
Letters to the Editor

Dear Sir,

With regard to the paper 'Spinal cord injury in 44 patients with cervical spondylosis' by Dominic Foo, M.D. (*Paraplegia* 1986 24:301-306), their criterion of cervical spondylosis was defined as the presence of radiological evidence of osteophyte formation causing narrowing of the spinal canal or intervertebral foramina, seen in 44 male subjects. Patients with only slight degenerative changes of the spine were not included in this study. This does not fulfil the definition of cervical spondylosis as given by Brain *et al.* (1952), Pallis *et al.* (1954), and Brooker and Barter (1965) (narrowing of intervertebral disc spaces; anterior or posterior osteophytes; abnormalities in the articular surfaces of the neurocentral joints).

If a fresh definition is to be used which is not generally accepted, it should be explained why. In particular they talk of narrowing of the spinal canal. How was this narrowing determined, and what were the figures?

Cervical spondylosis can give rise to narrowing of the canal as the body of the cervical vertebra diminishes in height and increases in its horizontal diameter, thus impinging upon the canal, Braakman and Penning (1971) and Rothman and Simeone (1982). However, this acquired narrowing is only of a minimal degree, since it has been shown by Alexander *et al.* (1958), Payne and Spillaine (1957), and Burke (1971) that patients with narrowed cervical canals are particularly liable to injury, a finding that McMillan and Silver confirm in 75 patients with extension injuries of the cervical spine seen in the Liverpool Regional Paraplegic Centre between 1948 and 1967. We demonstrated narrowing of the canal in the majority of these cases by both direct and indirect measurements, in contrast with a control group with fracture dislocations, who did not have such narrowing.

I note that they have excluded patients with only slight degenerative changes of the spine. Did these patients also have narrowing of the canal? As the mean age of these patients, according to the study, was between 50 and 84, with an average of 65, the incidence of cervical spondylosis is high in the elderly, and one would expect patients of this age to have cervical spondylosis. The sample consists entirely of men. Why? Are the women in the U.S.A. devoid of this complication, or has there been selection?

Cervical fracture and subluxation was observed in 24 cases. It would be much more applicable to describe this as a series of spinal injuries in the elderly in which it would seem that cervical spondylosis was an accompanying feature, and not the cause of the cord injury.

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Reply from Dr Dominic Foo.

A copy of this letter was sent to Dr Dominic Foo who replied:

‘In this paper, cervical spondylosis was defined by the presence of radiological evidence of osteophyte formation causing narrowing of the spinal canal (Figure 1) or intervertebral foramina (Figure 2). This definition was an operational one for the purpose of selecting the patients who had or were likely to have spinal stenosis; this was also the reason why patients with slight or mild degenerative changes of the spine (Figure 3) were not included. Measurement of the sagittal diameter of the cervical spine from the posterior margin of the vertebral body to the junction between the laminae and spinous process for evidence of stenosis is reliable in patients with developmental stenosis. However, in patients with cervical spondylosis, there are two factors causing narrowing of the spinal canal: one is a static factor that could be developed by degenerative changes of the intervertebral discs and vertebral bodies, and the other is a dynamic factor induced by a pincers effect of the cervical vertebrae accompanying neck extension (Hanai *et al.*, 1986). Besides, myelography in these patients often reveals thickening and/or infolding of the ligamentum flavum (Peterson and Kieffer, 1975), causing narrowing of the spinal canal; myelography was not performed in many of our patients. For these reasons, measurement of the sagittal diameter of the cervical canal is not the most reliable method in detecting spinal stenosis in patients with cervical spondylosis; the sagittal diameter of the cervical canal in many of our patients was greater than 14 mm.

Spinal cord injury occurs in patients with cervical spondylosis (Hughes and Brownell, 1963; Symonds, 1953), often as the result of hyperextension trauma. Cervical spondylosis is common in the elderly individual but the degree of involvement of the spine varies from person to person. By excluding patients