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Microscopic thrombi in glioblastoma multiforme do not predict the development of deep venous thrombosis.

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Patients with glioblastoma multiforme (GBM) are known to be at risk for hypercoagulable events. Tumoral intravascular thrombi likely contribute to the development of hypoxia and necrosis. The purpose of this study was to assess whether there is a relationship between the number of thrombi identified microscopically at the time of tumor resection and the subsequent development of extremity deep venous thrombosis (DVT). A retrospective review of 96 patients (53 men and 43 women; age range, 21-92 years; mean age, 60.2 years) with GBM (World Health Organization grade IV) was carried out. Thrombi were counted (number of thrombi/blood vessels evaluated/10 high-power fields) in nonnecrotic areas of the resected tumor and correlated with a variety of clinical and pathological parameters, including the development of postoperative DVT, as detected by extremity ultrasound. Thrombi were identified in the resected GBM in 66 (69%) patients. Of the tumors with thrombi, the percentage of blood vessels with thrombi ranged from 1.1% to 42.9% (mean, 10.7%). Deep venous thrombosis was discovered in 30 (31.3%) patients. There was no correlation between the number of microscopic thrombi and the development of DVT. Eighty-one patients died of tumor (survival, 1-66 months; mean, 11.0 months), 12 patients were alive at last known follow-up (mean, 23 months), and 3 patients were lost to follow-up. Of patients with DVT, 27 patients died of tumor (survival, 1-47 months; mean, 11.0 months), 3 patients were alive (18, 20, and 21 months), and 1 patient was lost to follow-up. There was no correlation between the number of microscopic thrombi and the percentage of resected tumor that was necrotic (range, <5%-90%), presence of palisaded necrosis (36.8% of tumors), presurgical (mean, 78.3) or postsurgical (mean, 75.5) Karnofsky performance scores, or survival (mean, 8.9 months in patients with no microscopic thrombi vs 11.5 months in patients with thrombi). Microscopic thrombi were identified in about two thirds (69%) of patients with GBM, and DVT developed in about one third (31.3%) of patients with GBM. There was no correlation between the number of microscopic thrombi and the subsequent development of DVT in patients with GBM. Patients who developed DVT did not appear to have a worse survival.

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