



## Case Report

# Total knee arthroplasty in patients with permanent patella dislocation. Report of two cases and literature review<sup>☆</sup>

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### ABSTRACT

The occurrence of permanent patellar dislocation associated with severe osteoarthritis is considered rare and difficult to treat. Literature: The literature is quite controversial on the subject. The objective of the study is to report two rare cases of severe osteoarthritis with permanent dislocation of the patella that underwent total knee arthroplasty, in addition to a review of the literature on the subject and related surgical technique. Total knee arthroplasty with using the medial parapatellar approach associated with lateral release was a good surgical option in patients with permanent patellar dislocation associated with advanced osteoarthritis.

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### Artroplastia total do joelho em paciente com luxação permanente da patela. Relato de dois casos e revisão da literatura

#### RESUMO

A ocorrência de luxação permanente da patela associada a osteoartrite grave é considerada rara e de tratamento difícil. A literatura é bastante controversa sobre o assunto. O objetivo do trabalho é relatar dois raros casos de osteoartrite grave com luxação permanente da patela que foram submetidos a artroplastia total do joelho, além da técnica cirúrgica relacionada e de uma revisão da literatura. A artroplastia total do joelho com o acesso parapatelar medial associado a uma liberação lateral foi uma boa opção cirúrgica em pacientes com luxação permanente da patela associada a osteoartrite avançada.

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## Introduction

Total knee arthroplasty (TKA) is a highly complex surgical procedure, primarily indicated in patients with a diagnosis of knee osteoarthritis or rheumatologic diseases.<sup>1</sup> It is a surgical procedure that has been constantly evolving since its inception. More modern implant models, which resemble as close as possible the anatomy of the knee, associated with increasingly precise and less traumatic instruments, have made surgical indications more and more widespread.<sup>1</sup>

Permanent patellar dislocation is a rare condition of congenital or acquired etiology.<sup>2</sup> The literature that correlates TKA and osteoarthritis with the presence of permanent patellar dislocation is scarce.<sup>3-19</sup> In this literature review, the authors observed that, among the various difficulties, surgical approach is one that deserves attention, as there is no consensus regarding which is the best option. This study is aimed at presenting two cases of permanent patellar dislocation in patients with osteoarthritis who underwent TKA. The authors also reviewed the literature and emphasized the controversy on the subject.

## Case 1

A 65-year-old obese female patient presented severe pain in the right knee. On clinical examination, it was observed that the patient had suffered trauma on the same knee with three years of evolution. The patient did not seek medical attention because of the trauma, as she already had pain due to osteoarthritis. She reported having developed a marked edema in her right knee, that gradually disappeared. She also reported having developed greater difficulty in conducting her usual activities. Upon physical examination, she presented a fixed valgus deformity, a range of motion from 0° to 70°, and a painful crepitus in the joint. Minimal patellar mobility was observed during flexion and extension movements. No joint effusion was observed, nor any signs of instability or ligament deficiency.

Weight-bearing anteroposterior, lateral, and Merchant axial views knee radiographs showed a valgus deformity, the presence of osteoarthritis in all compartments, and absence of the patella in the anterior compartment of the knee, i.e., a permanent lateral dislocation of the patella (Fig. 1).

In August 2014, the patient underwent right TKA. A posterior-stabilized implant model was chosen, and patellar replacement (PFC Sigma® DePuy Synthes) was also performed (Fig. 2). A medial parapatellar approach was chosen, associated with an extensive lateral retinacular release (Fig. 3).

In the immediate postoperative period, the patient showed improvement of pain and knee function. She returned to her usual activities and was satisfied with the surgical procedure. The patient's function was assessed using the Knee Society Score (KSS),<sup>20</sup> which improved from 42 in the preoperative period to 91 in the postoperative period with two years of clinical follow-up (Fig. 4).

## Case 2

Female patient, 77 years old, overweight and with intense pain in her right knee. On clinical examination, the patient mentioned having suffered trauma in the same knee with six years of evolution. The patient did not seek medical attention because of the trauma, as she already had pain due to osteoarthritis. She reported a significant swelling in her right knee after the trauma, which progressively improved. After the trauma, she observed a greater difficulty in performing her usual activities. Upon physical examination, she presented a fixed varus deformity, a range of motion from 0° to 60°, and a painful crepitus in the joint. Minimal patellar mobility was observed during flexion and extension movements. No joint effusion was observed, nor any signs of instability or ligament deficiency.

Weight-bearing anteroposterior, lateral and Merchant axial views knee radiographs showed a varus deformity, the presence of tricompartmental osteoarthritis, and absence of the patella in the anterior compartment of the knee, i.e., it was dislocated, in direct contact with the external border of the lateral femoral condyle (Fig. 5).

In March 2014, the patient underwent a right TKA. A posterior-stabilized implant model was used, with a patellar replacement (PFC Sigma® DePuy Synthes) (Fig. 6). A medial parapatellar approach was chosen, associated with an extensive lateral retinacular release.

In the immediate postoperative period, the patient presented pain relief and functional improvement of the knee. She returned to her daily activities and was satisfied with the surgical procedure. The patient's function was evaluated using the KSS,<sup>20</sup> which improved from 25 in the preoperative period to 82 in the postoperative period with two years of clinical follow-up (Fig. 7).

## Discussion

Irreducible patellar dislocation is a rare condition, usually presenting a congenital origin, although some cases have acquired etiology.<sup>13</sup> Acquired patellar dislocation is usually secondary to knee trauma.<sup>13</sup> In the present report, the two cases presented a history of prior trauma. However, the presence of dysplastic trochlea was observed intraoperatively. This indicates the multifactorial etiology of these cases. Hudson et al.<sup>15</sup> stated that post-traumatic permanent patellar dislocation is often confused with congenital patellar dislocation. Nonetheless, the present authors consider that regardless of the etiology, the main objective is the patellofemoral alignment after TKA.

Knee anatomy, in this type of pathology, presents a hypoplastic patella and femoral condyle, as well as a flat femoral groove.<sup>13</sup> In the present series, anatomical alterations of the trochlea were observed (Fig. 8). Hudson et al.<sup>15</sup> reported an adaptive change of the trochlear cartilage, besides that of the lateral femoral condyle and articular surface of the patella.

Chronic patellar dislocation is correlated with a valgus deformity in knee osteoarthritis.<sup>10</sup> The present study presented one case of valgus deformity and another with varus

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