

Introduction

Anterior Cruciate Ligament (ACL) functions as a primary constraint to tibial anterior translation, as well as, a secondary constraint to inversion, eversion and rotational force. Common causes of injury include contact sports, hyperflexion injury, valgus force injury, varus force injury and rotational injury to the knee. Patient with an ACL deficient knee will have difficulties in sporting activities that require cutting, pivoting and sidestepping. Arthroscopic ACL reconstructive surgery is a common procedure that will restore the knee stability (not totally) to allow patient with such injury to return to sport.

Indication

Not all patients with an ACL deficient knee need an ACL reconstructive surgery. It remains controversy whether ACL reconstructive surgery can prevent or delay the development of osteoarthritis of the knee.

Marked instability: If the ACL deficient knee affects walking, stairs walking and sport activities.

High activities: Active young sporty patients who want to continue their hobby/career at the same level.

The Operation

1. Arthroscope inserted.
2. In Hong Kong, Patellar bone tendon bone autograft (PBTB) and hamstring autograft are popular methods.

Preoperative Preparation

1. Admit 1 day before or on same day of this “elective” operation.
2. Anesthetic assessment. **Inform your doctors** about drug allergy, regular medications or other medical conditions. Blood tests, X ray investigation.
3. Keep fast for 6 to 8 hours before operation.
4. Empty bladder and change to operation clothes before transfer to operating room.
5. Pre-medication, antibiotic prophylaxis intravenous line may be required.
6. Restore full range of motion with emphasis to prevent extension lag.
7. Psychologically prepare the patient for the postoperative rehabilitation program that will last for 3 to 6 months. Surgery is only part of the treatment.
8. Physiotherapist assessment on muscle strength, baseline measurement, breathing exercise and physical conditioning of all unaffected limbs.

Postoperative Instruction

A. General

1. Mild throat discomfort or pain because of intubation.
2. Mild discomfort or pain over the operation site. Inform nurse or doctor if pain severe.
3. Nausea or vomiting are common; inform nurses if symptoms severe.
4. Inform nurses if more analgesics are required.

B. Wound care

1. Oral, intravenous or intramuscular analgesic as require. Pains usually settle down quickly after 2 to 3 days.
2. Cryotherapy and elevation to control swelling.
3. If there is a drain, it will usually be removed after 1 to 3 days.
4. Most patients can weight bear with support after a few days and most patients can be discharge within one week. Braces are occasionally prescribe.

C. Diet

Resume diet, usually 4 hours after anesthesia, and when taking sips of water well.

Common Risks and Complications (not all possible complications are listed)

A. Anesthesia related complications

1. Cardiovascular: myocardial infarction or ischemia, stroke, deep vein thrombosis, pulmonary embolism, etc.
2. Respiratory: atelectasis, pneumonia, asthmatic attack, exacerbation of chronic obstructive airway disease.
3. Allergic reaction and shock.
4. Toxicity of local anesthetic may result in serious complication although rare.

B. Procedure related complications

1. Wound infection, swelling and bleeding.
2. Wound breakdown, pain and keloid formation.
3. Knee flexion contracture and reduce range of movement.
4. Donor site pain, patellofemoral joint pain and numbness.
5. Residual laxity.

C. Uncommon Risks with Serious Consequences

1. Re-rupture of reconstructed ACL ligament is not common but can happen.
2. Major blood vessel or nerve injury, and may lead to loss of limbs.
3. Flare up of preexisting illness e.g. Hypertension, diabetes.

Possible Additional Procedure

1. Infection, it may require arthroscopic lavage, debridement and/or removal of implant.
2. Stiffness, it may require manipulation under anesthetic.
3. Re-rupture.
4. Fracture of patella, it may require open reduction and internal fixation.

Alternative Treatment

A. Conservative treatments

This can include muscle training exercise or bracing. Patient can also adjust their lifestyle to decrease their high demanding sport activities.

B. Operations using other choice of reconstructive materials

1. Allograft. No donor site pain and risk of disease transmission.
2. Availability problem in Hong Kong. Graft strength decrease with the procurement process.
3. Quadriceps tendon. Strong graft. Only one bone end.
4. Contralateral side PBTB. Not popular in Hong Kong.

Things to take note after discharge

1. Contact your doctor or a nearby Accident & Emergency Department if you find increasing discharge, pain and or redness around the wound.
2. Take analgesics prescribed by your doctor if required.
3. Most patient can resume contact sport in 6 to 12 months.
4. You should keep your wound clean and dry, you must follow instructions strictly on taking medication, see the doctor as scheduled.
5. If you have any excessive bleeding, collapse, severe pain or signs of infection at your wound site such as redness, swelling or fever, see your doctor immediately or attend the nearby Accident and Emergency Department.

Remarks

This is general information only and the list of complications is not exhaustive. Other unforeseen complications may occasionally occur. In special patient groups, the actual risk may be different. For further information please contact your doctor. Evangel Hospital reserves the right to amend this leaflet without prior notice. We welcome suggestions or enquiries on the information provided in this leaflet. Please contact our Healthcare professionals so that we could follow up and make improvement.

Reference

Hospital Authority: "Anterior Cruciate Ligament Reconstructive Surgery" (2021)

Smart Patient: http://www.ekg.org.hk/pilic/public/O&T_PILIC/O&T_AnteriorCruciateLigReconstruct_0050_eng.pdf (12-07-2023)