Gait Training a Patient who was Deaf with Multiple Total Hip Revisions: A Case Report

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Background

- 93% of patients who have a total hip arthroplasty (THA) are due to end-stage osteoarthritis.
- 15-30% of patients who survive a stroke continue to live with a long-term disability.
- The most common abnormal gait pattern after surviving a stroke is due to hemiparesis.
- Patients who are deaf require greater visual and tactile cueing during gait training.
- Gait training has been shown to normalize gait patterns and increase functional mobility in patients after a total hip replacement (THR), THA revision and/or stroke.
- There is a lack of research investigating the optimal gait training plan of care (POC) for a patient with a THR, THA revision, stroke and deafness.

Purpose

The purpose of this case report was to investigate a comprehensive PT POC for a patient who is deaf and had a THR, a THA revision and a subacute stroke.

Case Description

- 77 year old woman, deaf since 8 months old
- Admitted to a skilled nursing facility after a left THA revision with residual left hemiparesis
- Required to wear an abductor brace at all times, except for skin care
- Past medical history: osteoarthritis in left and right hip and lumbar spine, elective left posterior approach THA, 4 left hip dislocations, right arterial ischemic stroke, essential HTN, stenosis of left subclavian artery
- Initial evaluation showed: decreased bilateral lower extremity strength, increase in pain level at rest and with activity, decreased balance, decreased functional mobility
- Received PT for 60-70 minutes 6-7 times/week for 4 weeks

Interventions

Gait Training	Therapeutic Exercise	Therapeutic Activity	Neuromuscular Re-Education
Amb with FWW 25 ft to 300 ft, indoor/outdoor and even/uneven surfaces	Supine: SLR, pelvic bridging	Bed Mobility: sit to and from supine & bilateral rolling	Static & dynamic balance: seated progressed to standing in // bars then to FWW
Amb without AD with hallway railing 28 ft	Seated: LAQ, hip flex, hamstring curls with 2.5 #	Transfers: sit to and from stand, SPT with FWW	Dynamic balance training during gait: stepping over and around obstacles with FWW
Ascending/descending 3 – 6 inch steps with bilateral rails	Standing: (in // bars progressed to FWW) bilateral hip abd, flex, ext, heel raises, mini squats		
Amb up/down outdoor ramp & curb step with a FWW	Standing: side stepping utilizing hallway railing, 28 ft progress to 44 ft		
Amb with FWW around fixed objects in close proximity			

Amb = ambulation, AD = assistive device, FWW = front wheeled walker, SLR = straight-leg raise, LAQ = long arc quad, # = pounds for ankle weights, // = parallel, abd = abduction, flex = flexion, ext = extension, BOS = base of support, UE = upper extremity, SPT = stand pivot transfer, ft = feet

Figure 1: Timeline of treatment

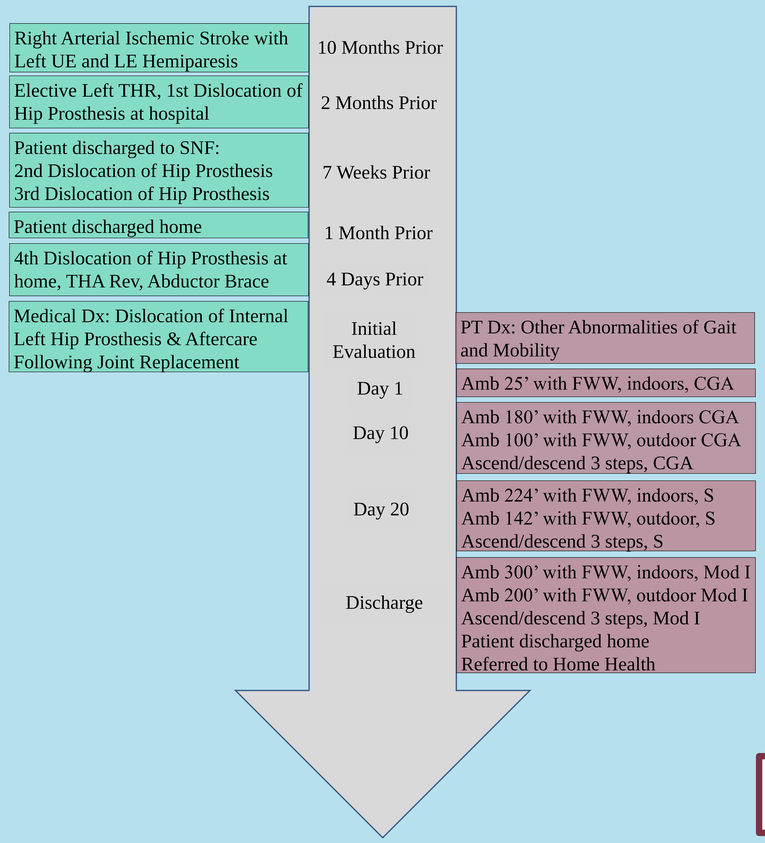

Figure 2: Patient wearing abductor brace

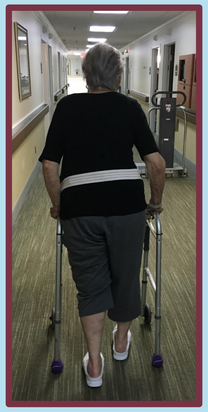

Figure 3: Patient walking with abductor brace using FWW

Outcomes

Functional Mobility:	Initial Evaluation:	Discharge:
Supine to Sit	Minimal Assistance	Modified Independent
Sit to Stand	Supervision	Modified Independent
Stand Pivot Transfer	Supervision	Modified Independent
Gait	20 feet with front-wheeled walker, contact guard assistance	300 feet with front-wheeled walker, Modified Independent
Stairs	Dependent, 0 steps	Modified Independent, 3 steps
Ramp	Dependent	Supervision
CARE Item Mobility Assessment	46/84	82/84
Manual Muscle Testing	Left lower extremity 2+/5	Left lower extremity 3+/5
Numerical Pain Rating Scale	2/10 left groin at rest 6/10 left groin with activity	0/10 left groin at rest 3/10 left groin with activity

Discussion

- The patient demonstrated improvements in strength, endurance, pain level, functional mobility and gait quality.
- The patient met all short and long-term goals which allowed her to return home.
- The patient seemed to benefit from a comprehensive PT POC which focused on gait training and tactile cueing with an abductor brace.

Conclusion

- A comprehensive PT POC which focused on gait training and tactile cueing with an abductor brace was effective for a 77 year old patient who had a THR, THA revision, and a subacute stroke.
- Future research on the combined PT management of THR, THA revision, subacute stroke and deafness in a larger population of older adults is recommended.

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