Cervical spondylotic myelopathy: a complex problem where approach is patient dependent

Rob D. Dickerman · Ashley S. Reynolds ·
Matthew Bennett

Received: 1 November 2008 / Accepted: 18 October 2009 / Published online: 4 November 2009
© Springer-Verlag 2009

Dear Editor,

We read with interest “Surgical approach to cervical spondylotic myelopathy on the basis of radiological patterns of compression: prospective analysis of 129 cases” by Bapat et al. [1]. There are several studies attempting to elucidate the most appropriate approach in the treatment of myelopathic patients with multilevel cervical spondylosis [2–9]. Bapat et al. [1] divided the patients into four different categories based on the radiographic appearance of cord compression and basically analyzed the adage “treat anterior pathology anteriorly and posterior pathology posteriorly”. We found the study design appropriate for radiographic divisions of patients; however, it has been demonstrated that surgical outcomes in cervical myelopathy are dependent on more than just the approach. Several studies are worth the discussion: Yamazaki et al. [4] reviewed cervical myelopathy in patients of varying ages and determined that the preoperative radiographic transverse area of the spinal cord, at the level of maximum compression, may be a reliable predictor of recovery in both younger and elderly patient groups; furthermore the length of symptom duration was a significant factor in the elderly. A recent landmark study by Shamji et al. revealed that clinical myelopathy augments the rates of complication during cervical fusion, regardless of the approach. Shamji et al. [3] went on to state that “the exclusion of pathoanatomical data prevents any conclusions being

drawn about the merits and disadvantages of anterior versus posterior surgery”.

Posterior decompressive surgery for cervical myelopathy secondary to cervical spondylosis is strongly supported in the literature [2, 5–9]. Houten and Cooper [2] demonstrated that multilevel laminectomy and lateral mass fusion were associated with minimal morbidity, provided excellent decompression and precluded further development of spondylosis at fused levels in comparison to anterior surgery. We, along with other studies, reported years ago that dorsal migration of the spinal cord is often not appreciated by many surgeons and if one performs an adequate decompression, the spinal cord will migrate [7–9]. Levi et al. [8] performed extensive cervical laminectomies on patients suffering a central cord syndrome from spondylosis and demonstrated that the spinal cord does migrate dorsally after extensive laminectomy.

In closing, we support the study by Bapat et al. and found their results interesting, however, we want to caution the readers that might accept this generalized conclusion that “anterior approach is superior to posterior” based on the experimental design of four radiographic groups. Cervical myelopathy is very complex and outcomes are dependent on multiple variables. We are very strong advocates of posterior decompression with lateral mass fusions in patients with multilevel degenerative cervical spondylotic myelopathy and obviously approach each patient based on their individual pathoanatomy.

R. D. Dickerman
North Texas Neurosurgical Associates, Plano, TX, USA

R. D. Dickerman (✉) · A. S. Reynolds · M. Bennett
Neurosurgery Research Foundation of Texas,
6200 West Parker Road, Suite 1-503, Plano,
TX 75093, USA
e-mail: drrdd@yahoo.com

References

1. Bapat MR, Chaudhary K, Sharma A, Laheri V (2008) Surgical approach to cervical spondylotic myelopathy on the basis of

- radiological patterns of compression: prospective analysis of 129 cases. *Eur J Spine* 17:1651–1663
2. Houten JK, Cooper PR (2003) Laminectomy and posterior cervical plating for multilevel cervical spondylotic myelopathy and ossification of the posterior longitudinal ligament: effects on cervical alignment, spinal cord compression and neurological outcome. *Neurosurgery* 52:1081–1097
 3. Shamji MF, Cook C, Tackett S, Brown C, Isaacs RE (2008) Impact of preoperative neurological status on perioperative morbidity associated with anterior and posterior cervical fusion. *J Neurosurg Spine* 9:10–16
 4. Yamazaki T, Yanaka K, Sato H, Uemura K, Tsukada A, Nose T (2003) Cervical spondylotic myelopathy: surgical results and factors affecting outcome with special reference to age differences. *Neurosurgery* 52:122–126
 5. Kumar VG, Rea GL, Mervis LJ, McGregor JM (1999) Cervical spondylotic myelopathy: functional and radiographic long-term outcome after laminectomy and posterior fusion. *Neurosurgery* 44:771–777
 6. Epstein NE (2003) Laminectomy for cervical myelopathy. *Spinal Cord* 41(6):317–327
 7. Dickerman RD, Lefkowitz M, Epstein JA (2005) A traumatic central cord syndrome occurring after adequate decompression for cervical spondylosis: biomechanics of injury: case report. *Spine* 30(20):E611–E613
 8. Levi L, Wolf A, Mirvis S, Rigamonti D, Fianfaca MS, Monasky M (1995) The significance of dorsal migration of the cord after extensive cervical laminectomy for patients with traumatic central cord syndrome. *J Spinal Disord* 8:289–295
 9. Dickerman RD, Reynolds AS, Morgan BC (2007) Posterior decompression and fusion: dorsal migration of the spinal cord is the key! *J Clin Neurosci* 14:185–186