

## Surgical therapy of vertebral metastases. Are there predictive parameters for intraoperative excessive blood loss despite preoperative embolization?

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### ABSTRACT

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**Aims and background.** Preoperative embolization of vertebral metastases has been shown to lower intraoperative blood loss. Nevertheless, excessive up to life-threatening blood loss can occur despite embolization. We therefore decided to evaluate possible parameters for predicting significant blood loss in a surgically homogeneous group of patients with vertebral metastases.

**Methods.** Patients with vertebral metastases of the thoracic and thoracolumbar spine who underwent preoperative embolization were included. All patients had existing or impending neurological deficit as the main indication for direct metastasis reduction. The parameters evaluated were the technical feasibility of embolization, vascularization grade of metastasis, success of embolization, tumor type in relation to blood loss, and interval between embolization and surgery.

**Results.** Twenty-seven patients fulfilled the inclusion criteria. Technically complete embolization was feasible in 14 patients (52%) and fully successful embolization was obtained in 10 patients (37%). Eighty-three percent of the renal cell carcinomas were hypervascularized, but also 67% of the breast carcinoma patients had hypervascularized tumors. No permanent complications occurred during embolization, but two patients had pain and another two experienced a transient burning sensation. A significant difference in intraoperative blood loss was only found between patients achieving partially or fully successful embolization in the subgroup of hypervascularized grade III metastases.

**Conclusions.** The success of embolization in the group of hypervascularized grade III metastases was the only predictor for the extent of blood loss in our study. Due to the inaccuracy of predicting high blood loss in general all possible precautions for excessive blood loss should be taken despite preoperative embolization. Further randomized studies to determine the indications and results of embolization seem desirable. Free full text available at [www.tumorionline.it](http://www.tumorionline.it)

**Key words:** preoperative embolization, vertebral metastases, blood loss.

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