# Not Your Typical Pain in the Butt: Superior Gluteal Mononeuropathy

Cole McDonald, MD, Claire Curtis, MD, Diane Braza, MD
Medical College of Wisconsin, Department of Physical Medicine & Rehabilitation, Milwaukee, WI

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## Background

- Differentiating pain in the low back and gluteal region is complex due to the overlapping innervation and referral patterns of surrounding osseous, intraarticular, ligamentous, myofascial, neural, and vascular structures.
- Superior gluteal mononeuropathy is a rare nerve entrapment historically associated with trauma such as pelvic fractures or hip dislocations, incorrect technique during intramuscular injections, and iatrogenic injury secondary to orthopedic procedures[1].

## Case Description

- An 83-year-old male with history of follicular lymphoma of the sacrum (1991) and left posterior ilium insufficiency fracture s/p left iliac osteoplasty under fluoroscopic guidance (2016) presented to PM&R clinic with left lumbosacral/gluteal pain and gait dysfunction.
- Previous workup had included MRI L-spine with multilevel spondylosis and mild-mod spinal stenosis at L3 and L4 in addition to EMG as outlined.
- Previous treatments had included multiple courses of physical therapy, left SI joint injection, and left gluteal trigger point injections without benefit.
- Pertinent medications included gabapentin 300 mg TID and oxycodone/APAP (5/325 mg) q6 hrs PRN

## Physical Exam

Inspection
- Comfortable in sitting, when performing sit to stand transitions uses arm to help push up out of chair.

Gait
- **Marked left Trendelenburg gait**
- Able to ambulate independently with 4-wheel walker

Palpation
- **Tender to palpation over left sciatic notch**, no tenderness over lumbosacral region, greater trochanter, or IT band

Neurologic Exam:
- Sensory: Bilateral sensory loss in stocking distribution in bilateral lower extremities
- Manual Muscle Testing - Left Lower Extremity:
  - **Hip Flexion 4/5**
  - **Hip Abduction 2/5**
  - Knee Extension 5/5
  - Knee Flexion 5/5
  - Ankle Dorsiflexion 4/5
  - Ankle Plantarflexion 5/5

Reflexes:
- Patella 1+ bilaterally, Achilles 0 bilaterally

Provocative Maneuvers:
- SLR negative at 70 degrees bilaterally, negative SI provocative maneuvers

## EMG Results

| EMG Summary Table | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | INSERTIONAL, SPONTANEOUS | | | | | VOL MOTOR UNIT POTENTIAL | | | | |
| Muscle | IA | PSW | Fib | Fasc | Other | Eff | Recrt | Amp | Dur | Poly |
| L. Tibialis Ant L4,5 | N | N | 0 | 0 | 0 | N | N | 1+ | 1+ | N |
| L. Gastroc Med S1,2 | N | N | 0 | 0 | 0 | N | N | 1+ | 1+ | N |
| R. Gastroc Med S1,2 | N | N | 0 | 0 | 0 | N | N | 1+ | 2+ | N |
| L. Tibialis Posterior L4,5 | N | N | 0 | 0 | 0 | N | N | 1+ | 2+ | N |
| R. Tibialis Posterior L4,5 | N | N | 0 | 0 | 0 | N | N | 1+ | 2+ | N |
| L. Ext Hall Long L5,S1 | N | N | 0 | 0 | 0 | N | SI- | 1+ | 1+ | 1+ |
| R. Ext Hall Long L5,S1 | N | N | 0 | 0 | 0 | N | 1- | 2+ | 2+ | N |
| L. Vastus Medialis L3,4 | N | N | 0 | 0 | 0 | N | N | N | N | N |
| R. Vastus Medialis L3,4 | N | N | 0 | 0 | 0 | N | N | N | N | N |
| L. Bic Fem SH L5,S1,2 | N | N | 0 | 0 | 0 | N | N | 1+ | 1+ | 1+ |
| R. Bic Fem SH L5,S1,2 | N | N | 0 | 0 | 0 | N | SI- | 1+ | 2+ | N |
| L. Iliacus L2,3,4 | N | N | 0 | 0 | 0 | N | N | N | N | N |

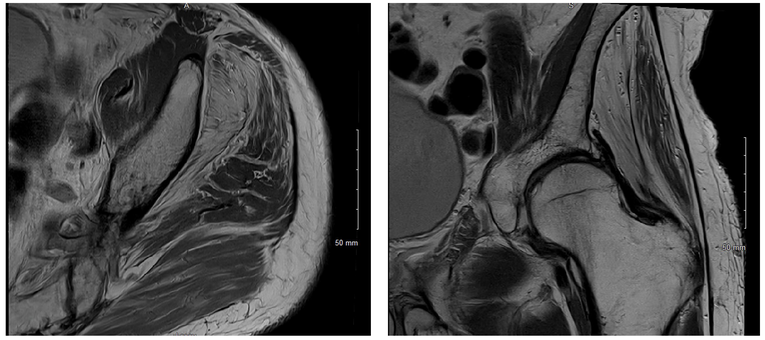
| EMG Summary Table | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | INSERTIONAL, SPONTANEOUS | | | | | VOL MOTOR UNIT POTENTIAL | | | | |
| Muscle | IA | PSW | Fib | Fasc | Other | Eff | Recrt | Amp | Dur | Poly |
| R. Iliacus L2,3,4 | N | N | 0 | 0 | 0 | N | N | N | N | N |
| L. Gluteus Med L4,5,S1 | Decr | Sust | 3+ | 0 | 0 | N | N | N | 1+ | 1+ |
| L. Gluteus Med L4,5,S1 | Decr | N | 0 | 0 | 0 | N | 4- | N | 4+ | 4+ |
| R. Gluteus Med L4,5,S1 | N | N | 0 | 0 | 0 | N | N | N | 1+ | N |
| L. Gluteus Max L5,S1,2 | N | N | 0 | 0 | 0 | N | N | 1+ | 1+ | 1+ |
| R. Gluteus Max L5,S1,2 | N | N | 0 | 0 | 0 | N | 1- | 1+ | 2+ | 1+ |
| L. Lower Lumbar PSP | N | N | 0 | 0 | 0 | N | N | N | N | N |
| R. Lower Lumbar PSP | Decr | N | 0 | 0 | 0 | fibrous | No MUPs | | | |

**Impression: History, Physical Exam, and Electrodiagnostic findings are suggestive of:**
1. A chronic, probably length-dependent, sensory-motor, axonal polyneuropathy, not inconsistent with this patient's history of exposure to vincristine in 1991 and 2013;
2. Mild, chronic, non-active, bilateral, right worse than left S1 radiculopathies;
3. A mild, chronic, non-active right L5 radiculopathy; and
4. **Extensive myofiber loss/replacement, focal fibrillation potentials, and focally severe chronic neurogenic changes in the left gluteus medias muscle, raising concern for a left superior gluteal mononeuropathy.**

## Treatment

- After evaluation, left hip MRI was ordered
- Differential diagnosis included gluteal muscle tear vs superior gluteal mononeuropathy vs L5 radiculopathy
- MRI revealed severe atrophy of gluteus minimus and mild atrophy of gluteus medius suspected to be secondary to left ilium osteoplasty completed in 2016.
- Treatment plan outlined included ongoing physical therapy focusing on hip abduction exercise to maintain muscle mass that remained, using adaptive equipment including his 4-wheeled walker to incorporate upper extremities more into gait, and pain medications.

## MRI Images




T1-weighted MRI sequences demonstrating severe fatty atrophy of the left gluteus minimus and mild fatty atrophy of gluteus medius

## Discussion

- This case describes a patient with superior gluteal mononeuropathy suspected to be secondary to iatrogenic injury during ileum osteoplasty.
- Although rare, superior gluteal mononeuropathy has been found to represent a commonly misdiagnosed etiology of gluteal pain, especially when paired with gait dysfunction[2].
- Careful correlation of the patient's history, physical examination, electrodiagnostic testing, and imaging findings ultimately localized the primary pain generator and source of weakness.

## References

1. Trescot AM. Superior gluteal nerve entrapment. In: Trescot AM, ed. Peripheral Nerve Entrapments: Clinical Diagnosis and Management. Springer: Cham; 2016:571–79.
2. Di Martino A, Brunello M, Giannini I, Morandi Guaitoli M, Di Censo C, Pilla F, Faldini C. A Nerve Injury After Total Hip Arthroplasty from Etiology to Treatment: A Narrative Review. J Clin Med. 2026 Jan 10;15(2):563.