Return to Golf in a 71-year-old Female after a Mako Robotic-Arm-Assisted Unicompartmental Knee Arthroplasty: A Case Report

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Background & Purpose

- Knee osteoarthritis (OA) is the most common joint disorder in the elderly.[1]
- Unicompartmental knee arthroplasties (UKA) have been increasing in prevalence at a rate of 30% each year.[2]
- Robotic-arm-assisted UKAs increases the accuracy of implant positioning compared to traditional techniques which helps with a quicker recovery.[3]
- Little literature on UKAs, but total knee arthroplasty (TKA) interventions should focus on knee range of motion (ROM), strengthening, gait training, icing, and a home exercise program (HEP).[4]
- There are good outcomes for return to golf post TKA, but no information about UKAs.
- The purpose of this case report was to look at the impact of physical therapy (PT) on patient (pt) outcomes and return to golf following a Mako robotic-arm-assisted UKA.

Case Description

- 71-year-old female one-week s/p right (R) UKA with Mako robotic-arm-assist.
- OA in bilateral knees and ankles.
- Prior to surgery she lived independently and was active through golfing, gardening, and biking.
- Upon initial evaluation (IE) pt presented with decreased ROM, strength, patellar mobility, balance, and increased pain.

Incision

Figure 1: Note the unique superior and inferior incisions caused by the Mako robotic-arm-assisted surgery.

Timeline

Surgery & Home Health Day 0-7
- R UKA surgery performed
- Home Health PT IE and discharge

Week 1 and 2
- Outpatient PT IE & HEP initiated
- Strength and ROM exercises initiated
- Patellar mobilizations initiated

Week 3 and 4
- Pt fell through her deck
- Strengthening regressed
- Patellar mobilizations progressed
- Increased edema
- ROM continued

Week 5
- Pt fell while gardening
- Strengthening continued
- ROM and patellar mobilizations continued

Week 6
- Strengthening, ROM, and HEP progressed
- Balance and dynamic movement initiated

Week 7
- Balance and dynamic movement progressed
- Strengthening and ROM progressed

Week 8
- Pt self discharged from PT (9 weeks post operatively)
- Planned to play 9 holes of golf in 3 weeks (12 weeks post operatively)

Interventions

Figure 2: Supine active knee flexion with strap assisted overpressure

Figure 3: Single leg stance static balance

Therapeutic Exercise
- ROM
- Strength
- Dynamic Movements

Manual Therapy
- Patellar mobilizations

Neuro Re-Education
- Balance

Home Exercise Program
- ROM
- Strength
- Education

Figure 4: Tandem stance static balance

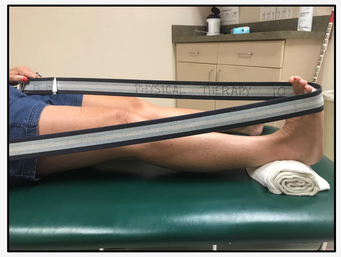

Figure 5: Supine calf stretch with focus on knee extension

Outcomes

Tests & Measures	Initial Evaluation Results	Discharge Note: 8 weeks
Numeric Pain Rating Scale (0-10)	Current: 2 Best: 0 Worst: 3	Current: 0 Best: 0 Worst: 2
Lower Extremity Functional Scale	31/80, 61.25% disabled	59/80, 26.25% disabled
Gait Analysis	Antalgic, lacking full R knee extension at heel strike, lacking proper heel strike and toe off, lacking hip extension, with toe out on right, and decreased stride length on R	Toe out on right side and lacking proper hip extension. Stride length equal with proper heal strike and toe off.
Goniometric AROM (knee extension-flexion)	R: 8-111 degrees L: 3-135 degrees	R: 3-126 degrees
Manual Muscle Testing	R hip flexion: 4/5 R hip abduction: 5/5 R hip adduction: 5/5 R knee flexion: 4+/5 R knee extension: 4/5 *mild pain with MMT R ankle dorsiflexion & plantarflexion: 5/5 L LE: all 5/5	R LE: all 5/5
Patellar Mobility	R patella superior, inferior, medial, lateral glides all hypomobile	Normal patellar mobility

Discussion & Conclusion

- This case report suggests that the combination of interventions used are beneficial to a patient following a UKA.
- Despite two falls that set her back during treatment the pt demonstrated improvements in all outcome measures upon self-discharge.
- Further research should be completed on UKAs to determine best practice when treating this population.
- Research should be directed at comparing long term outcomes and recovery times of UKAs versus TKAs.

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