Percutaneous vertebral augmentation

Techniques, such as vertebroplasty, kyphoplasty, and skyphoplasty, are minimally invasive imaging-guided procedures, which are popular treatment protocols for the management of vertebral osteoporotic fractures and osteolytic vertebral tumors (metastasis, myeloma, and hemangiomas).

These procedures result in significant pain relief in 70–90% patients, thus accounting for their increasing acceptance.

Percutaneous vertebroplasty, the commonest of these procedures, is performed by injecting PMMA cement under high pressure into the vertebral body.

This percutaneous techniques are performed under radioscopic control.

Indications

see Percutaneous vertebral augmentation indications.

Material

The selection of the material for vertebral augmentation depends on the surgical method. The material of choice remains polymethylmethacrylate (PMMA), and the best record of efficacy and safety is displayed by radiofrequency kyphoplasty with ultrahigh-viscosity cement. Regarding clinical efficacy and safety, there are many convincing documentations showing superiority of vertebroplasty and kyphoplasty in comparison with conservative therapeutic regimens. Initial results of clinical studies with additional implants indicate a trend toward further improvement in clinical success and suggest possible broader clinical possibilities of application.

Complications

May carry complications involving cement leakage, which range from asymptomatic damage to surrounding tissues and nerves to systemic complications such as compressions and pulmonary embolism [1) 2)].

Pulmonary cement embolism

see Pulmonary cement embolism

1)
Amar AP, Larsen DW, Esnaashari N, Albuquerque FC, Lavine SD, Teitelbaum GP. Percutaneous transpedicular polymethylmethacrylate vertebroplasty for the treatment of spinal compression fractures. Neurosurgery. 2001;49(5):1105–1115.
2)
Deramond H, Depriester C, Galibert P, Le Gars D. Percutaneous vertebroplasty with

polymethylmethacrylate: technique, indications, and results. Radiologic Clinics of North America. 1998;36(3):533–546.

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