

The Clinical Relevance of Cement Leakage Associated With Vertebroplasty

Brian B. Madison, MBBS, MMED, Emmanuel A. Andal Ubur, Hesham Ali Elsaid Elsaghir, Tarek Anwar Mahumd Elfeky

Purpose: Vertebral compression fractures (VCFs) are a common type of osteoporotic fracture. In these fractures, the height of the vertebral bone is lowered by at least 20% in the anterior, posterior, or central section or by at least 4 mm when compared to normal height. Percutaneous vertebroplasty and kyphoplasty are quickly gaining popularity due to being minimally invasive and the immediate pain relief after the procedure. Complications associated with vertebroplasty or kyphoplasty are mainly caused by cement leakage from the compressed vertebral body. This can result in pulmonary embolism, neurological impairment, paralysis, or death. The objective of this study is to report on the prevalence and location of cement leakage after vertebroplasty, and the clinical significance of cement leaking.

Methods: 36 consecutive patients who underwent vertebroplasty or kyphoplasty between January 2016 and January 2021 were included in the retrospective cohort study. Data collected in the study included patient demographics, physical and neurological examination findings, and pain intensity. Routine laboratory investigations and radiological imaging including radiographs, CT, and MRI scans were also recorded. Postoperatively, data on cement leakage were obtained based on radiographs and/or CT scans.

Results: Cement leakage occurred in 80% of all cases. 34.5% occurred in vertebroplasty alone while 65.5% occurred with vertebroplasty and instrumentation procedure. Neurological impairment affected 10.3% of patients who experienced cement leakage. 6.9% of the patients with cement leakage developed pulmonary embolism

Conclusion: Percutaneous vertebroplasty is a promising emerging treatment. It results in pain relief and stabilizes the spine in the majority of patients with spine fractures resulting from trauma, osteoporosis, or metastatic disease. Cement leakage is a common complication following vertebroplasty, and according to literature, the impact of the leakage is negligible. Although severe consequences are a possibility, the benefits of pain reduction outweigh the risks.