

Posterolateral Corner Injury

Indications for Surgery

The main indication of PLC reconstruction surgery is symptomatic instability following PLC injury. The aim of PLC reconstruction surgery is to restore the functional stability of the knee without compromising other joint functions.

Possible Complications

Infection
Bleeding
Nerve damage
Deep vein thrombosis
Pulmonary embolism
Persistent / Recurrent pain
Recurrent symptoms including locking, swelling, instability
Failure of graft
Persistent / recurrent joint crepitus
Altered sensation in the knee post-operatively

Surgical Techniques

The technique(s) used will depend on whether there are any other associated ligament injuries concurrent with the postero-lateral corner injury. There are a variety of surgical approaches with isolated postero-lateral corner injuries, which will be consultant dependent.

Expected Outcome

Improved function / mobility
Improved pain relief
Improved knee stability
Return to a level of sporting activity
Full recovery may take up to twelve months

INITIAL REHABILITATION PHASE

0-4 weeks

Goals

To be safely and independently mobile with appropriate walking aid, adhering to weight bearing status
To be independent with home exercise programme as appropriate
To understand self management / monitoring, e.g. skin sensation, colour, swelling, temperature, etc
To be independent with home exercise programme.

Restrictions

Ensure that weight bearing restrictions are adhered to: Toe Touch weight bearing for 4 weeks. Hinged brace locked at 20° for 3 weeks. After 3 weeks brace can then be adjusted and locked at 0° for mobilising. Avoid hyperextension, external tibial rotation and specific active hamstring exercises.

Treatment Pain-relief:

Ensure adequate analgesia. Advice / Education: Teach how to monitor sensation, colour, circulation, temperature, swelling, and advise what to do if concerned. Swelling management Teach protection, rest, icing, compression and elevation (PRICE). Exercises:

Example of exercises

Teach circulatory exercises

Remove brace regularly daily for careful active assisted range of movement to work towards 0-90°

Isometric quads & hamstrings in brace

Patella mobilisations Mobility:

Ensure patient independent with transfers and mobility, including stairs if necessary with appropriate aid. Brace: to ensure brace fits and patient understands how to don and doff brace as appropriate

On discharge from ward:

Independent and safe mobilising with appropriate aid, including stairs as necessary

Independent with transfers Independent and safe with home exercise programme

Independent with swelling management Ongoing out-patient physiotherapy arranged for within 4 weeks post op

REHABILITATION RECOVERY PHASE

4-8 weeks

Goals.

To be safely and independently mobile with appropriate walking aid, adhering to weight bearing status, progress to PWB. To be independent with home exercise programme as appropriate Hinge brace adjusted to allow AROM 0°-90°

Restrictions

Ensure that weight bearing restrictions are adhered to: PWB weight bearing until 8 weeks post operatively. Avoid hyperextension, external tibial rotation and specific active hamstring exercises until 3/12 post operatively Brace to be locked at 0° when mobilising

Treatment Pain Relief:

Ensure adequate analgesia Advice / Education: Comprehensive education and instruction on restrictions and on carrying out activities of daily living to manage pain and swelling Posture advice / education Swelling management Mobility: ensure safely and independently mobile PWB with appropriate aid Exercises:

Examples of exercises

Knee range of movement exercises

Strengthening of muscles stabilizing the knee i.e. closed kinetic chain quadriceps exercises in prone.

Strengthening exercises of other muscle groups as appropriate

Stretches of tight structures as appropriate.

Review lower limb biomechanics. Address issues as appropriate. Swelling

Management

Manual Therapy:

Soft tissue techniques as appropriate

Joint mobilisations as appropriate Monitor sensation, colour, temperature, etc
Hydrotherapy if appropriate Pacing advice as appropriate Brace review brace fit and patient understands how to don and doff brace Electrotherapy if appropriate

Milestones to progress to next phase Independently mobilising PWB using appropriate walking aids. Achieving AROM 0-90° flexion

Failure to meet milestones Refer back to team / Discuss with team Refer to failure to progress chart

REHABILITATION RECOVERY PHASE

8-12 weeks

Goals

Mobilising safely with open hinges on brace and allowing FROM while walking
Mobilising FWB with no altered gait Reciprocal pattern when using the stairs Wean from brace if proprioception has improved to allow adequate knee control

Restrictions

Hinge brace to be worn when mobilising but unlocked to allow FROM Avoid hyperextension, external tibial rotation and specific active hamstring exercises until 3/12 post operatively

Treatment Pain relief Advice / Education Swelling Management Posture advice / education Mobility:

Ensure safely and independently mobile progressing to FWB as able Gait Re-education: Address issues as appropriate.

Exercises:

Knee range of movement exercises
Strengthening of muscles stabilising the knee progressing resistance with theraband/weights and/or COG shift as appropriate.
Strengthening exercises of other muscle groups as appropriate
Core stability and gluteal control work
Balance / Proprioception progress unilateral exercises with unstable BOS and COG shift. Biofeedback may be used if altered sequencing of muscles. Manual Therapy:
Soft tissue techniques as appropriate
Joint mobilisations as appropriate Monitor sensation, swelling, colour, temperature, etc Hydrotherapy if appropriate Pacing advice as appropriate Electrotherapy if appropriate

Milestones to progress to next phase Normal gait fully weight bearing status with no aids wearing brace Achieving full AROM Bilaterally equal proprioception tests on single leg stance

Failure to meet milestones Refer back to team / Discuss with team Refer to failure to progress chart

REHABILITATION RECOVERY PHASE

12 weeks – 6 months

Goals

Independently mobilise with no brace Jogging on even surface with no abnormalities Symmetry on hop tests i.e. multiple single hop stabilization test, single leg hop for distance Bilaterally equal strength of quadriceps, hamstrings, hip abductor, hip adductors and gastro

Restrictions

No restrictions may discard hinge brace, as knee control allows No jogging until proprioception on an uneven surface, knee valgus control when leaping and

unilateral closed kinetic chain squat with knee valgus control is achieved. No return to sport at this phase Return to breast stroke swimming at 4/12

Treatment

Pain relief Advice / Education Swelling Management Posture advice / education

Mobility: progression of mobility and function.

Gait Re-education Exercises:

Jogging

Plyometrics

Jump training

Agility training

Hop tests

Multiple single hop stabilization test

Strengthening through range to include OKC quadriceps if appropriate

I Introduction of sports specific and occupation specific rehabilitation

Core stability and gluteal control work

Stretches of tight structures as appropriate. Review lower limb biomechanics and kinetic chain, addressing issues as appropriate Balance / Proprioception work progressing to unstable BOS and COG shift

Progress from static to dynamic exercises as appropriate. Manual Therapy:

Soft tissue techniques as appropriate

Joint mobilisations as appropriate Monitor sensation, swelling, colour,

temperature, etc Hydrotherapy if appropriate Pacing advice as appropriate

Electrotherapy if appropriate

Milestones for discharge Good proprioceptive control dynamically.

Return to normal functional level. Satisfied criteria for functional testing and return to sports if set as patient goal.

Failure to meet milestones Refer back to team / Discuss with team Refer to failure to progress chart

6 months – 1 year

Goals

1RM single leg press RSI greater than or equal to 125% (Calculation of Relative Strength Index $RSI (\%) = \text{weight pushed (kg)} \div \text{bodyweight (kg)} \times 100$) LSI 85% - 100% of knee extensors (Calculation of Limb Symmetry Index $LSI (\%) = \text{injured limb score} \div \text{uninjured limb score} \times 100$) Symmetry on hop tests ie multiple single hop stabilization test, single leg hop for distance If satisfied criteria for functional testing then for graded return to sport if set as patient goal Establish long term maintenance programme

Restrictions

Return to sport when has satisfied functional performance testing requirements and when consultant has agreed for patient to return to sport: this is expected to be after 1 year post-operatively

Treatment

Pain relief Advice / Education Swelling Management Posture advice / education

Mobility: progression of mobility and function. Gait Re-education Exercises:

Jogging

Plyometrics

Jump training

Agility training

Hop tests

Multiple single hop stabilization test

Strengthening through range to include OKC quadriceps if appropriate

Introduction of sports specific and occupation specific rehabilitation

Core stability and gluteal control work

Stretches of tight structures as appropriate. Review lower limb biomechanics and kinetic chain, addressing issues as appropriate Balance / Proprioception work progressing to unstable BOS and COG shift

Progress from static to dynamic exercises as appropriate. Manual Therapy:

Soft tissue techniques as appropriate

Joint mobilisations as appropriate Monitor sensation, swelling, colour, temperature, etc

Hydrotherapy if appropriate Pacing advice as appropriate Electrotherapy if appropriate