

### Introduction

Resection of hypervascular spinal tumors is often accompanied by significant intraoperative blood loss (IBL). Current literature supports superselective angiography and preoperative embolization prior to operative resection. Although these adjuvant therapies have significantly reduced IBL, current literature still reports an average of 2.1 L of blood loss despite today's standard therapy. In an effort to reduce blood loss and subsequent complications, this case series introduces novel percutaneous vertebroplasty (NPV), in addition to embolization, as a means to curtail blood loss during corpectomy for vascular spinal tumors.

### Pre-operative CT of Vascular Tumor



### Methods

Retrospective review of six patients who underwent NPV with or without feeding artery embolization prior to partial or complete corpectomy for the resection of vascular spine tumors at one institution from December 2013 to February 2016. Blood loss was measured for each patient and compared to the literature for those who underwent standard arterial embolization prior to surgery.

### Pre-operative Embolization of Tumor



### Results

Six patients underwent NPV, five renal cell carcinoma and one patient with hemangioma. Complete corpectomy was planned in four of the six patients, while the remaining two underwent partial corpectomies. All patients received standard embolization prior to surgery. There was one vascular injury during an anterior approach and this patient was excluded from the analysis.

The mean estimated blood loss for five patients was 1180 mL, with only one multi-level (T6-T8) case requiring blood transfusion (8 L).

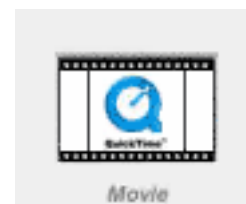
For the single-level corpectomies, the estimated blood loss ranged from 50 to 3900 mL with a mean of 500 mL. Of those in whom single-level corpectomy was planned, one patient required lumbar corpectomy with blood loss of 100 mL and three required thoracic corpectomies with mean blood loss of 633 mL.

### Post-Operative CT



### Conclusions

Percutaneous vertebroplasty prior to spinal tumor removal provides acceptable results, holds the potential to reduce operative blood loss and resultant surgical morbidity.



### Learning Objectives

- 1) Understand the significance of vascular spinal tumors and associated surgical complications, including blood loss;
- 2) Identify current preoperative blood loss prevention methods and the need for advancement; and
- 3) Discuss the benefits of preoperative percutaneous vertebroplasty to further curtail intraoperative blood loss.

### References

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