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ISASS Policy Statement - Cervical Interbody

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Introduction

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In 2011, CPT code 22551 was revised to combine or bundle CPT codes 63075 and 22554 when both procedures were performed at the same site/same surgical session. The add on code +22552 is used to report each additional interspace. 2014 heralded a downward pressure on this now prime target code (for non-coverage?) 22551 through an egregious insurer attempt to redefine cervical arthrodesis, effectively removing spine surgeon choice and altering best practice without clinical evidence. Currently, spine surgeons are equally split on the use of allograft versus cages for cervical arthrodesis. Structural allograft, CPT code 20931, is reported once per same surgical session, regardless of the number of allografts used. CPT code 22851 which is designated solely for cage use, has a higher reimbursement than structural allograft, and may be reported for each inner space. Hence, the rationale behind why some payers wrongly consider "spine cages NOT medically necessary for cervical fusion." A timely consensus paper summarizing spine surgeon purview on the logical progressive evolution of cervical interbody fusion for ISASS/IASP membership was strategically identified as an advocacy focus by the ISASS Task Force. ISASS appreciates the authors' charge with gratitude. This article has both teeth and transparent clinical real-world merit.

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As we move to a more value-derived coverage analysis of surgical procedures, it is important to consider the changing definition of *value* and its impact on surgical innovation. Perhaps nowhere is this more apparent than in the evolution of anterior cervical discectomy and fusion (ACDF). While no one would argue that an ACDF has been a successful procedure since its inception over half a century ago, surgeons have continued to refine this technique in order to achieve the greatest success with the least patient morbidity. As such, it is this decision to not cover the use of cervical intervertebral cages in ACDFs that is so concerning to spinal surgeons. We appreciate the opportunity to present our comments on behalf of the International Society for the Advancement of Spinal Surgery (ISASS) and spinal surgeons everywhere, with the hope that this adverse decision will be reversed and coverage for this important technology will be maintained.

Anterior cervical discectomy and fusion remains the gold standard of treatment for patients with symptomatic cervical myelopathy and/or radiculopathy that is refractory to non-operative measures. As was recently shown by Lee et al, while the immediate relief of symptoms relies on a thorough decompression of the neurologic elements, long-term success of this procedure relies not only on successful arthrodesis, but also on the maintenance of disc and foraminal height.[1]

Even in its original description, Cloward emphasized the need for concomitant fusion at the time of the anterior cervical discectomy in order to prevent the possibility of developing late kyphosis from disc space collapse or radiculopathy secondary to foraminal narrowing.[2] At that time, and for several years to follow, anterior iliac crest autograft was used exclusively to achieve arthrodesis. Despite successful rates of fusion with the use of iliac crest autograft, suboptimal restoration of sagittal alignment and significant donor site morbidity led surgeons to seek alternative methods to further improve outcomes in patients undergoing this procedure.[3, 4]

The first major evolution in the technique to achieve intervertebral arthrodesis with decreased patient morbidity arrived with the advent of structural allografts. Several authors reported fusion rates that were at least equivalent to iliac crest autograft when structural allografts were used in conjunction with anterior cervical plating.[5] The use of structural allografts eliminated the concern of donor site morbidity with iliac crest autograft harvest. As the enthusiasm and adoption of structural allograft usage increased, anterior iliac crest autograft has been replaced by structural allograft as the gold standard.

As surgeons critically evaluated the usage of structural allografts in ACDFs, several areas of concern became apparent. Bradford et al. reported that while fresh frozen allografts provided the highest potential for successful fusion, the authors also raised the most significant concern for disease transmission.[6] Furthermore, Vaccaro et al noted that fresh-frozen allografts were available in limited shapes and sizes and at times required intraoperative alterations of the allograft to appropriately fit the disc space.[7] This intra-operative modification of the allograft increased operative time and the potential for wasting of grafts that were fashioned inappropriately at the time of surgery. From a systems perspective, fresh-frozen allografts must be stored in freezers that can result in an additional cost to an institution. Fresh-frozen allografts also require time to thaw and because the surgeon does not know the size of the graft until after disc space preparation and trialing are completed, this time is directly added to the overall length of the procedure.

In order to address some of the issues that are associated with fresh-frozen allografts, machined freeze-dried allografts were developed. While machined freeze dried allografts allow for more precise and predictable shape, the trade-off is a less biologically advantageous fusion environment.[6] Additionally, the structural dimensions of available allografts remains limited often resulting in inadequate endplate coverage increasing the likelihood for subsidence and non-union.[8] Additionally, the limited lordosis of structural allografts can result in focal and/or global cervical kyphosis that can be associated with postoperative neck pain, residual or recurrent radiculopathy, and the development of adjacent segment degeneration.[9] Lastly, there are a significant number of patients who will not allow allograft bone to be used secondary to religious beliefs regarding the utilization of cadaveric tissue.[10] Like their fresh-frozen counterparts, freeze-dried

allografts require intraoperative preparation. Specifically, due to their inherent brittleness freeze-dried allografts are often rehydrated after disc space preparation and trialing are completed. This step adds time to the procedure, but if it is not performed, the graft can fracture resulting in additional cost due to graft wastage.

In order to address the concerns with allograft usage and to continue to improve outcomes in ACDFs, surgeons are increasingly relying on the use of synthetic structural grafts.[11] Synthetic grafts, also known as cervical cages, can be made of a variety of different metal or plastic (PEEK) materials. Synthetic grafts can also be made in an unlimited number of shapes and sizes, allowing surgeons to place a structural graft in the intervertebral space that provides maximal endplate coverage and best restores focal and global cervical lordosis. Landriel et al recently confirmed that achieving maximal endplate coverage has been shown to reduce the incidence of subsidence, thereby maintaining long-term correction of intervertebral disc space height and foraminal dimensions minimizing recurrent foraminal stenosis as well as pseudoarthrosis.[12] Anatomic restoration of cervical lordosis results in improved sagittal alignment and the possibility of reduced incidence of symptomatic adjacent segment degeneration.[9]

Polyetheretherketone (PEEK) cages, which became available in the late 1990s, have been shown to reduce stress shielding and create less artifact on CT and MRI imaging.[13] Celik et al., in a study comparing PEEK to human bone graft in ACDF surgery, found improved maintenance of foraminal height and decreased subsidence with placement of a PEEK graft in the intervertebral space.[14]

It is important to consider that with the availability of improved intervertebral graft substrates, the surgeon's work in performing a successful ACDF has increased. Surgeons who utilize cervical cages tend to perform a wider discectomy and more precise endplate preparation. The use of an operating microscope and intraoperative fluoroscopy is often required to achieve the most optimal disc space height and anatomic alignment.

It is often said that the successful practice of medicine requires a lifelong commitment to learning. Nowhere is this more evident than in the treatment of cervical degenerative diseases. Qureshi et al. demonstrated that cervical radiculopathy and myelopathy result in significant disability and have a negative impact on an individual's quality of life and ability to function as a productive member of society.[15] Over the last half-century we, as surgeons, have continued to critically evaluate ourselves to provide the best possible solution to our patients for this debilitating problem. We continue to be our toughest critics and our patients' biggest advocates. As such, we continue to improve on one of the most common procedures we perform. In closing, it is our belief that having a policy that would inhibit the use of cervical cages in anterior cervical discectomy and fusion surgeries would have a negative impact on patient care and we advocate strongly for maintenance of coverage of this treatment option.

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Disclosures

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