中文題目：頸椎關節炎病患於頸椎損傷後引發神經性休克之案例分析

英文題目：Neurogenic Shock on a Patient with Cervical Spine Osteoarthritis after Cervical Spine Injury: A Case Analysis

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Introduction: The differential diagnosis of hypotension or shock status included of hypovolemia, hypoxia, heart pumping failure or arrhythmia episode, sepsis, anaphylaxis, cardiac tamponade, tension pneumothorax, and special drug or toxin. However, there is one kind of shock may be ignored and miss the golden time of treatment, it is neurogenic shock. Neurologic shock is usually found in patient with cervical spinal cord compression or injury, or carotid sinus compression. We will present a case that had underlying cervical spine osteoarthritis suffered from cervical spine injury.

Case report: A 82-year-old man with hypertension and cervical spine degenerated osteoarthritis suffered from motobike-car traffic accident on 2011/6/4 and was brought to our emergency room by ambulance. Initial GCS at ER: E3V1M4, and vital signs: BT: 37.9c, PR:48bpm RR:16bpm, Bp:57/32mmHg. Bloody rhinorrhea was noted and r/o CSF leakage, right periorbial ecchymosis was also noted, anterior cranial fossa injury presented as battle eyes was considered. One 4 cm laceration wound over chin region and another 3 cm laceration wound were also noted. Abdominal echo did not show obvious intra-abdominal free fluid. Brain CT showed nasal bone fracture, facial bone fracture, and C-spine CT showed C5-6 spinous process fracture without spinal cord involvement. Left patellar fracture and left femoral condylar and shaft complicated fracture was noted. Hemoglobin dropped was found and after blood transfusion and fluid support plus median dose dopamine use (5-10ug/min/kg), the blood pressure and heart rate became stable: SBP: 95-100mmHg and heart rate: 55-60/min. Neck collar was given for cervical spine protection. Intermittent epitaxis was noted and respiratory distress was found, and intubation for airway protection was preformed without ventilator support. However, several hours later, tetraplegia was noted and mild diaphragm paralysis was found by echography, cervical spine MRI showed cervical spine degenerative OA change with spurs and narrowed joints of the C3/4, C4/5, C5/6 and C6/7, complicated with spinal cord compression. Systemic steroid was given and laminectomy and discectomy, and then blood pressure and heart rate became stable on the next day after operation without any inotropic or chronotropic agent use. However, four limes weakness and dyspnea was still found.

Discussion: Neurogenic shock is one kind of shock, occasionally with bradycardia, that is attributed to the disruption of the autonomic nervous pathways within the spinal cord. Neurogenic shock may result from severe central nervous system injury or damage (cervical or high thoracic spinal cord

injury). Low blood pressure is caused by decreased systemic vascular resistance, and resulting in hemostasis within the extremities without sympathetic tone. Bradycardia is caused by increased vagal activity and may be found exacerbated by hypoxia and sputum suction. Initially, we considered the shock was caused by hypovolemia because of femur complicated fracture; however, bradycardia is unreasonable and almost impossible in such condition. Systemic steroid use and surgical intervention for spinal cord decompression should be considered if necessary. In our case, although the C5-6 spinous process fracture did not cause severe spinal cord compression, but preexisted cervical spine degenerative osteoarthritis with spurs may be exacerbated and injured the spinal cord after cervical spine contusion, which may cause neurogenic shock.

Conclusion: Early diagnosis of neurogenic shock is very important, because injury of central nervous system may be irreversible. Bradycardia should not be\found in patient with hypovolemia; spinal cord injury should be considered if unexplainable bradycardia was found in traumatic patients. Even if only small vertebral fracture was found by image study, we should not exclude the diagnosis of spinal cord compression, especially in elderly.