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Case Report

Rational Approach for a Case of Cervical Spondylotic Myelopathy-

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ABSTRACT

Cervical spondylotic myelopathy seems to be a process that results in spinal cord progressive compression and ischemia occurring with neurological injury. The option of surgical treatment for cervical spondylotic myelopathy remains controversial. The most widely used surgical choice has become anterior cervical discectomy and fusion to treat it. The anterior approach to compression of the cervical cord is associated with cervical spinal instability that involves cervical anterior discectomy and fusion. Decompression of the spinal cord and removal of the anteroposterior straightening and contortion of the cervical cord are the main goals of the surgical procedure in such situations. In this paper, we reviewed a case of an anterior cervical discectomy and mesh cage implant for cervical spondylotic myelopathy.

INTRODUCTION

The most critical result of cervical intervertebral disc degeneration is Cervical Spondylotic Myelopathy (CSM), particularly when related to a thin spinal canal because of laminar, dural, or ligamentous hypertrophy. It impacts the quality of life seriously and also contributes to disabilities for the aged population [1]. CSM is normally brought about by the narrowing of the cervical spinal channel because of degenerative and inherent changes [2,3]. Anterior Cervical Discectomy and Fusion (ACDF) for treating CSM has become the most broadly utilized surgical choice [4]. Among the foremost methodologies, ACDF can decompress the foremost spinal cord and protect the steadiness of the spinal column [5-7]; nonetheless, ACDF may have a high danger of deficient decompression, restricted visual presentation, and injury to the cord [8,9]. Symptoms might be tricky, progressive, and discontinuous for it. Certain factors, including the age of the patient, the length of indications, and the seriousness of myelopathy, are accounted for to impact extremely careful outcomes.

The beginning of cervical myelopathy is typically tricky. Its etiology is normally age-related degenerative spondylosis, henceforth the term Cervical Spondylotic Myelopathy (CSM). Calcification of the back longitudinal tendon, reformist cervical spinal deformation, cervical circle herniation, injury, and irresistible sore speak to more uncommon reasons for cervical myelopathy. In certain patients, side effects and signs progress in a steady process. Revealed periods of influenced patients are 20th to the 90th years, with the middle age during the 50s. These degenerative cervical spondylotic changes will in general happen over various cervical spinal levels, focused at the C5–C6 level. Due to this joined ventral/dorsal, frequently concentric spondylotic pathology, CSM may bring about spinal canal compromise, especially among patients with thin spinal trench anteroposterior diameters. The favored approach for surgical treatment of cervical myelopathy keeps on being debatable, as both foremost and back strategies have been utilized effectively. The essential objective of the careful administration of such cases is decompression of the spinal cord and disposal of the anteroposterior straightening and contortion of the cervical cord.

ANTERIOR CERVICAL DISCECTOMY AND FUSION

Anterior cervical discectomy and fusion take into consideration the expulsion of disc material and posterior osteophytes impinging on the spinal cord and nerve roots at disc space. Interruption of the disc space brings about indirect decompression of the foramen and trench to a differing degree and is trailed by the inclusion of a properly estimated bone join into the interspace. The benefits of this approach are the capacity to decompress the front spinal cord through a methodology along facial planes, the general protection of the steadiness of the spinal section. Anterior cervical discectomy and fusion require less presentation of the spinal cord, yet the diminished perception of the spinal cord may expand the danger of inadequate decompression of the cord. This process isn't suggested as the essential treatment for patients with extreme congenital canal stenosis as the general anteroposterior distance across the canal isn't expanded by the strategy.

CASE REPORT

A 54 years old male presented with progressive weakness in the left-sided body with tingling and numbness in all four limbs over 3 months.

He had neck pain for 6 years. On examination, Hoffman's sign was positive on both sides with hyperreflexia and extensor plantar response on both sides. The patient was a heavy worker, smoker, and hypertensive.

An extruded disc was removed from the left side of the same level (Figure 1,2). The patient underwent an anterior cervical discectomy and mesh cage implant for C5/6 spondylotic myelopathy (Figure 3,4) and he recovered well. He was ambulant over two weeks but there were persistent tingling and numbness.

Figure 1: MRI cervical spine showing disc prolapse at the C5/6 level.

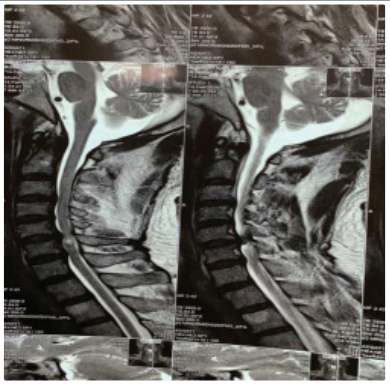

Figure 2: MRI cervical spine showing hyper intense lesion at C5/6 level.

Figure 3: X-ray cervical spine lateral view showing mesh cage at C5/6 level.

Figure 4: X-ray cervical spine AP view showing mesh cage inside C5/6 level.

DISCUSSION

The option of the surgical approach remains debated [10]. Descompression of the spinal cord can be done via anterior, posterior, or combined approaches, which have become a debatable subject of discussion in the surgery of spine. Because of its heterogeneity, a number of approaches and procedures are used, including ACDF, ACCF (anterior cervical corpectomy and fusion), cervical artificial disc, hybrid operations, as well as laminoplasty and posterior laminectomy [11,12]. But recently the anterior approaches are extensively applied for surgical treatment of CSM, which can directly decompress the spinal cord and nerve root due to discs herniation [13]. Operative intervention for cervical myelopathy has consistently been shown to improve the neurologic function of a high percentage of patients. Neurologic outcomes appear to improve to a similar degree, regardless of whether anterior or posterior techniques are utilized, provided the guidelines discussed earlier are taken into consideration. To demonstrate the efficacy of anterior cervical surgery in the treatment of CSM, the results achieved with surgery must be superior. The extended follow-up results in our case study gave quite a good outcome assessment of the operative results. In a study, the analysis showed that the research hotspots in recent years are cervical sagittal orientation, predictive factor, diffusion tensor imaging, and the natural history of CSM; the sagittal orientation is generally taken as the reference base for the measurement of the equilibrium condition of the cervical spine [14]. Risks incurred with the anterior approach to the cervical spine include stretch injuries to the recurrent laryngeal nerve, which produce hoarseness. Potential causes of CSM include posterior laminar, dural, or ligamentous hypertrophy, lateral osteophytic compression of feeding radicular vessels, and anterior osteophytic impingement upon the spinal cord [15]. The restricted viewpoint that only posterior or anterior surgery should be performed is unwarranted. Depending upon the patient, either method or both procedures at staged intervals may be indicated. The use of the operating microscope in radical removal of anterior cervical osteophytes eventually may improve outcomes. Despite widespread advocacy of surgery, little statistical evidence supports the contention that surgery improves upon the natural history or arrests the variable course of CSM. Such evidence requires a multidisciplinary, randomized, prospective assessment of cases of CSM. As with other types of spine surgery, the careful patient selection remains the cornerstone of good surgical results.

CONCLUSION

Cervical spondylotic myelopathy appears to be a mechanism that results in gradual compression of the spinal cord and ischemia with neurological damage occurring. The anterior approach to cervical cord compression is associated with cervical spinal instability requiring anterior cervical spinal realignment, reconstruction, internal fixation, and fusion. Spinal cord decompression procedures will halt the progressive process in selective patients and maximize the potential for neurological improvement. It can therefore be inferred that in professional hand such surgery would bring favorable results with good clinical performance.

REFERENCES

1. Kang L, Lin D, Ding Z, Liang B, Lian K. Artificial disk replacement combined with midlevel ACDF versus multilevel fusion for cervical disk disease involving 3 levels. Orthopedics. 2013 Jan;36(1):e88-94. doi: 10.3928/01477447-20121217-24. PMID: 23276359.
2. Hey HW, Hong CC, Long AS, Hee HT. Is hybrid surgery of the cervical spine a good balance between fusion and arthroplasty? Pilot results from a single surgeon series. Eur Spine J. 2013 Jan;22(1):116-22. doi: 10.1007/s00586-012-2486-6. Epub 2012 Aug 25. PMID: 22922801; PMCID: PMC3540319.
3. Shen C, Shen Y, Ding W, Zhang Y, Cao J. [Contrastive analysis of neck axial symptoms after hybrid surgery or traditional anterior cervical discectomy and fusion for treatment of two-level cervical disease]. Zhongguo Xiu Fu Chong Jian Wai Ke Za Zhi. 2013 Jan;27(1):58-61. Chinese. PMID: 23427494.
4. Lawrence BD, Brodke DS. Posterior surgery for cervical myelopathy: indications, techniques, and outcomes. Orthop Clin North Am. 2012 Jan;43(1):29-40, vii-viii. doi: 10.1016/j.ocl.2011.09.003. PMID: 22082627.
5. Fengbin Y, Jinhao M, Xinyuan L, Xinwei W, Yu C, Deyu C. Evaluation of a new type of titanium mesh cage versus the traditional titanium mesh cage for single-level, anterior cervical corpectomy and fusion. Eur Spine J. 2013 Dec;22(12):2891-6. doi: 10.1007/s00586-013-2976-1. Epub 2013 Sep 3. PMID: 24000074; PMCID: PMC3843776.
6. Umeda M, Sasai K, Kushida T, Wakabayashi E, Maruyama T, Ikeura A, Iida H. A less-invasive cervical laminoplasty for spondylotic myelopathy that preserves the semispinalis cervicis muscles and nuchal ligament. J Neurosurg Spine. 2013 Jun;18(6):545-52. doi: 10.3171/2013.2.SPINE12468. Epub 2013 Mar 29. PMID: 23540735.
7. Yang HL, Chen GD, Zhang HT, Wang L, Luo ZP. Open-door laminoplasty with plate fixation at alternating levels for treatment of multilevel degenerative cervical disease. J Spinal Disord Tech. 2013 Feb;26(1):E13-8. doi: 10.1097/BSD.0b013e31827844cd. PMID: 23075860.
8. Kode S, Gandhi AA, Fredericks DC, Grosland NM, Smucker JD. Effect of multilevel open-door laminoplasty and laminectomy on flexibility of the cervical spine: an experimental investigation. Spine (Phila Pa 1976). 2012 Sep 1;37(19):E1165-70. doi: 10.1097/BRS.0b013e31825e6251. PMID: 22614794.

9. Mitsunaga LK, Klineberg EO, Gupta MC. Laminoplasty techniques for the treatment of multilevel cervical stenosis. Adv Orthop. 2012; 2012: 307916. https://tinyurl.com/y42z369u

10. Li Z, Huang J, Zhang Z, Li F, Hou T, Hou S. A Comparison of Multilevel Anterior Cervical Discectomy and Corpectomy in Patients With 4-level Cervical Spondylotic Myelopathy: a Minimum 2-year Follow-up Study: Multilevel Anterior Cervical Discectomy. Clin Spine Surg. 2017 Jun;30(5):E540-E546. doi: 10.1097/BSD.0000000000000212. PMID: 28525475.

11. Asher AL, Devin CJ, Kerezoudis P, Chotai S, Nian H, Harrell FE Jr, Sivaganesan A, McGirt MJ, Archer KR, Foley KT, Mummaneni PV, Bisson EF, Knightly JJ, Shaffrey CI, Bydon M. Comparison of Outcomes Following Anterior vs Posterior Fusion Surgery for Patients With Degenerative Cervical Myelopathy: An Analysis From Quality Outcomes Database. Neurosurgery. 2019 Apr 1;84(4):919-926. doi: 10.1093/neuros/nyy144. PMID: 29741718.

12. Youssef JA, Heiner AD, Montgomery JR, Tender GC, Lorio MP, Morreale JM, Phillips FM. Outcomes of posterior cervical fusion and decompression: a systematic review and meta-analysis. Spine J. 2019 Oct;19(10):1714-1729. doi: 10.1016/j.spinee.2019.04.019. Epub 2019 May 7. PMID: 31075361.

13. Bapat MR, Chaudhary K, Sharma A, Laheri V. Surgical approach to cervical spondylotic myelopathy on the basis of radiological patterns of compression: prospective analysis of 129 cases. Eur Spine J. 2008 Dec;17(12):1651-63. doi: 10.1007/s00586-008-0792-9. Epub 2008 Oct 23. PMID: 18946692; PMCID: PMC2587678.

14. Yin M, Xu C, Ma J, Ye J, Mo W. A Bibliometric Analysis and Visualization of Current Research Trends in the Treatment of Cervical Spondylotic Myelopathy. Global Spine J. 2020 Sep 1:2192568220948832. doi: 10.1177/2192568220948832. Epub ahead of print. PMID: 32869687.

15. Suda K, Abumi K, Ito M, Shono Y, Kaneda K, Fujiya M. Local kyphosis reduces surgical outcomes of expansive open-door laminoplasty for cervical spondylotic myelopathy. Spine (Phila Pa 1976). 2003 Jun 15;28(12):1258-62. doi: 10.1097/01.BRS.0000065487.82469.D9. PMID: 12811268.