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Lateral Patellar Facetectomy Had Improved Clinical Results in Patients With Patellar-Retaining Total Knee Arthroplasty

Li-Zhi Zhang, MD,* Xian-Long Zhang, MD,† Yao Jiang, MD,† Qi Wang, MD,† Yun-Su Chen, MD,† and Hao Shen, MD†

Abstract: To evaluate the functional outcome of a partial lateral facetectomy in patellar-retaining total knee arthroplasty (TKA), we retrospectively analyzed 63 knees of 59 patients who underwent TKA for primary knee osteoarthritis with (32 knees of 30 patients, group 1) or without (31 knees of 29 patients, group 2) patellar facetectomy from September 2005 to July 2007. All cases were followed up for a minimum of 36 months. Although there was no significant differences between the 2 groups in preoperative patellar score, Western Ontario and McMaster Universities score, knee and function scores, postoperatively, group 1 showed more significant improvements in the scores and fewer lateral patellar osteophytes in radiographs than group 2. A partial lateral facetectomy is an effective way to improve the function of patellar-retaining TKA in patients with primary osteoarthritis. **Keywords:** patellar facetectomy, total knee arthroplasty (TKA), patellar retaining, Knee Society Score (KSS), patellofemoral osteoarthritis.

Progress in surgical design and technique has improved function for patients after total knee arthroplasty (TKA), but problems related to the patellofemoral joint have not been eliminated. Continued symptoms and reduced quality of life are relevant to managing knee complaints in these patients [1,2]. Therefore, it is an issue of common concern to better the functional results of the patellofemoral joint, whether or not it has been resurfaced.

Although there has been a renewed interest in not resurfacing [3-6], patellar complications such as progressive degenerative changes on the lateral facet occurred in 85% of patellae [7,8], and the increased incidence of anterior knee pain [9] remain one of the most challenging problems in patients with unresurfaced patellae [10]. There is a paucity of information in the literature describing how to avoid those disadvantages, especially lateral degenerative changes.

*From the *Department of Orthopedic Surgery, ShangHai YangPu District Central Hospital, YangPu Hospital affiliated to TongJi University, ShangHai, China; and †Department of Orthopedic Surgery, ShangHai Sixth People's Hospital, ShangHai JiaoTong, University, ShangHai, China.*
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Reprint requests: Yao Jiang, MD, Department of Orthopedic Surgery, ShangHai Sixth People's Hospital, ShangHai, ShangHai University, No. 600 YiShan Road, ShangHai 200233, China.

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O'Donoghue [11] first reported his facetectomy results in 1972. Partial lateral facetectomy of the patella has been proposed as a relatively simple and effective treatment of isolated patellofemoral osteoarthritis (PFOA). Although it is infrequently used and rarely reported, the results have been entirely successful [1,12-16]. After TKA, the tibiofemoral joint is normalized and femoral trochlear lesions are displaced; the degenerative nonresurfaced patella is highly similar to the isolated PFOA. On the other hand, in routine patella resurfacing of primary TKA or patellofemoral arthroplasty, the lateral facet of the patella may need to be removed or beveled to enhance patellar tracking and to avoid lateral impingement or burnishing [17-20].

However, to our knowledge, whether a partial lateral patellar facetectomy can be applied, their effect in primary TKA has not been previously reported. This is partly why we performed a partial lateral facetectomy in the unresurfaced patella. Since 2005, we have increasingly used this procedure. Concise follow-up was carried out to compare the outcome of a partial lateral patellar facetectomy vs nonfacetectomy in patellar-retaining TKA.

Patients and Methods

We retrospectively reviewed 73 TKAs in 69 patients to identify clinical outcomes of a partial lateral patellar facetectomy vs nonfacetectomy from September 2005 to July 2007. All patients received the primary patellar-

retaining TKA by the same surgeon (Prof. Yao Jiang) using the same prosthesis (Zimmer anatomic prosthesis; Zimmer, Warsaw, Ind). Patients were randomized to treatment with or without a partial lateral patellar facetectomy. The randomization was carried out by physical processes before surgery, and the status of the patella in no way influenced whether the patients received a facetectomy or not. Of the 69 patients, 2 patients died, 1 patient was removed from the study because of infection, and 7 patients were lost to follow-up. At final follow-up, 22 female and 8 male patients with a partial lateral patellar facetectomy (group 1) and 23 female and 6 male patients without facetectomy (group 2) were followed for a minimum of 36 months. In total, 59 patients (63 knees) with 4 patients having bilateral operations were enrolled. All surgical treatments of knee osteoarthritis met the following inclusion criteria: mixed patellofemoral and tibiofemoral osteoarthritis, all exhibiting radiographic changes consistent with patellofemoral arthrosis, such as loss of joint interval, increased bone density at the patellofemoral margins, lateral tilt and/or lateral patella facet osteophytes (figures are not shown for the limit of figure number). We excluded patients who previously had a patellar realignment operation or other major surgery (such as a high tibial osteotomy). None of the patients experienced patellar dislocation preoperatively.

Surgical Technique

Surgical technique was similar in all cases, which were performed by the same senior surgeon (Prof. Yao Jiang) under general anesthesia and with the use of a tourniquet. Arthrotomy was performed through the medial parapatellar approach. The patella was everted and displaced laterally. A distal femoral cut was made with an intramedullary guide and an extramedullary

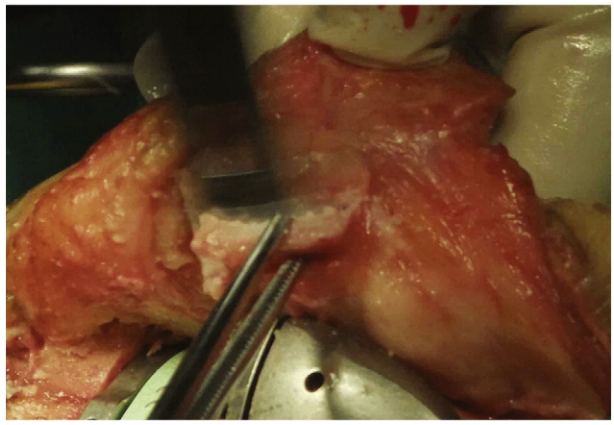

Fig. 2. An intraoperative view of a partial lateral facetectomy is shown.

method to cut the proximal tibia. The tibiofemoral angle was adjusted to 7°. The femoral component rotation was set at 3° external rotation to the posterior condylar axis for both implants. All femoral and tibial implants were fixed with cement. In patellar treatment, all patellar osteophytes were first excised to facilitate patellofemoral movement. Approximately 0.6 to 1.5 cm of the lateral border of the patella, osteophytes, and 1 to 2 mm of cartilage were resected with an oscillating saw (Figs. 1 and 2). To obtain meticulous hemostasis, bone wax was applied to the cut surfaces. After facetectomy, intraoperative assessment of medial patella excursion or patellar tracking was performed using the "rule of no thumb" after tourniquet release. If the lateral retinaculum was too tight, a lateral retinacular release was performed using an "inside-out" technique, without attempting to preserve the superior lateral geniculate artery. No patients with lateral retinacular release were performed in group 1 compared with 6 in group 2. A

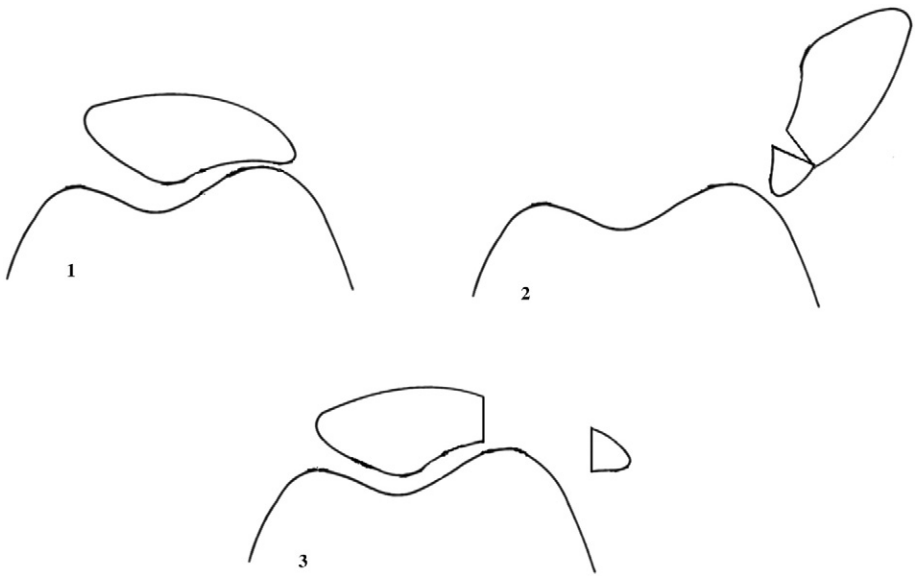

Fig. 1. Steps 1 to 3 show the process of a partial lateral facetectomy.