Charcot spinal arthropathy

Charcot spinal arthropathy (CSA) is an uncommon clinical entity following spinal cord injury (SCI). It is characterized by progressive cartilaginous and bony destruction and is felt to be due to loss of proprioceptive and nociceptive feedback from the spine. CSA is typically diagnosed many years following SCI and has the potential to lead to progressive neurologic decline if left untreated.

A 49-year-old male who fell approximately thirty feet from a ladder and sustained a fracture/dislocation at T3-4 and T8-9 resulting in a T4 ASIA A SCI. He underwent T2-T12 posterior spinal stabilization and, within 1 year and 2 months of initial injury, developed an unusual back protuberance, decreased spasticity, and change in bladder function. The patient's imaging and physical exam were consistent with CSA.

This case is notable in two respects. First, this is one of the earliest cases of CSA identified in the literature. Although CSA is generally considered a late complication of SCI, CSA should be placed in the differential for all individuals with spinal cord presenting with clinical findings typical of CSA. Second, this case was associated with unsupervised attempts to improve range of motion (ROM) in a SCI patient with a fused spine. The association of unsupervised stretching and CSA has not been previously described [1].

A 66-year-old man with a history of complete C7 quadriplegia presented with new-onset autonomic dysreflexia that resulted from Charcot spinal arthropathy (CSA). Pathologic instability, in the atypical site of the mid thoracic spine, spanning from the T8-T9 vertebral levels was appreciated on physical exam as an audible, palpable, and visible dynamic kyphosis; kyphosis was later confirmed on neuroimaging. Based on the CSA severity and sequelae, the patient underwent bilateral decompression laminectomy with lateral extracavitary arthrodesis and posterior instrumentation. Symptoms dramatically improved and at 1-year follow-up, dynamic thoracic kyphosis and most symptoms of autonomic dysreflexia had resolved.

Based on our case and published reports, vigilant imaging and thorough physical examination in long-standing spinal cord injury could help early diagnosis and treatment of CSA, theoretically preventing development of cord atrophy and subsequent long-term sequelae. Surgical correction rather than bracing may be recommended in patients who have complete injury at or above T6 in patients with symptoms of autonomic dysreflexia associated with CSA confirmed on neuroimaging [2].

References

1)
Abramoff BA, Sudekum VL, Wuermser LA, Ahmad FU. Very early Charcot spinal arthropathy associated with forward bending after spinal cord injury: a case report. Spinal Cord Ser Cases. 2019 Feb 14;5:19. doi: 10.1038/s41394-019-0162-3. eCollection 2019. PubMed PMID: 31240116; PubMed Central PMCID: PMC6461858.
2)
Gibson JL, Vuong SM, Bohinski RJ. Management of autonomic dysreflexia associated with Charcot spinal arthropathy in a patient with complete spinal cord injury: Case report and review of the

literature. Surg Neurol Int. 2018 May 29;9:113. doi: 10.4103/sni.sni_287_17. eCollection 2018. PubMed PMID: 29930879; PubMed Central PMCID: PMC5991269.