CGMA

Center for Gait and Movement

PT23: DISTAL FEMORAL EXTENSION OSTEOTOMY

Indications: Fixed knee flexion contractures and inability to extend at the knee during gait. The goal of the procedure is to improve knee extension range by altering the distal femur bony anatomy.

Procedure: Anterior femoral wedge is removed from the distal femoral metaphysis and fixed with a blade plate and side screws

Immobilization: Long leg cylinder casts or leg immobilizers for 6 weeks with partial weight bearing if adequate healing after 1st 3 weeks or aggressive protocol without casting and the use of a CPM machine. **Non-weight bearing for 3 weeks**

********The surgeon may elect to use a CPM immediately post-op instead of long leg casts to minimize surgical tissue scarring. The CPM can be used in 2-4 hour intervals with a goal of 6-8 hours per leg per day. If this procedure is completed bilaterally, one CPM can be alternated between both legs.

Healing time: Approximately 6 - 8 weeks.

CONTRAINDICATIONS:

- **No impact, torque or unprotected weight bearing for the first 3 weeks post-op**
- **Minimize risk for falling**

PRECAUTIONS**:**

1. Child with spasticity may experience increased spasms / discomfort when cast is removed and movement at the knee is initiated. Periodic use of a knee immobilizer or bivalved cast may be helpful as the child is weaned from immobilization support. The aggressive protocol decreases the spasticity response and discomfort associated with joint motion.
2. Avoid flexion beyond 90° for the first 3 weeks post-op.

PHASE 1: Post-op day 1-7

PRECAUTIONS/ CONTRAINDICATIONS:

-Protect surgical site, both skin incision and bony healing – **Non-weight bearing**

-If the child is not casted, they are able to weight-bear for assisted transfers only with knee immobilizers donned during the first 3 weeks if the parent/ care provider cannot lift them for dependent transfers

GOALS:

-Pain management which may include use of ice, heat and/or electrical stimulation for pain modulation only

-Patient and family demonstrate safe mobility and transfers for completion of ADLs

-If using the CPM according to the aggressive protocol, may gradually increase range of motion to full range if tolerated

-Passive, active assistive and active range of motion of the hip and ankle joints.

-Isometric contraction of the gluteus maximus, quadriceps, hamstrings

-Patient and family are able to demonstrate understanding of post-op precautions and home exercise program

-Functional sitting balance for ADLs

- While in the cylinder or long leg casts or knee immobilizers, instruct the patient and parents in safe mobility and transfers. If the patient is not casted, transfers and mobility are completed with the knee immobilizers donned

CRITERIA TO PROGRESS:

- safe mobility and transfers for completion of ADLs

PHASE 2: Post-op day 8- end of post-op week 3

PRECAUTIONS/ CONTRAINDICATIONS:

-avoid knee flexion beyond 90° if patient is not casted

GOALS:

-**Obtain full passive knee extension** if the patient is not casted

-Obtain knee flexion to 90°, either PROM, AAROM, AROM if the patient is not casted

-Pain management as needed (may be a priority with spasticity)

CRITERIA TO PROGRESS:

-active, muscular control of available range of motion

-independent with transfers, ADLs, mobility

PHASE 3: Post-op day 21 – end of post-op week 6

PRECAUTIONS:

-avoid impact, torque, forceful/ resistive quadriceps contraction, avoid falling

GOALS:

- assess bracing needs, consider ground reaction AFOs to encourage full knee extension during stance phases of gait, for safe transfers (*splinting, orthotic and equipment needs will need to be authorized by the MD)*

-begin transverse friction massage to surgical scars if well-healed

-begin progressive weight bearing as advised by the referring physician

-Obtain full knee ROM once casts are removed

-Functional standing balance for safe transfers, minimize opportunities for the knee to flex/ collapse suddenly, minimize risk for falling

-E-stim may be indicated post-operatively for muscle re-education

CRITERIA TO PROGRESS:

-full active and passive knee range of motion over full arc of motion

PHASE 4: Post-op week 7-completion of PT care

PRECAUTIONS:

-none

GOALS:

-modify bracing needs, continue using ground reaction AFOs to encourage full knee extension during stance phases if needed, may consider fixed AFOs if full knee extension is achieved during gait

-Gait re-training with emphasis on knee extension at terminal swing / initial contact and full knee extension at mid – terminal stance phases of gait. Goal is **quality** of gait not quantity/ distances of gait for the first 6 months.

- Full range of motion at the hips, knees and ankle joints

-Strengthening exercises once casts are removed. E-Stim may be indicated post-op for muscle re-education / strengthening.

-Lower extremity strengthening exercises with emphasis on the gluteus maximii, quadriceps, and calf musculature.

-Functional balance to return to pre-operative level of function

-Return to pre-operative function and activity

***When multiple surgical procedures are performed, guidelines must be adapted/ adjusted accordingly. To protect the surgical tissues, the PT care needs to default to the most conservative guidelines.**