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Knee Microfracture Post-Operative Care for Femoral Condyle Lesions

This protocol is for patients with femoral condyle lesions only

This protocol was developed to provide the physical therapist with guidelines for treatment of a patient who has undergone knee microfracture surgery for femoral condyle lesions only. These guidelines are not a substitute for appropriate clinical decision making. It is essential that the therapist take into consideration the patient's general health, integrity of associated joints and any post-op complications. The protocol is divided into 4 phases. Patients will typically continue with formal physical therapy in some capacity until Phase III (12 to 14 weeks post-op). Anticipated number of visits range from 15 to 20 formal PT sessions. Progression from phases should not occur prior to the appropriate post-op timeframes; however, phase progression should be delayed if the patient does not meet the progression criteria. Tolerance to exercise should be closely monitored. Patients should not have a significant increase in pain after treatment or exercise. If this occurs, treatment is too vigorous and should be modified accordingly. *The protocol may be modified by the surgeon at 1 week follow-up visit as indicated for larger lesions.*

Phase I: Early Protection Phase
Weeks 0 to 4

Weight-Bearing:

- No brace for femoral condyle lesions
- Bilateral crutches for ambulation
- Up to 50% WB as tolerated until week 4
- Progress to FWB as tolerated. Discontinue crutches as appropriate or per surgeon

Formal Physical Therapy:

- Patients will be scheduled for 1st PT visit on POD 1-3
- Most patients will be seen 1 time a week during Phase I
- Patients should be seen 2 times a week if they are stiff or having difficulty activating quadriceps
- **Sutures will be removed by the PT ~POD 10**

Goals:

- Protect healing tissue from load and shear forces
- Minimize pain and effusion
- Restore full knee extension PROM
- Gradually restore knee flexion ROM
- Regain quadriceps control

Precautions:

- Maintain WB precautions
- Monitor wound healing closely

Physical Therapy Treatment:

- E-stim to quads during quad exercises, as appropriate (1-2 hours a day)
- PROM
  - Knee extension: full ROM
  - Knee flexion as tolerated, no restrictions
    - Week 1: ≥90°
    - Week 2: ≥105°
    - Week 3: ≥115°
    - Week 4: ≥125°
- Hamstring and calf stretching
- Patellar mobilizations
- Ankle pumps (with Theraband)
- Quad sets
- Sub-max, multi-angle isometrics (quadriceps and hamstrings)
- Knee extension AROM: 90-40°
- 4-way SLR (add resistance as tolerated)
- Bicycle (when ROM allows)
  - Little/no resistance
- Weight shifting with knee in extension (following WB precautions)
  - Small femoral condyle lesions: weeks 1-2
  - Large femoral condyle lesions: week 3
- Leg press 0-60° (week 3)
  - Progress to 0-90° (week 4)
- Heel/toe raises – in full knee extension with 50% WB (week 2)

Recommended HEP:

- AAROM/PROM knee flexion 5 times a day
- PROM knee extension
- Hamstring and calf stretching
- 4-way SLR
- Quad sets
- Ice 15 minutes out of every hour as needed
  - Elevate with knee in extension

Criteria for Progression to Phase II:

- Full knee extension PROM
- SLR without quad lag
- Knee flexion ROM: to 125°
- Minimal pain and swelling
- Voluntary quadriceps activity

Phase II: Transition Phase

Weeks 5 to 8

Weight Bearing:

- Progress to FWB starting week 4 as tolerated
- No reciprocal stair negotiation for 8 weeks

Formal Physical Therapy:

- The majority of patients will be treated 2 times per week

Goals:

- Gradually improve quadriceps strength and endurance
- Gradually increase functional activities
- Maintain full knee ROM

Precautions:

- Resistance for exercises should increase gradually
- No reciprocal stair negotiation for 8 weeks
- Avoid exercises/activities that cause patellofemoral pain

Physical Therapy Treatment:

- Continue and progress Phase I exercises/treatment as appropriate
- Knee flexion ROM 135° by week 8
- Patellar mobilizations as needed
- CKC exercises (no wall squats)
  - Step ups, mini lunges, mini squats to 45° (week 6)
- Leg press: 0-90°
- Heel/toes raises
- Balance and proprioception drills
- Gait training
- Initiate gradual return to standing, walking, and functional activities

Recommended HEP:

- Phase I and II exercises as appropriate

Criteria for Progression to Phase III:

- Full knee ROM
- 4/5 hamstring and quad strength
- Normal gait pattern
- Normal patellar mobility
- Balance/proprioception: ≥50% of contralateral side
- Ability to bike for 30 minutes

<u>Phase III: Remodeling Phase</u>
Weeks 9 to 16

Formal Physical Therapy:

- Most patients will be discharged in Phase III
- Most patients will be seen 2 times a week until week 12-14

Goals:

- Increase strength and endurance
- Increase functional activities

Precautions:

- Low impact activities <u>only</u> (e.g swimming, cycling, etc.) permitted at:
  - 2 months (small femoral condyle lesions)
  - 3 months (large femoral condyle lesions)
- Avoid exercises/activities that cause patellofemoral pain

Physical Therapy Treatment:

- Continue progressing previous exercises as tolerated
- Leg press: 0-90°
  - Emphasize eccentric
- Squats: 0-60°
- Walking program
  - Gradually increase distance, speed, incline, etc.
- Elliptical
- Progress proprioception training
- Retro ambulation
- Hamstring Curls
- Forward step downs

Recommended HEP:

- Phase I, II, and III exercises as appropriate

Criteria for Progression to Phase IV:

- Full, pain-free ROM
- Strength: ≥80% of contralateral side
- Balance/proprioception: ≥75% of contralateral side
- Pain-free, reciprocal stair negotiation
- Satisfactory clinical exam

Phase IV: Maturation Phase
Week 16 onward

Formal Physical Therapy:

- Formal physical therapy has been completed
- The patient will be instructed on which exercises need to be continued and how to progress
- General guidelines of discharge are as follows:
  - Non-antalgic, independent gait
  - Independent, reciprocal stair negotiation
  - Normal age-appropriate balance and proprioception
  - Achievement of patient-specific goals

Goals:

- Gradual return to full, unrestricted functional/recreational activities

Precautions:

- Low impact activities only (e.g swimming, cycling, etc.) permitted at:
  - 2 months (small femoral condyle lesions)
  - 3 months (large femoral condyle lesions)
- Higher impact activities (jogging, aerobics, etc.) permitted at:
  - 4 months (small femoral condyle lesions)
  - 5 months (large femoral condyle lesions)
- High impact sports (tennis, basketball, football, etc.) permitted at 5-6 months
  - Determined by surgeon, based on size of lesion
- Avoid activities that cause patellofemoral pain

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