Radiculomedullary artery

The radiculomedullary artery represents the arteries that contribute to supply the spinal cord over several spinal segments (the radiculomedullary artery may be called the radicular artery [1] inclusively or the medulary artery [2] [3].

Preoperative endovascular embolization of hypervascular metastatic spine tumors can reduce intraoperative blood loss. One frequent objection to embolizing these tumors is the concern for associated arteries feeding the spinal cord, such as the artery of Adamkiewicz. This study aimed to elucidate a relationship between spinal levels affected by hypervascular spine metastases and associated radiculomedullary arteries (RMAs).

Retrospective review of 46 patients undergoing preoperative embolization of hypervascular metastatic spine tumors. 484 spinal levels were evaluated by diagnostic spinal angiography during embolization procedures. Each spinal level was categorized based on presence or absence of tumor and RMA.

No statistically significant associations were found. Relative risk of affected spinal levels having an associated RMA was 1.10 (95% CI 0.66-1.85). Attributable risk was 0.01 (-0.01-0.02). Chi-squared statistic was 0.13, with p-value of 0.7. Subgroup analysis in renal cell patients was also statistically insignificant, with a relative risk of 0.97 (95% CI 0.43-2.16), Chi-square statistic 0.01, p-value 0.94. 32 patients (69.6%) had an RMA identified on their regional angiogram. 17 patients (37%) had an RMA at an embolized level.

In this study, no association was found between spinal levels affected by hypervascular metastatic spine tumors and RMAs feeding the spinal cord by diagnostic spinal angiography. This suggests that these tumors have little intrinsic affinity for spinal levels with an RMA. However, given that tumor embolization frequently requires accessing multiple levels, the risk of encountering an RMA during embolization remains significant [4].

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