Restoring Functional Mobility Following a Ruptured Abdominal Aortic Aneurysm: A Case Report
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Background & Purpose
• An abdominal aortic aneurysm (AAA) is a dilation of the abdominal aortic greater than three centimeters involving all layers of the vessel wall.
• There are two surgical options for treatment of AAA: open repair and endovascular aneurysm repair (EVAR).
• An endoleak is a complication following EVAR when blood leaks into the aneurysm sac.
• A type III endoleak occurs when there is a defect between parts of endografts causing an increase in the systemic pressure in the aneurysm sac.
• The purpose of this case report was to describe the physical therapy (PT) plan of care of an elderly patient following an open repair of a ruptured AAA with a history of EVAR.

280,000 AAA diagnosed each year in the U.S.
80% mortality rate for ruptured AAA
32% 30-day mortality rate after repair of ruptured EVAR
0.9% incidence of rupture following an EVAR

Case Description
• Retired 86 year-old female, lived independently with some assistance from family members and a housekeeper
• Suffered a fall six months prior, but returned home after hospitalization and rehabilitation
• Spent ten days in the hospital following open aortic biliac repair of ruptured AAA and explant of Endologix endograft with intraoperative resuscitation

Timeline
6 Years Prior
• Ventral hernia repair with mesh x4 and an EVAR with an Endologix device

10 Days Prior
• Sudden onset, severe back pain causing admission to hospital
• Diagnosed via CT scan with ruptured AAA
• Underwent surgical repair of ruptured AAA

Days 1-2
• Admitted to skilled nursing facility (SNF)
• Initial evaluation: manual muscle testing, Berg Balance Scale, Timed Up and Go, and functional mobility assessment completed

Days 3-9
• Interventions including: lower extremity strength training, gait training with and without an assistive device, and balance training

Day 10
• Progress note reassessment: manual muscle testing, Berg Balance Scale, Timed Up and Go tests completed

Days 11-12
• Interventions including: gait training with and without an assistive device
• Discharged from SNF to home

Outcomes

Test | Initial Evaluation | Discharge
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Timed Up and Go | 25.29 seconds | 16.74 seconds
Berg Balance Scale | 34/56 | 37/56

Strength via Manual Muscle Testing
![Graph showing muscle strength improvement]

Discussion & Conclusion
• At discharge, the patient displayed improvements in her lower extremity strength, and static and dynamic balance. These findings are consistent with the current literature that suggests using resistance and balance training following cardiac surgery in elderly patients.
• The primary take-away of this case report is PT interventions designed to address the specific impairments and goals of the patient following an open repair of ruptured AAA could potentially lead to improvements in both strength and balance.
• Due to the rarity of this specific case, large-scale studies are unlikely, however, there is a need for future research into the role of PT for this population in general.

Interventions
Gait Training
• Ambulating with a 2 wheeled-walker
• Ambulating without a 2 wheeled-walker
• Ambulating on various surfaces
• Ascending and descending stairs

Strength Training
• Supine leg strengthening exercises
• Seated leg strengthening exercises
• Standing leg strengthening exercises

Balance Training
• Static staggered stance
• Dynamic bilateral and unilateral stance and stepping over obstacles
• Dynamic reaching outside the base of support

References

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