Case Report

Adult Congenital Permanent Bilateral Dislocation of the Patella with Full Knee Function: Case Report and Literature Review

Alessandro Bistolfi, Giuseppe Massazza, David Backstein, Stefano Ventura, Raul Cerlon, and Maurizio Crova

1 Department of Orthopaedics and Traumatology, CTO Hospital, Via Zuretti 29, 10126 Turin, Italy
2 Mount Sinai Hospital, Department of Surgery, University of Toronto, 600 University Avenue, Suite 476D, Toronto, ON, Canada M5G 1X5

Correspondence should be addressed to Stefano Ventura, stefano.ventura.md@gmail.com

Received 25 September 2011; Accepted 6 October 2011

1. Introduction

Congenital anomalies of the knee extensor mechanism are rare [1–5]. They can be isolated, associated with other lower limb malformations or part of more complex malformations and dystrophic syndromes (i.e., arthrogryposis, Larsen’s syndrome [6], dyschondrosteosis [7], Rubinstein-Taybi syndrome [8], Down syndrome [9, 10], and nail patella syndrome [11]).

Congenital dislocation of the patella (CDP) is a rare condition [5] which must be differentiated from recurrent and habitual patellar dislocations and from some permanent but reducible dislocations due to congenital or genetic causes. In the CDP, a rotational femorotibial displacement is present and it is often associated with varying degrees of proximal tibial epiphyseal metaphyseal lateral torsion. From all the patients with CDP reported in the orthopaedic literature, only a few correspond to the full diagnosis of this condition [1, 12, 13].

This paper presents an unusual case of a 51-year-old man with bilateral congenital permanent dislocation of the patella. The pathology had never been treated because there were few symptoms.

2. Case Report

A 51-year-old healthy bricklayer male, born in eastern Europe, presented with right-knee pain caused by a fall on the knee during his work, a few weeks prior. During his childhood, a clinically evident bilateral dislocation of patella was observed and described without the assistance of imaging. Nevertheless, the pathology was asymptomatic, and he never reported difficulty in walking. Therefore, the malformation had never been treated and the patient conducted a normal life including time served in the army.

Physical examination revealed that the patient could walk normally, with a very mild stumble on the right knee,
which was referred as absent before the trauma. There was conspicuous muscle wasting of each thigh (particularly on the medial side, with a clear depression on the vastus medialis) and 15° of genu valgum. The patellae were lying laterally to the lateral femoral condyle with the knee in the position of full extension (Figure 1) and they displaced more laterally during the flexion (Figure 2). The proximal tibiae were rotated outward. The knees could be extended actively against maximum resistance, with full range of motion. Both the femoral quadriceps worked as knee extensors, and their strength was 5/5. The knees showed no signs of instability or ligamentous deficiency. The right knee was painful on the lateral side, and the clinical signs were positive for pathology of the lateral meniscus.

Roentgenograms of bilateral knees revealed small, laterally displaced patellae with slight degenerative changes in the tibiofemoral joints with subluxated tibia (Figure 3). The medial joint spaces were widened. Lateral roentgenograms showed marked lateral rotation deformities of the tibiae (Figure 4). A skyline view showed an increased deep of the trochlear groove, with laterally dislocated patellae forming a sort of new joint with the lateral aspect of the condyle (Figure 5).
Congenital permanent dislocation of the patella is a disorder that occurs when the patella is permanently dislocated, either bilaterally or unilaterally. It is usually bilateral and is characterized by the inability of the patella to return to its original position after dislocation. This condition is commonly detected within the first decade of life, because of inability of active extension in the knee and impaired ability during walking [2–4, 14, 15]. The condition may be diagnosed by the flexion deformity of the knee joint [1, 5, 16–21]. Ficat and Hungerford [22] have stated that the presence of fixed-flexion contracture at birth is characteristic of both arthrogryposis and CDP and that, if the former can be excluded, then the latter is likely.

Early diagnosis and definitive correction are generally recommended to prevent subsequent degenerative changes of the knee joint and often to try to restore some knee functionality. Many kinds of surgical treatments have been described [2–5, 15, 23–25].

The case reported here is an unusual and an extremely rare condition in which CDP resulted in no disability. To our knowledge, just a few similar cases have been previously described, but no other cases of completely asymptomatic CDP are reported in literature.

Torisu [26] described a case of a patient with a previously neglected CDP who reported to the surgeon for knee pain caused by a fall with a fracture of the meniscus. The difference is that, in this case, the CDP caused mild disability. Therefore, a correction of the CDP was performed and this surgery gave good results on the functionality. Marmor [27] reported the case of a 63-years-old patient with CDP which gave serious, but not major, disability and was finally treated with a total knee replacement for severe osteoarthritis. Also Bullek et al. [28], Bergquist et al. [29], and Kumagi et al. [30] treated some cases of CDP in adult patients who had osteoarthritis secondary to the deformity with total knee replacement, but, in all these cases, the CDP was treated before the knee replacement with varying results. Robinson et al. [19] reported the case of a 23-years-old patient whose surgical treatment resulted in an acceptable overall functionality, but with a partial inefficiency of the extensor mechanism.

In our case, the patients did not report to the surgeon because of the CDP, but for a very specific clinical conditions: he described the onset and presented the symptoms of a meniscal rupture, perhaps also suggested by the MRI.

In our opinion, no significant disability or pain was caused by the CDP before the trauma that caused the lateral meniscus lesion, and, in fact, the recovery after surgery and the good clinical results demonstrate that the CDP, in this patient, was barely asymptomatic.

Nevertheless, during the arthroscopy, a severe degeneration of the articular cartilage was detected. It is therefore possible that the patient could develop early osteoarthritis of the knee, making it similar to the other case as described above. In consideration of the state of the articular cartilage and, most of all, in consideration of the full function of the knees, we decided that surgical corrections of the deformity, such as osteotomies, muscular transposition, and retention, could be ineffective in improving the quality of life and the function of the patient. On the contrary, such a major surgery could destabilise this particular type of knee which developed its
own equilibrium during the years. In the future, total knee replacement (TKR) can be performed whenever the patient develops a painful symptomatic osteoarthritis of the knee. Even though this is a rare condition and there are few accounts of total knee replacement for osteoarthritis of the knee associated with CDP, good results of the arthroplasty are reported in each of these cases [27–30].

Usually, in the CDP condition, the strength of the quadriceps acts through an ineffective extensor apparatus and, therefore, during contraction, determines the flexion of the knee instead of the extension. Therefore, the major disability in CDP led back to the extension failure typical of this pathology.

If, for some reason, the ability to extend the knee is preserved, as in the case we observed, CDP does not lead to functional failure, and it is likely that the pathology comes at the attention of the physician during the adulthood of the patient. In this case, the CDP should not be treated until the very probable osteoarthritis, while on the contrary complicates osteotomies and transpositions of muscles and tendons in adult patients usually give poor results on pain and function.

**Conflict of Interests**

The authors declare that there is no conflict of interests.

**References**

[1] J. P. Green, W. Waugh, and H. Wood, “Congenital lateral dislocation of the patella,” *Journal of Bone and Joint Surgery*, vol. 50, no. 2, pp. 285–289, 1968.

[2] D. Bourgeau, “Luxation congénitale de la rotule. Un cas suivi depuis la naissance,” *Revue de Chirurgie Orthopédique et Reparatrice de l’Appareil Moteur*, vol. 56, no. 7, pp. 697–702, 1970.

[3] H. R. Conn, “A new method of operative reduction for congenital luxation of the patella,” *Journal of Bone and Joint Surgery*, vol. 7, p. 370, 1925.

[4] M. Stern, “Persistent congenital dislocation of the patella,” *The Journal of the International College of Surgeons*, vol. 41, pp. 654–656, 1964.

[5] H. Storen, “Congenital complete dislocation of patella causing serious disability in childhood: the operative treatment,” *Acta Orthopaedica Scandinavica*, vol. 36, no. 3, pp. 301–313, 1965.

[6] J. M. Laville, “Knee deformities in Larsen’s syndrome,” *J Pediatr Orthop*, vol. 3, pp. 180–184, 1994.

[7] A. Mayeux, E. J. Dabezies, and G. D. MacEwen, “Symptomatic recurrent patella dislocation in a patient with dyschondrosteosis (Leri Weill syndrome),” *Orthopedics*, vol. 18, no. 5, pp. 480–482, 1995.

[8] C. T. Mehlman, J. H. Rubinstein, and D. R. Roy, “Instability of the patellofemoral joint in Rubinstein-Taybi syndrome,” *Journal of Pediatric Orthopaedics*, vol. 18, no. 4, pp. 508–511, 1998.

[9] T. W. Dugdale and T. S. Renshaw, “Instability of the patellofemoral joint in Down syndrome,” *Journal of Bone and Joint Surgery*, vol. 68, no. 3, pp. 405–413, 1986.

[10] B. Livingstone and P. Hirst, “Orthopedic disorders in school children with Down’s syndrome with special reference to the incidence of joint laxity,” *Clinical Orthopaedics and Related Research*, no. 207, pp. 74–76, 1986.

[11] K. Marumo, K. Fujii, T. Tanaka, H. Takeuchi, H. Saito, and Y. Koyano, “Surgical management of congenital permanent dislocation of the patella in nail patella syndrome by Stanisavljevic procedure,” *Journal of Orthopaedic Science*, vol. 4, no. 6, pp. 446–449, 1999.

[12] R. Jones, R. L. Fisher, and B. H. Curtis, “Congenital dislocation of the patella,” *Clinical Orthopaedics and Related Research*, vol. 119, pp. 177–183, 1976.

[13] F. D. Zeier and C. Dissanayake, “Congenital dislocation of the patella,” *Clinical Orthopaedics and Related Research*, vol. 148, pp. 140–146, 1980.

[14] R. E. Eilert, “Congenital dislocation of the patella,” *Clinical Orthopaedics and Related Research*, no. 389, pp. 22–29, 2001.

[15] S. Stanisavljevic, G. Zemenick, and D. Miller, “Congenital, irreducible, permanent lateral dislocation of the patella,” *Clinical Orthopaedics and Related Research*, vol. 116, pp. 190–199, 1976.

[16] D. P. Baksi, “Pés anserinus transposition for patellar dislocations. Long-term follow-up results,” *Journal of Bone and Joint Surgery*, vol. 75, no. 2, pp. 305–310, 1993.

[17] K. Bose and K. C. Chong, “The clinical manifestations and pathomechanics of contracture of the extensor mechanism of the knee,” *Journal of Bone and Joint Surgery*, vol. 58, no. 4, pp. 478–484, 1976.

[18] T. E. Jeffreys, “Recurrent dislocation of the patella due to abnormal attachment of the iliotoibial tract,” *The Journal of Bone and Joint Surgery*, vol. 45, pp. 740–743, 1963.

[19] A. H. N. Robinson, A. Aladin, A. J. Green, and D. J. Dandy, “Congenital dislocation of the patella—the genetics and conservative management,” *Knee*, vol. 5, no. 3, pp. 235–237, 1998.

[20] I. Ghanem, L. Wattincourt, and R. Seringe, “Congenital dislocation of the patella. Part II: orthopaedic management,” *Journal of Pediatric Orthopaedics*, vol. 20, no. 6, pp. 817–822, 2000.

[21] H. Takahashi, S. Ito, T. Matsubara, and Y. Koga, “Congenital and permanent dislocation of the patella, case report,” *The Knee*, vol. 3, p. 27, 1997.

[22] R. P. Ficat and D. S. Hungerford, *Disorders of the Patello-Femoral Joint*, Williams and Wilkins, Baltimore, Md, USA, 1977.

[23] P. Alarcon and R. Costiorean, “Luxacion congenita de la rotula-concioceraciones acerca del tratamiento en los adultos,” *Revue de Orthopaedias y Traumatologia*, vol. 8, pp. 176–182, 1938.

[24] R. E. McCall and H. B. Lessenberry, “Bilateral congenital dislocation of the patella,” *Journal of Pediatric Orthopaedics*, vol. 7, no. 1, pp. 100–102, 1987.

[25] J. J. Lalain, J. L. Lerat, B. Moyen, C. R. Michel, and R. Kohler, “Congenital luxations of the patella. Contribution of the CT scanner—surgical indications. Apropos of 22 cases,” *Revue de Chirurgie Orthopédique et Reparatrice de l’Appareil Moteur*, vol. 73, pp. 152–156, 1987.

[26] T. Torisu, “Neglected congenital permanent dislocation of the patella: a case report,” *Clinical Orthopaedics and Related Research*, vol. 155, pp. 136–140, 1981.

[27] L. Marmor, “Total knee arthroplasty in a patient with congenital dislocation of the patella. Case report,” *Clinical Orthopaedics and Related Research*, no. 226, pp. 129–133, 1988.

[28] D. D. Bulle, G. R. Scuderi, and J. N. Insall, “Management of the chronic irreducible patellar dislocation in total knee replacement,” *Surgery*, vol. 98, no. 6, pp. 987–993, 1985.
arthroplasty,” *Journal of Arthroplasty*, vol. 11, no. 3, pp. 339–345, 1996.

[29] P. E. Bergquist, P. A. Baumann, and H. A. Finn, “Total knee arthroplasty in an adult with congenital dislocation of the patella,” *Journal of Arthroplasty*, vol. 16, no. 3, pp. 384–388, 2001.

[30] M. Kumagi, S. Ikeda, K. Uchida, T. Ono, and H. Tsumara, “Total knee replacement for osteoarthritis of the knee with congenital dislocation of the patella,” *Journal of Bone and Joint Surgery*, vol. 89, no. 11, pp. 1522–1524, 2007.