

Vertebral augmentation

Modern, minimally invasive [augmentation](#) techniques represent a real alternative to conservative treatment of patients with [vertebral fractures](#). Further technical and clinical development in this area should aim at optimizing procedural safety while continuing to achieve comparably good results to current methods. Minimizing damage to the remaining trabecular structures as well as to adjacent vertebral disks and vertebrae should be paramount of importance. Options for the treatment of vertebral fractures: Reductions in bone density and pathological changes in bone structure are associated with an elevated risk of fractures, which can lead to decisive functional impairment, pain, and a host of further comorbidities. Vertebral augmentation can be considered as an alternative conservative treatment, in order to achieve immediate and lasting pain relief as well as improvement in functional impairment. To achieve greater safety, instrumentation for transpedicular access and incorporation of radiopacifiers in PMMA for vertebroplasty were developed in mid-eighties. Balloon kyphoplasty was introduced in the end nineties, and results of prospective, randomized clinical studies have confirmed the safety and efficacy; the destruction of the remaining native spongiosa structures during balloon expansion is viewed as a disadvantage of this method. The two step method of cavity creation followed by cement delivery known as kyphoplasty has been further refined and developed by and varied by technology/procedural developments. This includes most the radiofrequency kyphoplasty (DFINE Inc., San Jose, CA, USA), in which ultrahigh-viscosity cement is delivered at a controlled delivery rate, following producing a bone sparing size and side specific cavity which minimizes loss of spongiosa, allowing for mechanical stability upon interdigitation of cement into that remaining trabecular bone. This combination has been shown to preserve vertebral structures and reduces the risk of leakages. Finally, systems have been available in which cement augmentation of implants to enhance mechanical stability of the implants or the overall fracture is constructed by load sharing ¹⁾.

see [Percutaneous vertebral augmentation](#).

¹⁾

Bornemann R, Koch EM, Wollny M, Pflugmacher R. Treatment options for vertebral fractures an overview of different philosophies and techniques for vertebral augmentation. Eur J Orthop Surg Traumatol. 2013 Jun 16. [Epub ahead of print] PubMed PMID: 23771597.

From:

<https://operativeneurosurgery.com/> - **Operative Neurosurgery**

Permanent link:

https://operativeneurosurgery.com/doku.php?id=vertebral_augmentation

Last update: **2018/12/06 07:48**

