

# Anterior Cervical Option to Manage Degenerative Cervical Myelopathy



Zoher Ghogawala, MD

## KEYWORDS

• Anterior cervical discectomy and fusion • Cervical spondylotic myelopathy • Corpectomy

## KEY POINTS

- Anterior decompression and fusion surgery for degenerative cervical myelopathy (DCM) is ideal for patients with 2 to 3 levels of cervical stenosis with spinal cord compression.
- Multilevel anterior cervical decompression and fusion can be used to treat DCM in the context of cervical kyphosis.
- Dysphagia is a common and sometimes significant complication of anterior approaches to treating DCM.
- Anterior surgery for DCM may be less costly than posterior surgery and associated with greater health-related quality of life.

## INTRODUCTION

Degenerative cervical myelopathy (DCM) is the most common cause of spinal cord dysfunction in the world.<sup>1</sup> The condition presents insidiously and is defined in terms of its clinical symptoms (gait instability, bladder dysfunction, fine finger motor difficulties) and signs (hyperreflexia, weakness, alteration of joint position sense). DCM is caused by dynamic repeated compression of the spinal cord from degenerative arthritis of the cervical spine.<sup>2</sup> Proposed mechanisms include axonal stretch-associated injury<sup>2</sup> and spinal cord ischemia from compression of larger vessels and impaired microcirculation.<sup>3,4</sup> Surgery to decompress and stabilize the spine often is advocated for severe or progressive symptoms, with mixed results. Approximately two-thirds of patients improve with surgery, and surgery is not successful in 15% to 30% of cases.<sup>5</sup> More than 112,400 cervical spine operations for degenerative

spondylosis are performed annually in the United States (100% increase over the past decade),<sup>6</sup> with DCM accounting for nearly 20% of cervical spine operations in the United States.<sup>7</sup> Annual hospital charges for DCM surgery exceed \$2 billion per year.<sup>6</sup> In addition, DCM is associated with substantial postsurgical outpatient expenses (eg, physician visits, imaging, physical therapy, medications).

The surgical treatment of DCM is accomplished by either an anterior approach or a posterior approach in most cases. Decompression of the spinal canal to a diameter of at least 12 mm with restoration of cerebrospinal fluid pulsation around the spinal cord parenchyma is the goal regardless of approach. Remarkably, this has not changed over the past 50 years, although there has been greater usage of posterior cervical laminoplasty in the past decade. In some circumstances, both anterior and posterior approaches are used, particularly when a correction of cervical deformity

---

Disclosure Statement: The author has no relationship with any commercial company that has direct financial interest in the subject matter or materials discussed.

Department of Neurosurgery, Alan and Jacqueline Stuart Spine Center, Lahey Hospital and Medical Center, Tufts University School of Medicine, 41 Mall Road, Burlington, MA 01805, USA

E-mail address: [zoher.ghogawala@lahey.org](mailto:zoher.ghogawala@lahey.org)

Neurosurg Clin N Am 29 (2018) 83–89

<https://doi.org/10.1016/j.nec.2017.09.005>

1042-3680/18/© 2017 Elsevier Inc. All rights reserved.

is thought to be essential for addressing myelopathy. This article focuses on anterior approaches. There are essentially 4 types of anterior approaches:

- Anterior corpectomy and fusion
- Anterior cervical discectomy and fusion
- Multilevel oblique corpectomy without fusion
- Cervical arthroplasty

There is considerable debate about the advantages of anterior approaches to the cervical spine versus posterior approaches. In general, patients with 2 to 3 levels of cervical spondylosis with cord compression are ideal candidates for anterior surgery. In addition, patients with kyphosis are generally best treated with anterior surgery. Preoperative kyphosis greater than 13°, according to one study, is associated with poorer disease-specific outcome (measured using modified Japanese Orthopaedic Association [JOA]) when the posterior laminoplasty approach is used compared with an anterior approach.<sup>8</sup> In another study, patients with preoperative intramedullary signal changes on MRI had significantly greater improvement following ventral decompression compared with dorsal approaches.<sup>9</sup>

### ANTERIOR CORPECTOMY AND FUSION

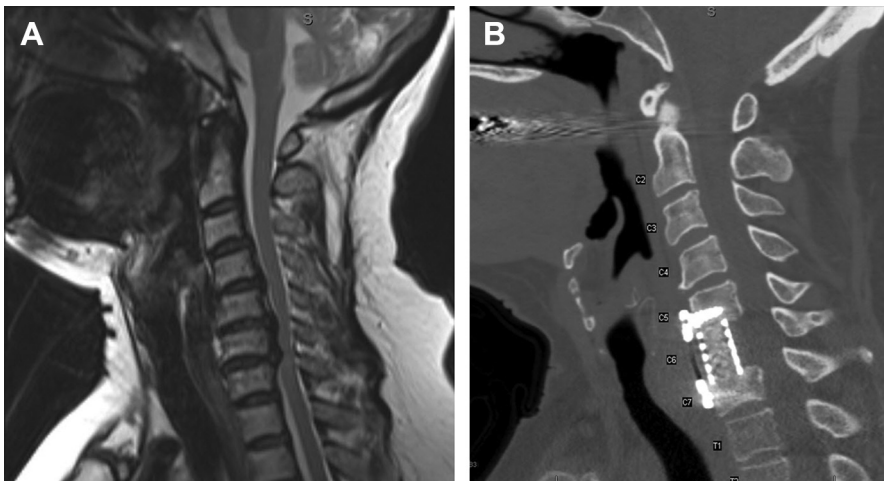
Corpectomy is an ideal surgical approach when there is significant ventral compression of the spinal cord from the dorsal aspect of the vertebral body that would not likely be addressed with discectomy above and below the vertebral body. An example of a patient with spinal cord compression

at the C5-C6 and C6-C7 level is shown in **Fig. 1** along with the postdecompression image showing anterior C6 corpectomy. The technique for performing anterior cervical corpectomy has been described by Cooper and others.<sup>10,11</sup>

Early experience with multilevel corpectomy and fusion for the treatment of multilevel cervical spondylosis was associated with significant complications. There were several reports of graft migration failures and associated fusion complications.<sup>12,13</sup> **Fig. 2** demonstrates an example of cage dislodgement with fracture of the rostral vertebral body just 3 months after anterior corpectomy. According to one study published in 1992, multilevel corpectomy was associated with a 29.3% rate of complications.<sup>14</sup> Many surgeons now back up an anterior corpectomy construct with multilevel posterior lateral mass fixation to “protect” the anterior construct (**Fig. 3**). Another viable option is the use of various hybrid anterior procedures that combine anterior corpectomy with anterior discectomy with fusion. This approach may reduce the number of corpectomies required and might augment overall stability, possibly reducing the need for a backup posterior fixation procedure.<sup>15,16</sup>

### MULTILEVEL ANTERIOR CERVICAL DISCECTOMY AND FUSION

Many surgeons use multilevel anterior cervical discectomy and fusion (ACDF) when there is multilevel cervical spondylosis and when the discosteophyte appears to be focal and therefore removable without corpectomy. Multilevel discectomy and fusion with plating has been described.<sup>17,18</sup> It is possible to remove significant



**Fig. 1.** (A) Preoperative sagittal T2-weighted MRI with ventral compression at C5-C6 and C6-C7. (B) Postoperative sagittal computed tomography (CT) reconstructed image showing anterior C6 corpectomy with cage placement with anterior cervical plating and fixation.

Download English Version:

<https://daneshyari.com/en/article/8690362>

Download Persian Version:

<https://daneshyari.com/article/8690362>

[Daneshyari.com](https://daneshyari.com)