

Treatment of Spinal Cervical Spondylosis with 'Uni-C' Device and Anterior Cervical Discectomy and Decompression Fusion

Sir,

Anterior cervical discectomy decompression fusion (ACDF) has evolved, progressing from initial simple underbody implantation to the current array of systems. These systems range from the unrestrained plate system requiring bicortical fixation to the more restrictive plate systems necessitating monocortical fixation, and finally to the hybrid locking plate system. This evolution has resulted in decreased surgical complexity and enhanced postoperative recovery for patients, establishing anterior cervical spine surgery as a prominent method for managing cervical spine disorders.^{1,2} Despite the widespread recognition of the ACDF technique, the conventional nail plate and cage approach has been extensively utilised in clinical settings. Through clinical application and observation, it has become apparent that the anterior plate, as an implant, poses certain complications. These complications include loosening and displacement of the plate, implant collapse, nail and plate fractures, excessive plate length leading to adjacent segment degenerative disease, and postoperative dysphagia.³ The 'Uni-C' device has demonstrated notable advantages in addressing these challenges. A detailed description of a case exemplifying the benefits of the 'Uni-C' device is provided below.

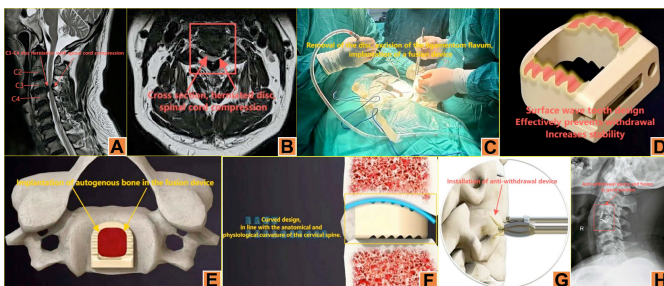


Figure 1: (A, B) The cervical spine magnetic resonance imaging (MRI) revealed the presence of a herniated disc at the C3-C4 level, along with notable compression of the spinal cord. (C) Intraoperative observations included herniation of the C3-C4 disc, thickening of the ligamentum flavum, and stenosis of the spinal canal. (D) The 'Uni-C' fusion device was utilised in the procedure. (E) Autologous bone graft was placed at the centre of the fusion device. (F) Subsequently, the fusion device was securely implanted in the space within the vertebral body. (G) An anti-withdrawal device was also implanted in conjunction with the fusion device. (H) Radiographic examination confirmed the appropriate positioning of the internal fixation device.

A 56-year gentleman was admitted to the medical facility due to persistent instability while walking in the lower limbs over a period spanning three years, with notable exacerbation evident in the last three months. Upon physical examination,

manifestations included gait instability, bilateral upper limb numbness, and diminished muscle strength in the lower limbs. Muscle strength was grade III in both lower limbs. An MRI performed on the cervical spine disclosed a herniated disc located at the level of C3-C4, with discernible spinal cord compression (Figure 1A, B). Following admission, the patient underwent a thorough examination of the cervical spine and subsequent excision of the lesion under general anaesthesia. Intraoperative observations revealed a herniated disc at the C3-C4 level, along with thickening of the ligamentum flavum and stenosis of the spinal canal (Figure 1C). The disc was meticulously removed along with the nucleus pulposus, while the thickened ligamentum flavum and adjacent tissues were excised using an electrocoagulation knife. Utilising the 'Uni-C' fusion apparatus (Figure 1D), an autologous bone graft was initially inserted at the core of the fusion device (Figure 1E), followed by implantation of the fusion device into the vertebral body space (Figure 1F), culminating in the placement of the anti-withdrawal device (Figure 1G). Within one day post-surgery, the patient reported a notable alleviation of symptoms. Subsequent x-ray imaging, conducted one month post-procedure, demonstrated proper alignment of the internal fixation device (Figure 1H), with the patient attesting to complete resolution of symptoms. Physiotherapy as well as rehabilitation exercises for at least three months were advised after surgery.

The comprehensive intervertebral accommodation technique effectively mitigates the incidence of postoperative dysphagia and heterotopic ossification of contiguous segments. Intraoperatively, the vertical tapping of the fixation clip is instrumental in preventing the bony occlusion of the mandible, sternum, and clavicle during the locking process. Furthermore, fine-tuned depth-limit adjustments at the millimetre level enhance the safety aspect of the procedure. The curved fixation clip, featuring an anterior chamfered design, facilitates easy insertion and ensures a dependable anti-withdrawal mechanism.

COMPETING INTEREST:

The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:

HL: Drafted, revised, and edited the manuscript.

WX: Conducted data collection, analysis, and interpretation.

ZZ: Performed data collection.

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