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Cement-Augmented Direct Anterior Screw Osteosynthesis of the Odontoid Fracture in Elderly Patients

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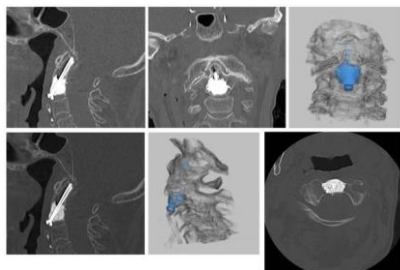
Cement-augmented direct anterior screw osteosynthesis is an effective technique for treating odontoid fractures in elderly patients, particularly type II fractures common in this demographic due to osteoporosis and low-energy falls. This approach enhances fixation stability, reduces failure risks, and preserves cervical spine mobility compared to alternative surgical methods.

In a 12-year retrospective study (2012–2023) involving 44 patients (mean age: 81.3 years), cement augmentation was used in 47% of cases. The median surgery duration was 84 minutes, shorter than non-augmented procedures (104 minutes). Fusion was achieved in 69% of patients, with stable fixation observed in 92%, even when fusion was incomplete. Pain levels improved significantly (VAS 6.9 preoperatively to 2.0 at six months), and 90% of patients returned to their original activities within six months.

Complications included cement leakage in 47% of cases, mostly asymptomatic, and four early postoperative deaths (9%) due to severe comorbidities. Compared to posterior C1-C2 fusion, cement augmentation reduced operative time and blood loss while preserving mobility. It also lowered the pseudoarthrosis rate from 50% (non-augmented) to 25%, minimizing the need for revision surgeries.

Despite limitations, such as cement leakage and retrospective study design, this technique is now the preferred method for type II odontoid fractures in the authors' department. Cement-augmented anterior screw osteosynthesis offers a promising balance of safety, efficacy, and functional preservation for elderly patients, addressing both mechanical and quality-of-life considerations.

Fig. 1



F 82, simple fall, dens fx. C2, type II, post-operative CT scans