Heterotopic Ossification in Neuroinvasive West Nile Virus: A Case Report

Anita Lowe Taylor, MD, Kara Flavin, MD
PM&R Section, Dept. of Orthopaedic Surgery, Stanford University

Case Diagnosis

This is the first reported case of bilateral hip heterotopic ossification (HO) in neuroinvasive West Nile Virus associated with Guiillan-Barre Syndrome (GBS).

Case Description

A healthy 58-year-old male developed fevers and rapidly progressive ascending paralysis while traveling in France during the month of August, culminating in severe weakness and neuromuscular respiratory failure. He was diagnosed with GBS and eventually found to be positive for WNV. After a complicated 7 week hospital stay, he completed 6 weeks of acute rehabilitation.

Six months after symptom onset, he presented to our PM&R clinic with presumed spasticity non-responsive to Baclofen. His exam was notable for tightness and decreased range of motion in his bilateral hip flexors/adductors and knee flexors, with absent reflexes. His restricted range of motion severely interfered with his ambulation and sitting positioning.

Hip radiographs showed extensive bilateral Brooker grade IV HO, and triple phase bone scan demonstrated osteogenically active HO surrounding the proximal femoral head and neck bilaterally.

After neurology consultation, the patient was deemed to have suffered from neuroinvasive WNV with a resultant inflammatory polyradiculopathy, mild thoracic myelitis with residual spasticity, and bilateral hip HO. He was treated with Alendronate, Celebrex, and single fraction radiation (8 Gy) to both hips to prevent further progression. He will be followed by bone scans every 6 months to evaluate HO maturity in preparation for resection per orthopedic surgery recommendations.

Imaging

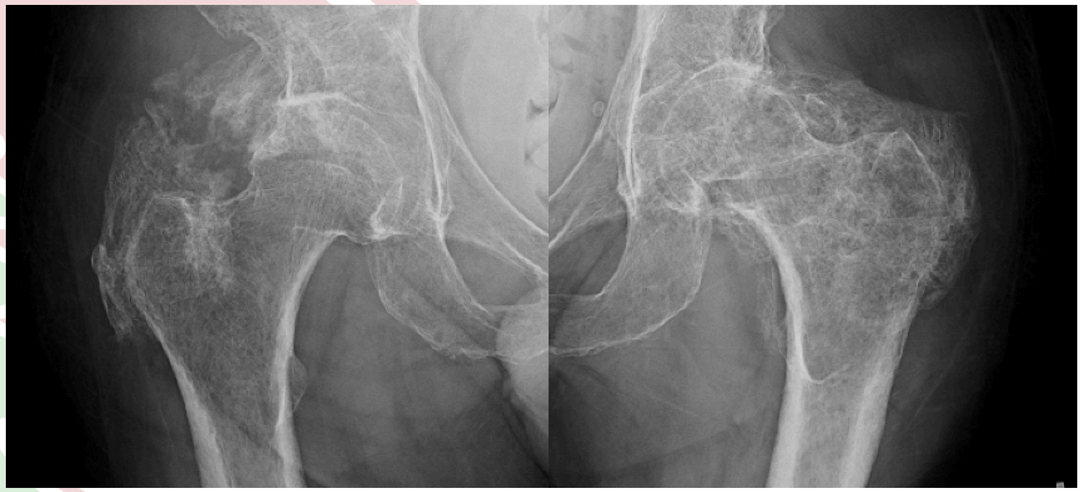

Figure 1. Pre-treatment radiographs of right and left hips are notable for bilateral Brooker grade IV heterotopic ossification.

Discussion

While HO is an established sequelae of spinal cord injury, traumatic brain injury, burns, and total hip arthroplasty, its prevalence in other neurologic conditions is less well known. It's estimated that HO at the hip may occur in up to 6% of patients admitted to acute rehab with GBS (1). To our knowledge, HO has never previously been reported in a case of neuroinvasive WNV.

Conclusion

This case highlights the importance of considering HO in patients with WNV, as this patient had already developed significantly decreased hip range of motion and functional limitations by the time of diagnosis.

References

1) Zeilig, G., Weingarden, H. P., Levy, R., Peer, I., Ohry, A., & Blumen, N. (2006). Heterotopic ossification in Guillain-Barré syndrome: Incidence and effects on functional outcome with long-term follow-up. *Archives of Physical Medicine and Rehabilitation*, *87*(1), 92–95. https://doi.org/10.1016/j.apmr.2005.07.308

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