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Case Report

Simultaneous Reconstruction of The Anterior Cruciate Ligament. Is Recommended?

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Summary

When both knees are injured, the surgeon has the option of reconstructing both ligaments in a staggered manner or simultaneously. There are some reports and series of cases where simultaneous reconstruction of the anterior cruciate ligament is performed. In this manuscript we present our experience in one case and the results obtained from performing the reconstruction of the anterior cruciate ligament simultaneously.

Simultaneous reconstruction of the Anterior Cruciate Ligament was performed in a 40-year-old male patient, without a tourniquet, with an autograft of the hamstrings, fixed with an Endo button and an interference screw. The march and an aggressive program of physical rehabilitation began immediately.

At 5 months of follow-up, the patient is without restriction of physical activities, with complete, symmetrical arches of mobility. No complications reported. The WOMAC functional scale dropped from 35 preoperatively to 6 at the last visit.

So far, simultaneous reconstruction of the anterior cruciate ligament is known to be a safe procedure; however, long-term prospective studies are necessary to verify this assertion.

Introduction

The anterior cruciate ligament limits anterior translation and internal rotation of the tibia [1]. Reconstruction of a torn ligament improves the quality of life of patients in one [2] or both knees [3]. When there is an injury to both knees, the surgeon has the option to reconstruct both ligaments in a staggered manner or simultaneously.

The annual incidence reported in the United States of anterior cruciate ligament injury ranges from 0.01% to 0.08% but is higher (1.5% to 1.7%) among athletes who play in multidirectional sports [4,5]. Bilateral tears of the anterior cruciate ligament are very rare; the incidence of bilateral cases of rupture of the anterior cruciate ligament is from 2 to 4%, of which the majority do not present simultaneously [6-13]. There are some reports and series of cases where simultaneous reconstruction of the anterior cruciate ligament is performed [8,14-20] in which the benefit is evident in relation to effectiveness, cost, recovery time and the non-increase in the incidence of complications.

In this manuscript we present our experience in one case and the results obtained from performing the reconstruction of the anterior cruciate ligament simultaneously.

Clinical case

Our patient is a 40-year-old man who suffered an injury to the anterior cruciate ligament of the right knee 3 months prior to the injury to the left knee. Both after rotational mechanisms in non-sports activities. He was operated 3 months after the left knee injury (6 months of evolution of the right knee injury). The

intervention was performed without a tourniquet, simultaneously, with two surgical teams and two arthroscopes. In both procedures, an autologous hamstring graft was initially performed, and arthroscopy was subsequently performed. Reconstruction in both cases was transtibial. Reconstruction of the right side took 45 minutes, the graft measured 8 mm in diameter and was fixed in the femur using a 25 mm Endo button and in the tibia with a 7 mm biodegradable interference screw. Reconstruction of the left side took 52 minutes, the graft measured 7 mm in diameter and was fixed with 7 mm biodegradable interference screws. The patient was hospitalized for 3 days. He started early with an aggressive physical rehabilitation program. Departure was indicated the next day. Antithrombotic was indicated for 28 days. Five weeks later, Visco supplementation was applied to the left knee due to persistent pain. Currently, the patient has complete ranges of motion, with negative Lachman and anterior drawer in both knees. The WOMAC scale is applied for the current follow-up. The patient returned to normal activities at 4 months.

Discussion

Performing a simultaneous procedure is known to increase the risks of complications [21-32]. In the case of simultaneous reconstruction of the Anterior Cruciate Ligament, this has not yet been fully documented. In the case presented, we did not find complications such as compartment syndrome, any thrombotic event, graft failure or infection.

Among the reports found in the literature, we found 2 case reports and 7 series. Regarding the cases: Tifford8 did not report the results of the surgery and discussed the possibility of a previous involvement in the intercondylar notch as a predisposing factor for bilateral injury. Sajovic9 reported a case in which a hamstring graft reconstruction was performed. The operated patient returned to physical activity 8 months after surgery. He evolved with adequate arches of mobility (5 degrees of hyperextension and 135 degrees of flexion) and with a significant improvement in the arches of mobility.

Among the series of cases found, Hechtman14 compared the results of the simultaneous procedure with the procedure by stages and reported similar clinical results. The simultaneous procedure was better in relation to cost-effectiveness. The total rehabilitation time before fully returning to sports activity was significantly shorter in the simultaneous procedure. Jari and Shelbourne15 reported a series of 28 patients who underwent a simultaneous procedure using patellar tendon autograft and compared their results with a control group. They reported that there is no significant difference in postoperative pain and analgesic requirements, although blood loss was greater in the bilateral group, no patient required transfusion. They found a return-to-work activity of 3 weeks and 6.3 months for full inclusion in sports activities. Larson16 reported the result of the simultaneous procedure in 11 patients in whom a patellar tendon autograft or allograft was used. They showed that there is no increase in the incidence of complications when compared to a unilateral procedure. Saithna17 reported 8 cases of bilateral reconstruction, 7 with hamstrings and 1 with patellar tendon. With 28 months of follow-up, he found no complications such as infection, thromboembolism, or graft failure. Sajovic18 reported 7 cases in which reconstruction was performed simultaneously. A 9-month return to physical activities was reported. In all cases a tourniquet was used and in the same way no increase in risks was observed. The total cost of the procedure was lower than that of performing the procedure by stages. Panigraphi19 conducted a prospective multicenter study in which 14 surgeries were performed for simultaneous reconstruction of the anterior cruciate ligament with an autologous hamstring graft fixed in femur with Endo button and tibia with an interference screw. The average follow-up was 28 months (24 to 38 months). He concluded that simultaneous reconstruction is a beneficial procedure from a cost-benefit point of view. Vaishya20 reported 5 patients in whom reconstruction with a hamstring graft was performed. In his follow-up of 3.2 years on average an adequate evolution was observed.

Performing the reconstruction procedure simultaneously is currently a debate. In a survey conducted by Saad E33, it was observed that the majority of those surveyed preferred to perform a non-simultaneous reconstruction of the Anterior Cruciate Ligament despite the evidence at the time of the study that simultaneous reconstruction does not imply greater risks. Current evidence does not show greater risks in the simultaneous reconstruction of the anterior cruciate ligament than when it is performed by stages. There is also no difference when compared to unilateral reconstruction. It is important to document the follow-up of a prospective cohort to improve the evidence in this regard.

Conclusion

So far, simultaneous reconstruction of the anterior cruciate ligament is known to be a safe procedure; however, long-term prospective studies are necessary to verify this assertion.

Acknowledgment

None.

Conflicts of Interest

None.

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