# Cord signal change (CSC)

An important finding of intrinsic pathology is the presence of increased signal in the cervical spinal cord on T2 weighted image, or cord signal change (CSC). This was first noted in the late 1980s and early 1990s [1) 2) 3)].

CSC is thought to represent pathological changes in the spinal cord detectable with histology that occur as a result of chronic compression [4)]. Many surgeons consider the presence of CSC indicative of advanced cervical spondylotic myelopathy (CSM), and a strong indication for surgical intervention. However, the significance of CSC for disease severity and prognosis remains controversial. Although several authors have shown that CSC is a reliable indicator of surgical outcome, [5) 6) 7) 8) 9)] others have not [10) 11) 12) 13)].

Results suggest that low intensity signal on preoperative T1 weighted image, but not T2-WIs correlated with poor postoperative neurological outcome. Furthermore, decreased signal intensity on postoperative T1-WIs and increased signal intensity on postoperative T2-WIs are predictors of poor neurologic outcome.

Despite the numerous studies examining the relationship of CSC with outcomes of both surgical and nonsurgical treatment of CSM, there have not been any studies examining specifically the relationship of physical examination findings with CSC.

CSC visualized on MRI correlates poorly with the upper extremity reflex examination in patients with cervical myelopathy. Of the pathological reflexes, Hoffmann's reflex has the strongest association with CSC, but still was only positive in 67% of cases. More sensitive clinical measures need to be developed to more accurately associate CSC detected on MRI to the clinical severity of cervical spondylotic myelopathy. [14)]

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