

Posterior vertebral column resection

Cancer is one of the leading causes of death and greatly decreases a patient's [quality of life](#). [Vertebral metastases](#) often lead to epidural [spinal cord compression](#) (ESCC) requiring surgical therapy. It has previously been shown that in patients with metastatic ESCC (MESCC), a surgical [intervention](#) leads to an improved [outcome](#). Although the [spinal metastases treatment](#) paradigms have changed and separation surgery followed by [stereotactic radiosurgery](#) is considered the best strategy, there are still cases in which [spinal metastases surgery](#) by 360° [decompression](#) with [stabilization](#) is indicated. In these patients, a proper bone fusion should be the treatment goal to guarantee good clinical results in extended [survival](#) times through progressions in oncological therapies. The aim of a study of was to examine the safety and feasibility of posterior vertebral column resection (pVCR) in everyday clinical practice, achievement of bone fusion, and midterm outcome in patients with MESCC.

Methods: All patients treated with pVCR due to MESCC between 2013 and 2020 were enrolled in this observational single-center study. Demographics, outcome parameters, numeric rating scale (NRS) score, Frankel grade, and Karnofsky Performance Scale (KPS) score were evaluated. Radiological images routinely acquired during follow-up were reviewed and screened for the presence of bone fusion.

Results: Sixty-six patients were treated by eight surgeons. The mean follow-up period was 549 ± 739 days. At baseline, the average age was 64.4 ± 10.9 years. Reported NRS scores (preoperative 6.2 ± 1.7 vs postoperative 3.4 ± 1.6) and segmental kyphosis as measured on sagittal CT images (preoperative $13.5^\circ \pm 8.6^\circ$ vs postoperative $3.8^\circ \pm 5.4^\circ$) decreased significantly ($p < 0.001$). In only 2 patients (3%), the Frankel grade worsened postoperatively, whereas in 12 patients (18.2%) an improvement was documented. The KPS score remained constant during the observation period (preoperative $73.2\% \pm 18.2\%$ vs $78.3\% \pm 18\%$ at last follow-up). Bone fusion was observed in 26 patients (86.7%) receiving CT more than 100 days after the index surgery.

Conclusions: pVCR is a reliable surgical technique in daily clinical practice, which proves to be beneficial in terms of short- as well as midterm outcome, as judged by the KPS and NRS. The overall improvement in the Frankel grade shows patient safety. A bone fusion was observed regularly in oncological patients undergoing pVCR. The authors therefore conclude that pVCR is a safe, fast, and efficient strategy to achieve stability and pain relief by achievement of bone fusion in cancer patients

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The aim of a study was to evaluate the efficacy and safety of modified [posterior vertebral column resection](#) (PVCR) combined with [anterior column restoration](#) in [elderly patients](#) presenting with thoracic or thoracolumbar [osteoporotic vertebral compression fracture](#) with [spinal cord compression](#) and severe [pain](#).

109 patients with one level thoracolumbar osteoporotic fracture and at least 5 years of follow-up were included. They underwent [posterior instrumentation](#) performed with [PMMA](#) augmented [pedicle screws](#). A modified PVCR (unilateral [costotransversectomy](#)+[hemilaminectomy](#)) combined with the insertion of an expandable [titanium cage](#) for anterior column restoration was undertaken. Patients were evaluated clinically and radiographically.

Patients had a mean age of 74.1 and a follow-up duration of 92.3 months. Mean duration of operations, hospital stays, and mean loss of blood were detected as 172.3 minutes, 4.3 days, and

205.4mL. All of the patients were mobilized immediately after surgery. The mean pre-operative local kyphosis angle improved from 39.3° to 4.7° at the last follow-up ($p=0.003$). Patients' pre-operative mean VAS, JOA, and ODI scores improved from 7.7/8.6/76.3 to 1.6/26.1/17.4 ($p<0.001$ for all), respectively. The average SF-36 MCS/PCS scores at the last follow-up were 55.1/56.8. A dural tear was detected intra-operatively in one patient and repaired immediately.

Subtotal PVCR combined with the insertion of an expandable titanium cage was detected as a safe and effective method for osteoporotic vertebrae fractures' sequelae in the elderly population involving spinal cord compression, by enabling the decompression of the [spinal canal](#) and reconstruction of the resected segment, resulting in significant improvement in clinical and radiographic outcomes ²⁾

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