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Augmentation of fenestrated pedicle screws with cement in patients with Osteoporotic Spine

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Background: Pedicle screws are widely used for spine stabilization in the elderly, as they enable easier and faster recovery in different conditions. However, failures due to screw loosening or backing out are becoming a major cause of morbidity in the elderly because of their poor bone quality.

Purpose: This study aims to evaluate the use of fenestrated pedicle screws augmented with cement in patients with osteoporosis.

Study Design: A retrospective observational study.

Patients and Methods: From May 2015 to January 2016, 25 patients with a poor bone stock condition underwent posterior fixation by fenestrated pedicle screws and cement augmentation. Assessment of pain improvement was done by visual analogue score (VAS) score while the long-term clinical outcome was assessed using Oswestry low back disability questionnaire (Oswestry disability index [ODI]). Implant stability was evaluated by plain radiography. Complications were evaluated in all cases.

Results: All patients were followed up clinically and radiographically for a mean time of 24.84 months. There was a significant reduction in pain and improvement of the quality of life as detected using VAS scores and ODI questionnaire consecutively ($P < 0.001$). No radiological loosening or backing out of screws was observed. Cement leakage occurred in five cases with no complications, no clinical relevance.

Conclusion: Augmentation of fenestrated screws with cement provided effective and lasting purchase in patients with osteoporosis. The only clinical complication strictly related to this technique was cement leakage.

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