

ACADEMY OF SPINAL CORD INJURY PROFESSIONALS



Spasticity-induced hip dislocation following hip hemiarthroplasty in a patient with tetraplegia



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Background

- Hip dislocation is the second most common complication following total hip arthroplasty.¹
- Posterior approach is the strongest risk factor for dislocation.²
- In the able-bodied population, dislocation rates following posterior total hip arthroplasty range between 2-5%.³
- There is little research regarding best practices for post-operative management of SCI patients.
- Maintaining postoperative precautions is recommended to minimize possibility of hip dislocation.

The Case

68-year-old male with C5 AIS D tetraplegia who sustained a right intertrochanteric femur fracture secondary to a fall and was initially treated with intramedullary nail (IMN) fixation at an outside hospital. The patient was subsequently discharged, then admitted to the VA Puget Sound SCI Unit for further management and rehabilitation.

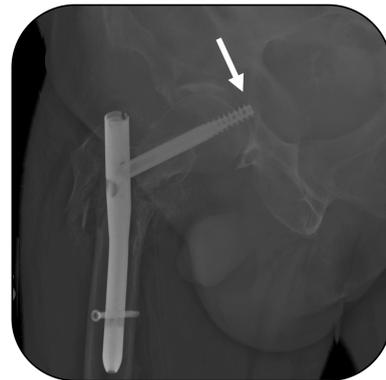
Discussion

- Given improved life expectancy⁴ and the relatively high incidence of femur fracture following SCI^{5,6}, it is possible that the frequency of hip hemiarthroplasty in SCI patients will increase in the future.
- In the SCI population, spasticity-induced dislocation represents a unique post-operative complication that should be considered when planning surgery⁷.
- In the future, investigating the role of pre-operative botulinum toxin to help combat anticipated spasticity may be of clinical interest.



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- On admission, patient with significant spasticity and spasms of the right hip flexors and adductors despite management with baclofen 20mg PO QID.
- Initial radiographs showed no obvious hardware fracture.



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- Patient continued to complain of frequent painful spasms. Patient declined additional antispasmodics.
- Repeat imaging revealed hardware failure secondary to migration of screw head into the acetabulum.



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- Underwent right hip hemiarthroplasty with Orthopedic Surgery using a posterolateral approach.
- Right posterior hip precautions were implemented (no flexion past 90 degrees, no adduction past midline, no internal rotation past neutral).



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- Despite use of hip abduction pillow and addition of methocarbamol 1,000mg PO BID and tizanidine 2mg PO QHS, patient continued to experience spasms of the right hip adductors.
- Repeat radiographs revealed superior dislocation of right hemiarthroplasty. Attempts at closed reductions were unsuccessful.

100 units of incobotulinum toxin injections administered to the right adductor group

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Underwent open reduction with Orthopedic Surgery

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Following incobotulinum injections, adductor spasms greatly reduced, no further complications.

References

1. Dabaghi A, Saleme J, Ochoa L. Evaluación y tratamiento de la luxación protésica de cadera [Evaluation and treatment of prosthetic hip dislocation]. Acta Ortop Mex. 2014 Mar-Apr;28(2):137-44. Spanish. PMID: 26040158.
2. Jobory A, Kärrholm J, Hansson S, Åkesson K, Rogmark C. Dislocation of hemiarthroplasty after hip fracture is common and the risk is increased with posterior approach: result from a national cohort of 25,678 individuals in the Swedish Hip Arthroplasty Register. Acta Orthop. 2021 Aug;92(4):413-418. doi: 10.1080/17453674.2021.1906517. Epub 2021 Apr 6. PMID: 33821752; PMCID: PMC8381924.
3. Martinet P, Blairon A, Putman S, Pasquier G, Girard J, Migaud H. Course of dislocated posterior hip arthroplasty: A continuous 232-patient series at a mean 10 years' follow up (range, 1-22 years). Orthop Traumatol Surg Res. 2018 May;104(3):325-331. doi: 10.1016/j.otsr.2017.10.017. Epub 2017 Dec 22. PMID: 29277516.
4. Savic G, DeVivo MJ, Frankel HL, Jamous MA, Soni BM, Charlifue S. Long-term survival after traumatic spinal cord injury: a 70-year British study. Spinal Cord 2017;55(7):651-658.
5. Gifre L, Vidal J, Carrasco J, Portell E, Puig J, Monegal A, Guanabens N, Peris P. Incidence of skeletal fractures after traumatic spinal cord injury: a 10-year follow-up study. Clin Rehabil 2014;28(4):361-369.
6. Frotzler A, Cheikh-Sarraf B, Pourtehrani M, Krebs J, Lippuner K. Long-bone fractures in persons with spinal cord injury. Spinal Cord 2015;53(9):701-704.
7. Frost G, Finlayson H, Saeidiborjani S, Lagnau P, Reebye R. Perioperative botulinum toxin injections to enhance surgical outcomes in patients with spasticity: preoperative, intraoperative, and postoperative case reports. Arch Rehabil Res Clin Transl 2021;3(1):100101.