

Introduction

: Expandable titanium cages have gained popularity among spine surgeons during vertebral body reconstruction (VBR) procedures. Advocates of this technology tout their relative ease of sizing coupled with expansive options of modular footprints. Critics site potential limited space for bone graft and biologics and thus increased pseudoarthrosis rates. The goal of this study was to research the literature to better qualify and quantify the complications associated with the use of these cages in VBR, specifically looking at rates of implant failure and pseudoarthrosis

Methods

A literature review was performed on the National Medical Library via PubMed for articles discussing vertebral expandable cages, fusion rate and, complications. We used Medical Subject Headings (MeSH) when available, and limit our search from 1980 to March 2015; in order to include as much relevant information as possible three different search strategies were constructed. Additionally, manual search for references in relevant articles was also performed. We excluded case reports, literature reviews and technical notes

Results

A total of 372 articles were found in the different searches. From those, 47 articles were selected for full text review. Finally, 21 articles were included in our final analysis. These publications included a total of 765 cases. The overall fusion rate was 89.9% (Range: 17% to 100%). The most common section of the spine that needed an expandable cage was the thoraco-lumbar followed by the cervical spine. The mean follow up was 22.4 months (range: 9-22 months). Some case series reported up to 50% of complications but the etiologies were multifactorial. Nonetheless there was only 1 death related to the procedure (pneumonia). Specific complications from the cervical spine procedures where: dysphagia and hoarseness. Of the cases treated at the thoracic levels a pleural tear was the most common complication

Conclusions

Evidence derived from the available published literature indicates that the complications and pseudoarthrosis rates associated with the use of expandable cages for VBR are acceptable and comparable to static cages. The overall morbidity and complication profiles are more likely a reflection of the complexity of the disease pathology and approach

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of expandable cages in spine surgery, 2) Identify the most common complications after using expandable cages.

References

1.Arts MP, Peul WC. Vertebral body replacement systems with expandable cages in the treatment of various spinal pathologies: a prospectively followed case series of 60 patients. Neurosurgery. 2008;63(3):537-44; discussion 44-5.

2.Payer M. Implantation of a distractible titanium cage after cervical corpectomy: technical experience in 20 consecutive cases. Acta neurochirurgica. 2006;148(11):1173-80; discussion 80.

3.Kandziora F, Pflugmacher R, Schaefer J, Scholz M, Ludwig K, Schleicher P, et al. Biomechanical comparison of expandable cages for vertebral body replacement in the cervical spine. Journal of neurosurgery. 2003;99(1 Suppl):91-7