Orthopaedic pathway

Rehabilitation guidelines for patients undergoing surgery for Tibialis Posterior reconstruction

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Approved by	Therapies Clinical Governance Group
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Key Amendments

Date	Amendments	Approved by:
25th January 2023	Document extended to 30th June 2023 whilst under review.	Dr J Trevelyan/ Benjamin Thomas
23rd June 2023	Document extended for another 3 months whilst under review.	Benjamin Thomas
30th August 2023	Document reviewed and approved	Therapies Clinical Govenance

INTRODUCTION

At the Worcester Acute Hospitals NHS Trust our emphasis is patient specific, which encourages recognition of those who may progress slower than others.

Milestone driven

These are milestone driven guidelines designed to provide an equitable rehabilitation service to all our patients. They will also limit unnecessary visits to the outpatient clinic by helping the patient and therapist to identify which specialist review is required.

Indications for surgery:

- Generally for Stage II Tibialis Posterior Tendon Dysfunction

Possible complications:

- Infection
- Bleeding
- Nerve damage
- Deep Vein Thrombosis
- Pulmonary Embolism
- Scarring
- Non-union
- Transfer failure
- Flat foot remains / recurs
- Persistent / Recurrent pain
- Need for subsequent fusion if failure
- Wound breakdown
- Persistent swelling
- CRPS
- Weakness of lesser toes or great toe

Surgical techniques
The technique(s) used will depend on the stage of the tibialis posterior tendon dysfunction, and the clinical presentation of the patient.

Surgery tends to include one or more of the following:

- Tendon reconstruction with Flexor Digitorum Longus (FDL) transfer, Flexor Hallucis Longus (FHL) transfer or Tibialis Anterior transfer (Cobb's procedure)
- Calcaneal osteotomy
- Tendo-Achilles lengthening
- Spring ligament (Plantar calcaneonavicular ligament) repair. Internal Brace Reconstruction
- Lateral column lengthening (eg, calcaneocuboid distraction)

Expected outcome:

- Improved function / mobility
- Improved pain relief, with decreased analgesic requirements
- Improved arch height and alignment
- Stop the progression of the deformity
- To be able to do single heel raise
- Muscle strength: inversion grade 4 or 5 on Oxford scale
- Return to low impact sports may be possible but strenuous sport unlikely
- Full recovery may take up to twelve months
- Reduce the chance of progression of the deformity
- Try to achieve single heel raise with time

DETAILS OF GUIDELINE

Pre-operatively
When practical the patient will be seen pre-operatively by the ward staff, and with consent, the following assessed:

- Current functional levels
- General health
- Social / work / hobbies
- Functional Range of Movement
- Gait / mobility, including walking aids, orthoses, etc
- Post-operative expectations
- Post-operative management explained

Post-operatively
Always check the operation notes, and the post-operative instructions. Discuss any deviation from routine guidelines with the team concerned.

Initial rehabilitation phase
0-6 weeks

Initial rehabilitation phase 0-6 weeks

Goals:

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

Restrictions:

- Ensure that weight bearing restrictions are adhered to:
    - **Flexor Digitorum Longus Transfer:**
        - Non-Weight Bearing (NWB) in Plaster Of Paris (POP) for 4 weeks. Foot will be held in inversion for first 2 weeks.
        - Full Weight Bearing (FWB) in POP at 4 weeks.
        - Out of POP at 6 weeks, in walker boot and referred to physiotherapy.
    - **Mr Kugan patients → Flexor Digitorum Longus Transfer (+TA lengthening and calcaneal osteotomy, internal brace for spring ligament):**
        - NWB in POP at plantigrade 0-6 weeks
- Elevation
- If sedentary employment, may be able to return to work from 4 weeks post-operatively, as long as provisions to elevate leg, and no complications

Treatment:

- **Pain-relief**: Ensure adequate analgesia
- **Elevation:** ensure elevating leg with foot higher than waist
- **Exercises**: teach circulatory exercises
- **Education**: teach how to monitor sensation, colour, circulation, temperature, swelling, and advise what to do if concerned
- **Mobility**: ensure patient independent with transfers and mobility, including stairs if necessary

On discharge from ward:

- Independent and safe mobilising, including stairs if appropriate
- Independent with transfers
- Independent and safe with home exercise programme / monitoring

Milestones to progress to next phase:

- Out of POP. Team to refer to physiotherapy when appropriate (FDL transfer at 6 weeks post-operatively.)
- Progression from NWB to FWB phase. Team to refer to physiotherapy if required to review safety of mobility / use of walking aids
- Adequate analgesia

Recovery rehabilitation phase 6 weeks – 12 weeks

Goals:

- To be independently mobile out of plaster shoe / aircast/walker boot
- Mr Periera's patients may be in a walker boot FWB for 6 weeks
- To achieve full range of movement
- Tendon transfer to be activating
- To optimise normal movement

Restrictions:

- **Ensure adherence to weight bearing status.**
    - **Mr Kugan patients → Flexor Digitorum Longus Transfer (+TA lengthening and calcaneal osteotomy, internal brace for spring ligament):**
        - NWB in boot at 6-8 weeks
        - PWB-FWB in boot 8-10 weeks
        - Out of boot at 10 weeks unless concern
        - Gentle Strengthening exercises from 6 weeks
- **No strengthening against resistance until at least 3 months post-operatively**
- **Do not stretch transfer. It will naturally lengthen over a 6 month period**

Treatment:

- **Pain relief**
- **Advice / Education**
- **Posture advice / education**
- **Mobility:** ensure safely and independently mobile adhering to appropriate weight bearing restrictions. Progress off walking aids as able once reaches FWB stage.
- **Gait Re-education**
- **Wean out of aircast boot** once patient is able to bear weight comfortably and provision of **plaster shoe** as appropriate, if patient unable to get into normal footwear
- **Exercises:**
    - Passive range of movement (PROM)
    - Active assisted range of movement (AAROM)
    - Active range of movement (AROM)
    - Encourage isolation of transfer activation without overuse of other muscles. **Biofeedback** likely to be useful.
    - Strengthening exercises of other muscle groups as appropriate
    - Core stability work
    - Balance / proprioception work once appropriate
    - Stretches of tight structures as appropriate (e.g. Achilles Tendon), **not of transfer**.
    - Review lower limb biomechanics. Address issues as appropriate.
- **Swelling Management**
- **Manual Therapy:**
    - Soft tissue techniques as appropriate
    - Joint mobilisations as appropriate ensuring awareness of those which may be fused and therefore not appropriate to mobilise
- **Monitor** sensation, swelling, colour, temperature, etc
- **Orthotics** if required via surgical team
- **Hydrotherapy** if appropriate
- **Pacing advice** as appropriate

Milestones to progress to next phase:

- Tendon transfer activating
- Full range of movement
- Mobilising out of aircast boot / plaster shoe
- Neutral foot position when weight bearing / mobilising

Failure to meet milestones:

- Refer back to team / Discuss with team
- Continue with outpatient physiotherapy if still progressing

Failure to progress

If a patient is failing to progress, then consider the following:

POSSIBLE PROBLEM	ACTION
Swelling	Ensure elevating leg regularly Use ice as appropriate if normal skin sensation and no contraindications Decrease amount of time on feet Pacing Use walking aids Circulatory exercises If decreases overnight, monitor closely If does not decrease overnight, refer back to surgical team or to GP
Pain	Decrease activity Ensure adequate analgesia Elevate regularly Decrease weight bearing and use walking aids as appropriate Pacing Modify exercise programme as appropriate If persists, refer back to surgical team or to GP
Breakdown of wound e.g. inflammation, bleeding, infection	Refer to surgical team or to GP
Transfer not activating	Start working in NWB gravity eliminated position with AAROM and then build up as able Biofeedback Ensure adequate analgesia as appropriate Ensure swelling under control as appropriate Ensure foot neutral when mobilising to avoid excessive shear. Consider orthotics referral via surgical team if unable to keep neutral Refer back to surgical team if no improvement
Numbness/altered sensation	Review immediate post-operative status if possible Ensure swelling under control

	If new onset or increasing refer back to surgical team or GP If static, monitor closely, but inform surgical team and refer back if deteriorates or if concerned