

Total knee arthroplasty in bilateral congenital dislocation of the patella—a case report

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Submitted 00-11-24. Accepted 01-02-03

A 53-year-old woman presented with progressive pain and swelling of both knees in 1994. She was first seen at our institution in 1985 for increasing hip pain, when bilateral dislocation of the patella was noted (Figure 1). She had no history of difficulty in walking during childhood, but had had some trouble with sports. Since her hip symptoms had become worse, bilateral total hip arthroplasty was performed in 1992 (left) and 1993 (right). Her knee pain gradually worsened and radiographs showed secondary arthrosis. Quadriceps atrophy and valgus deformity with flexion contracture were present in both knees with no patellar mobility during flexion and extension. The range of motion was 30°–125° on the right side and 20°–125° on the left. TKA was performed in March (right) and November (left) 1994. During surgery, the soft tissues around the peroneal nerve were released. We found a secondary articulation between the patella and lateral femoral condyle in both knees. Soft tissue release for correction of valgus and flexion contracture was done, using Insall's method (1993).

The iliotibial tract was released from Gerdy's tubercle and the lateral collateral ligament from the femoral condyle. The biceps femoris tendon was lengthened with Z-plasty and both heads of the gastrocnemius muscle were released from the femoral condyles. The contracted posterior capsule was also released and the posterior cruciate ligament resected. We modified the surgical procedure slightly on the left side with a graduated release of the posterior cruciate ligament at the tibial insertion, while the lateral collateral ligament was entirely preserved. We achieved proper insertion of components, adequate stability, and ligament balance. A MG-II prosthesis was inserted in both knees.

After 14 months, the right knee dislocated with no apparent trauma (Figure 2). Closed reduction was not successful. Revision of the tibial surface with a thicker component, performed soon afterwards, did not stabilize the knee despite postoperative casting. Because of increasing pain and swelling of the joint, another revision was performed



Figure 1. Preoperatively. Severe arthrosis and permanent dislocation of the patella.

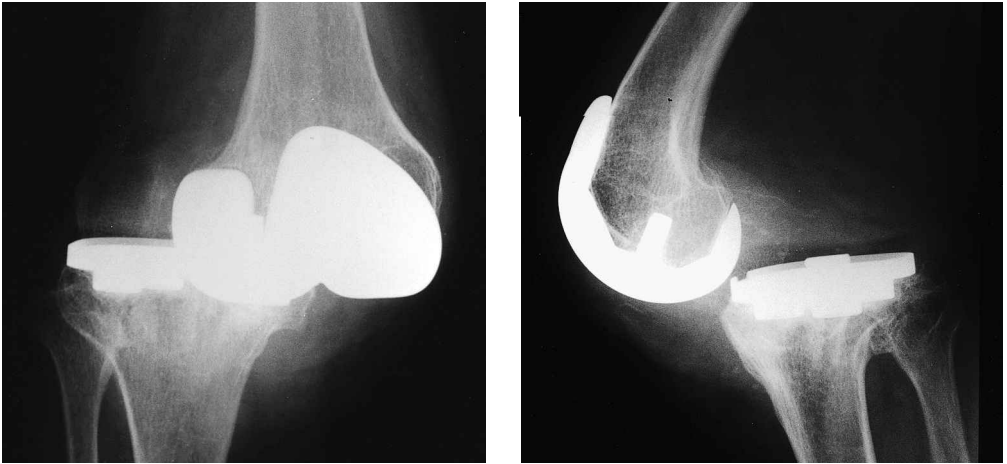


Figure 2. Postoperatively, right knee. Posterior lateral dislocation after primary TKA.



Figure 3. Postoperatively. Right knee after revision TKA with constrained type prosthesis.

in 1999, with a constrained total knee prosthesis (Biomet, Maxim constrained type) (Figure 3). She has had no complaints 1 year after the revision surgery. The left knee is now pain-free 6 years after surgery.

Discussion

Congenital dislocation of the patella means that the patella has no contact with the articular cartilage of the distal femur. There are few reports about congenital dislocation of patella diagnosed and/or

treated in middle-age. Green and Waugh (1968) reported a 76-year-old patient without mentioning the type of treatment while Johnson and Milicic (1972) did not intervene in a 50-year-old woman who had no complaints. Torisu (1981) removed the patella and reconstructed the quadriceps mechanism in a 55-year-old man with a good outcome. Marmor (1988) successfully treated bilateral congenital dislocations of the patella with bilateral TKA without attempting to correct the dislocated patella and the extensor mechanism. On the basis of his report, we planned TKA without correction of the dislocation.

Dislocation of the patella is a dislocation of the extensor mechanism (Gao et al. 1990) with contracture especially of the vastus lateralis and iliotibial tract. The shortened quadriceps tendon is permanently dislocated laterally, thus exerting a lateral pull on the tibia which results in a valgus and external rotation deformity of the tibia. Since the quadriceps tendon is behind the axis of the knee, it also causes flexion deformity of the latter (Gao et al. 1990).

In a knee replacement, a valgus and flexion deformity is the most difficult one to correct (Insall 1993). An extensive valgus release may lead to posterolateral instability in flexion. This may be more evident in congenital dislocation of the patella because of lateral and posterior traction by the dislocated extensor mechanism. Keeping the potential complication of the tibial peg sliding out from under the femoral component in patients with impaired ligamentous balance (Sharkey et al. 1992) in mind, we used an unconstrained type of prosthesis. We did not reconstruct the extensor mechanism in our patient since this should be avoided if the adult patients have compensated for such a disability (Marmor 1988).

On the right side, we had to resect and release considerable portions of the ligaments surrounding the knee joint to achieve a proper insertion of the component. On the left side, however, we inserted the components with appropriate ligament tension by comparatively less resection and release of the ligaments than on the right side. This preservation of the posterior cruciate and lateral collateral ligaments may have been the key factor in keeping the prosthesis in place on the left side.

Although we were successful with an unconstrained type on the left side, we recommend that, if an extensive release is necessary, a constrained type prosthesis should be considered first. We agree with Marmor (1988) that one should not try to repair the extensor mechanism if the patient has compensated for this disability.

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subjects of this article. No funds were received to support this study.

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