelated procedure. The mean HSS and Patellar scores at follow-up were 89 and 28 in the patellar retention group and 83 and 26 in the patellar resurfacing group. Statistically significant lower scores for both were recorded in women and in heavier patients. Stair-climbing ability was significantly better in the retention group. Although there were no complications related to patellar resurfacing, in the medium term we did not find any significant benefit from resurfacing the patella during TKA for osteoarthritis if it was not severely deformed. The limitation the study is small sample size.

CONCLUSION

Authors found that both groups' clinical and radiological parameters were equivalent. Thus, in patients receiving bilateral total knee arthroplasty, both patellar resurfacing and non-resurfacing can be performed.

REFERENCES

1. Insall JN, Dorr LD, Scott RD, Scott WN. Rationale of the knee society clinical rating system. Clin OrthopRelat Res 1989;248:13-4.
2. Lee CH, Ha CW, Kim S, Kim M, Song YJ. A novel patellofemoral scoring system for patellofemoral joint status. J Bone Joint Surg Am 2013;95:620-6.
3. Insall JN, Ranawat CS, Aglietti P, Shine J. A comparison of four models of total knee-replacement prostheses. J Bone Joint Surg Am 1976;58:754-65.
4. Ranawat CS, Insall J, Shine J. Duo-condylar knee arthroplasty: Hospital for special surgery design. Clin OrthopRelat Res 1976;120:76-82.
5. Robertsson O, Dunbar M, Pehrsson T, Knutson K, Lidgren L. Patient satisfaction after knee arthroplasty: A report on 27,372 knees operated on between 1981 and 1995 in Sweden. Acta Orthop Scand 2000;71:262-7.
6. Pavlou G, Meyer C, Leonidou A, As-Sultany M, West R, Tsiridis E, et al. Patellar resurfacing in total knee arthroplasty: Does design matter? A meta-analysis of 7075 cases. J Bone Joint Surg Am 2011;93:1301-9.
7. Insall JN, Lachiewicz PF, Burstein AH. The posterior stabilized condylar prosthesis: A modification of the total condylar design. Two to four-year clinical experience. J Bone Joint Surg Am 1982;64:1317-23.
8. Barrack RL, Schrader T, Bertot AJ, Wolfe MW, Myers L. Component rotation and anterior knee pain after total knee arthroplasty. Clin OrthopRelat Res 2001;392:46-55.
9. Graichen H, von Eisenhart- Rothe R, Vogl T, Englmeier KH, Eckstein F. Quantitative assessment of cartilage status in osteoarthritis by quantitative magnetic resonance imaging: technical validation for use in analysis of cartilage volume and further morphologic parameters. Arthritis Rheum 2004;50:811–816.
10. Patel K, Raut V. Patella in total knee arthroplasty: to resurface or not to--a cohort study of staged bilateral total knee arthroplasty. Int Orthop2011;35(3):349–353.
11. Pavlou G, Meyer C, Leonidou A, As-Sultany M, West R, Tsiridis E. Patellar resurfacing in total knee arthroplasty: does design matter? A meta-analysis of 7075 cases. J Bone Joint Surg Am 2011;93(14):1301–1309.
12. Chen K, Li G, Fu D, Yuan C, Zhang Q, Cai Z, et al. Patellar resurfacing versus non-resurfacing in total knee arthroplasty: A meta-analysis of randomised controlled trials. Int Orthop2013;37:1075-83.
13. Hozack WJ, Rothman RH, Booth RE, Balderston RA. The patellar clunk syndrome. A complication of posterior stabilized total knee arthroplasty. Clin OrthopRelat Res 1989;(241):203–208.
14. Parvizi J, Rapuri VR, Saleh KJ, Kuskowski MA, Sharkey PF, Mont MA. Failure to resurface the patella during total knee arthroplasty may result in more knee pain and secondary surgery. Clin OrthopRelat Res 2005;438:191–196.
15. Feller JA, Bartlett RJ, Lang DM. Patellar resurfacing versus retention in total knee arthroplasty. J Bone Joint Surg Br 1996;78:226-8.