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CASE REPORT

Case Report of Arthroscopic RigidLoop Combined with Double TigerTapeLoop for ACL Suture Surgery

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Abstract

Summarize the experience of using RigidLoop and double TigerTapeLoop for Anterior cruciate ligament (ACL) suture. The key nursing points include preoperative preparation, intraoperative nursing cooperation, and postoperative return to the ward. The patient successfully completed the arthroscopic RigidLoop combined with TigerTapeLoop for ACL suture surgery. After the operation, the physical examination was good, and he was discharged successfully on the fourth postoperative day.

Keywords

Arthroscopy, ACL, Suture, Nursing coordination

Abbreviation

ACL: Anterior Cruciate Ligament

Introduction

Anterior cruciate ligament (ACL) injury is one of the most common injuries to the knee, with an incidence of about 85/100000 in patients aged 16 to 39 years, and about 12% of tears occur proximal to the ACL with an intact stump, with higher healing capacity than body tears [1]. ACL is an important structure for maintaining knee stability and can limit the anterior movement and internal rotation of the tibia. ACL injury will directly cause knee forward stability and rotational stability damage [2-4]. Repair and reconstruction of ACL injuries has always been an important topic in the field of sports medicine [5]. Reconstructive surgery is required when the ACL is completely broken [6-8]. However, there are only some cases of ACL relaxation after knee trauma [9]. If we ignore the type of ACL injury and blindly use ligament reconstruction technique for proximal tears, the proprioception and biomechanical functions of the knee joint may be decreased. In addition, the reconstruction also has the risk of epiphyseal injury, donor area complications, graft-related infection, and causes some difficulties for later revision [4]. Recently, arthroscopic ACL suture repair has been favored and respected by the majority of surgeons because of its good efficacy, and has become a hot research topic in this field. Reconstructive surgery for patients with this ACL injury type does not accord with the concept of minimally invasive arthroscopic surgery, so ACL suture technology has been popularized and applied, with remarkable results [10]. Compared with traditional ACL reconstruction surgery, ACL suture surgery is more detailed, faster pace and less time [11]. The innovation of surgical concept and the development of surgical consumables promote the continuous progress of arthroscopic ACL suture method. As long as the appropriate fixation method is selected and the indications for surgical operation (proximal tear and complete stump) are strictly grasped, ACL suture repair can achieve good efficacy. Some scholars believe that ACL suture repair can be used as a stepped surgical protocol to treat ACL injuries [12]. Based on the above considerations, we developed a novel surgical protocol for the type of proximal tears and intact stump lesions in the ACL. We perform arthroscopic suture repair with RigidLoop and double TigerTapeLoop. This paper summarizes the experience of arthroscopic RigidLoop with double TigerTapeLoop ACL suture, written consent

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was obtained from the patient for this article to permit the publication of this case report, which is reported as follows:

Case Description

The 33-year-old male patient sprained his knee accidentally during the return running training before 13 months, and immediately experienced pain, swelling and limited movement of the right knee joint, and there was no significant relief after rest. After X tablet examination in the local hospital, there was no "fracture and dislocation" and "soft tissue injury". Later, the right knee pain symptoms were gradually relieved, but the right knee joint felt unstable when running and squatting. No right knee swelling, numbness of the right lower limb and other discomfort. Later in our hospital, physical examination: no obvious bone deformity, no swelling right knee; right knee floating patella test (1), patellar grinding test (1) overextension test (1), wheat test (-), lachman test (+), front drawer test (+), posterior drawer test (1), lateral stress test (1): the right knee activity is not limited, active and passive knee are about 0°, knee is about 125°, no obvious limitation of both upper limbs and left lower limbs, no decrease, no good circulation. Auxiliary examination: Magnetic resonance resonance (limbs) examination indicated: Anterior intersection and ligament tear of the right knee, right knee cavity, suprapatellar capsule effusion. After perfecting preoperative examination and preoperative discussion, the patient was treated with right knee microscopic cleaning, synoviectomy, anterior suture and ligament injury and micro fracture under general anesthesia. The operation lasted about 2 hours, and the operation was smooth. The stability of the knee joint was restored. All kinds of positive examination results turned to normal before surgery, and she was discharged smoothly on the fourth postoperative day.

After the start of the surgery, The instrument nurse worked closely with the main surgeon to complete the operation, The main surgical steps are as follows: 1) The three parties before the operation table include the main knife, Anesthesiologist, The circuit nurse checked the patient information and side again; 2) When the bony markers are not marked before surgery, Pass the sterile drawing pen, Labeling of bony marks; 3) Pass 11 # knife cutting, 4.5 mm puncture cone expansion; 4) Pass a 6.0 mm puncture cone into the joint cavity and place the arthroscope; 5) Open the rinse fluid, Ensure the field is clear, According to the procedure specific conditions, Pling and manual equipment to clean the joint cavity; 6) Check the ACL damage by passing the probe hook; 7) Pass the 11 # sharp knife to establish the middle approach, Direct of expansion expansion, Place a plastic sleeve, For suture of ACL; 8) When stitching the ACL, hang the rotator cuff suture gun on one TigerTapeLoop, and repeat the other one after crossing the line, Form a double tie tie; 9) Prepare the femoral tunnel by 4.0 mm T. and measure the femoral tunnel length; 10) 4.0 mm Guide drill hang MB66 suture; 11) Delivery LASSO feeder, sutures, corresponding anchor locator, electric drill device, Matching the anchor anchor, bone hammer, Grasping wire clamp, knot pusher and wire shearing device shall pass accurately in order; 12) After the suture, Check the ligament condition after the suture; 13) The microfracture device and bone hammer were punched in the femoral side of the ACL; 14) Delivery RigidLoop, Lead the RigidLoop with MB66; 15) End line with RigidLoop traction double tie; 16) Tibial loctioner, Angle adjustment to 55°; 17) Tibial tunnel preparation by passing 2.4 mm guide drill and electric drill device; 18) Pass the epidural needle through the tibial tunnel; 19) Pass the lasso set core through the epidural needle to the joint cavity; 20) Grab the lasso core and tie and break the tail line to the body, and exchange the tie end line to the tibial tunnel; 21) The delivery swivelock locator performs the hole at the outer mouth of the tibial tunnel; 22) 4.75 mm\5.5 mm swivelock to the bone according to the knife; 23) Shooting image data according to the requirements of the operator; 24) Thorflush the joint cavity after surgery, To ate the residual liquid, 10 ml of ropivacaine in the joint cavity and at the wound, 3-0 or 4-0 stitches; 25) Wear braces for patients and adjust them to the corresponding Angle according to the requirements of the operator; 26) Return the patient to the ward after the instructions of the anesthesiologist, if any specimens should be submitted for inspection in time.

Discussion

ACL is essential for their motor function, and severely affects their quality of life after ACL injury. Anterior cruciate ligament (ACL) reconstruction is the standard treatment for ACL tears, but it is uncertain about 10-15% [13]. Recognition of the limitations of ACL reconstructive surgery has prompted a renewed interest in other techniques that can improve the prognosis of ACL injury. Progressive arthroscopic surgical instruments make ACL repair easier, and advances in functional tissue engineering and regenerative medicine have led to the resuscitation of ACL repair. Arthroscopic ACL suture repair technique, already safe and effective, is used in partial injuries of ACL. Theoretically, arthroscopic RigidLoop combined with double TigerTapeLoop ACL suture technique can restore normal ACL anatomy and retain proprioceptive fibers and restore knee stability. It is true that the number of cases of this surgical technique is small and the effect feedback is lacking, but this technique provides new ideas and practical schemes for solving the ACL damage type with proximal tear and intact stump, which is worth studying.

The success of an operation depends not only on the operator's surgical thinking and skilled technical operation, but also benefits from the close cooperation of the operating room nurses. As an operating room

nurse, skillfully working with ACL suture operation can shorten the operation time and ensure the quality of the operation. Circuit nurses in the process of surgery shall be in accordance with the provisions of safe transport patients, strict check system, closely observe condition changes, according to the need to manage the operating room temperature and humidity and environment, supply operation demand, timely count with material, timely handling various emergencies, control the number of visitors, avoid cross infection, ensure the operation smoothly. The instrument nurse needs to take the arthroscopic instrument lightly and gently put it, carefully check the handover items, adhere to the principle of sterility, master the surgical steps, understand the anatomical knowledge, closely follow the operator's thinking, and carefully cooperate with the operation.

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