SCREW MIGRATION IN TOTAL KNEE ARTHROPLASTY: CLINICAL REPORT

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ABSTRACT

Complications from total knee arthroplasty caused by the implanted material are rare, with the exception of polyethylene wear. Descriptions of screw migration into the knee joint cavity are very rare. The authors report intra-articular migration of a polyethylene safety screw in a case of total knee arthroplasty, with sacrifice of the posterior cruciate ligament (TKA Performance; Biomet, Warsaw, IN, USA), which necessitated new surgery to remove the screw, replace the polyethylene insert and emplace a new fixation screw.

Keywords – *Knee Arthroplasty; Knee joint; Revision; Bone screws; Foreign-Body Migration*

INTRODUCTION

Reports of complications from total knee arthroplasty (TKA) relating to the material are rare, except for polyethylene wear[1-5].

Descriptions of loosening and migration of screws inside the knee are also very scarce in the literature[6,7]. The present authors describe a case of migration of a screw from the tibial component of a TKA procedure (*Performance Knee System*; Biomet, Warsaw, IN, USA) that necessitated new surgery to replace the polyethylene and fix it with another screw.

CASE REPORT

In February 2005, a 67-year-old patient underwent an operation on his left knee due to osteonecrosis of the medial femoral condyle. Cemented TKA was performed, with sacrifice of the posterior cruciate ligament (*Performance*; Biomet, Warsaw, IN, USA). Since the tibial plateau presented severe wear, a femoral nail, tibial nail and tibial step were used.

The postoperative period was unremarkable and the patient was left with a final range of motion from 0° to 110°. Radiographs showed that the prosthesis was well implanted, well aligned and without radiolucency.

Two years later (February 2007), the patient reported a feeling of instability in the operated knee, and came to the outpatient clinic of our hospital. On arrival, he did not report having any pain and his gait was normal without claudication but with the aid of a forearm crutch. He presented slight discharge from the operated knee. In the frontal view, he presented slight openings towards valgus and varus with the knee extended. He said that he felt that there was a foreign body inside the joint that was moving.

The radiographic examination (Figure 1) showed the presence of a polyethylene fixation screw that had migrated into the joint cavity. In this light, it was decided to carry out revision surgery on the previous TKA, for fear of damage to the joint surfaces, particularly the femoral surfaces.

During the operation, it was observed that the screw

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We declare that there is no conflict of interest in this paper

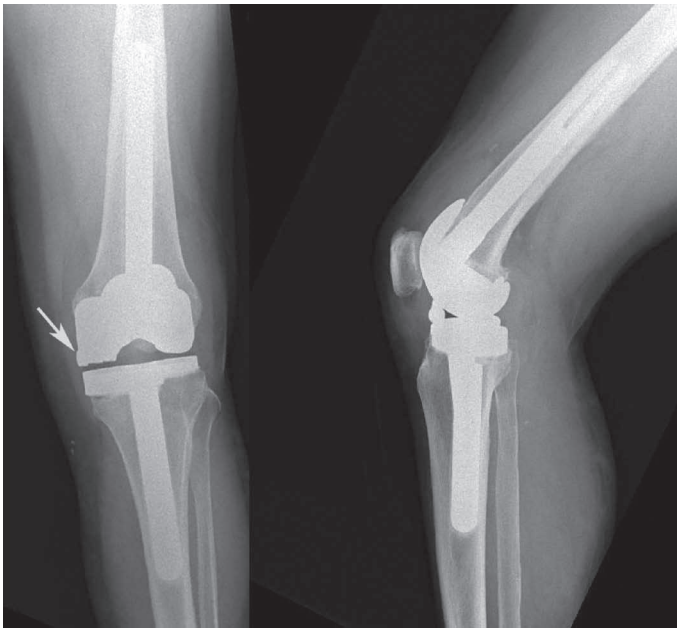

Figure 1 – Radiograph showing the screw inside the knee

was in the medial parapatellar brace and that the femoral joint surface was complete and undamaged (Figure 2). There was no sign of dislocation, and therefore the strategy was changed. The polyethylene was then replaced and new locking screws were emplaced (Figures 3 and 4).

The patient made normal progress during the postoperative period, without incidents, and left the hospital on the fifth day after the operation. His rehabilitation included training for joint range of motion.

No further problems were registered. The patient's gait was normal and his joint range of motion was similar to what it had been before the operation.

DISCUSSION

To the best of our knowledge, reports on intra-articular migration of screws following TKA are rare[4,6,7]. There is only one similar report on a case in which arthroplasty had been performed using the *Performance* material, but without tibial and femoral nails[6]. Among cases of this type of arthroplasty, reports on the medium to long-term results are scarce. Basset[1] reported that among 1,000 arthroplasty procedures of this type, no complications involving locked polyethylene screws were observed.

Contrary to other reports on screw migration[6], this case shows intra-articular presence of a screw that was acting as a free body. This situation had not been described in any previous report.

Figure 2 – Migrated screw

Figure 3 – Placement of new polyethylene

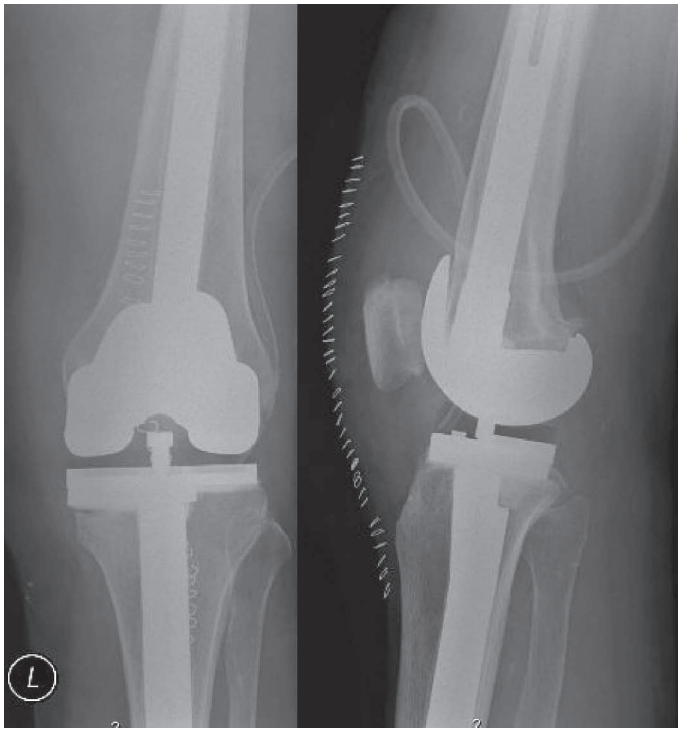

Figure 4 – Postoperative control

The cause of the migration is still unclear since, as can be seen from Figure 3, the screw remained inside the polyethylene. In the records from the initial operation, there had not been any reports of incidents, and the screw had been placed under tension in accordance with the standards defined by the manufacturer.

The diagnosis was achieved through radiographic control, and clinical evaluations were given low value until the observations from radiography had been made.

We cannot be sure that this was the best solution, but controls carried out over the subsequent two years showed that the screw was stable. We have not had any other case of migration of a screw as a free body.

This case changed our philosophy and caused us to abandon the use of TKA in which the polyethylene material was fixed using locked screws.

We recommend that in cases of arthroplasty using this system, frequent radiographic control should be undertaken.

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