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Reflexive Movement in Brain Death: Challenges on Clinical Exam

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A 49-year-old woman found in cardiac arrest at home was resuscitated after 30 minutes. Brain CT revealed diffuse anoxic injury. After 72 hours of targeted temperature management, brain stem examination, EEG, and apnea testing were consistent with brain death. However, with applied nail bed pressure on left hand, finger flexion was observed (Video,http://links.lww.com/WNL/B193). This movement was deemed a spinal cord-mediated reflex, not inconsistent with brain death.[1] No other spinal reflexes were observed. In a series of brain-dead patients, 13.4% had spinal reflexes elicited.[2] Recognizing the semiology of these reflexes can prevent delay in diagnosis and avoid family and physician confusion.

Teaching Slides-http://links.lww.com/WNL/B192

Video 1-http://links.lww.com/WNL/B193

References:

1. Khan Z, Newey CR, George P, Raber L. Finger Flexion to Noxious Stimulation in a Brain-dead Patient: A Case Report and Review of Literature. Cureus. 2018;10(11):e3622. Published 2018 Nov 22. doi:10.7759/cureus.3622
2. Dosemeci L, Cengiz M, Yilmaz M, Ramazanoglu A. Frequency of Spinal Reflex Movements in Brain-Dead Patients. Transplantation Proceedings 2004; 36: 17-19.

Legend:

Video 1. **Reflexive Movement in Brain Death: Challenges on Clinical Exam**
Finger flexion is observed after applied nail bed pressure. Other spinal cord mediated reflexes, not present in our patient, include limb flexion or extension, versive neck movements, triple flexion, and the potentially complex Lazarus sign.