Thalamic tumor surgery

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Surgical treatment of adult thalamic tumors must be individualized according to tumor location. Lowgrade tumors and total/subtotal resection seem to be predictors of better surgical outcomes. Nevertheless, the outcome of adult patients were still worse than pediatric patients ¹⁾

The incidence of postoperative hydrocephalus is not associated with tumor size, degree of tumor enhancement, peritumoral edema, tumor invasion, midline crossing, and pathological grade. The incidence of postoperative hydrocephalus was higher in patients with preoperative hydrocephalus and low resection degree, and lower in patients with endoscopic third ventriculostomy. The risk of early postoperative hydrocephalus in thalamic tumors is high. Intraoperative third ventriculostomy could reduce the incidence of early postoperative hydrocephalus. PFS and OS were longer in patients with thalamic glioblastoma with a high resection degree (P < 0.05) and were not associated with hydrocephalus ²⁾.

Surgical options for patients with thalamic brain tumors are limited. Traditional surgical resection is associated with a high degree of morbidity and mortality. Laser interstitial thermal therapy (LITT) utilizes a stereotactically placed laser probe to induce thermal damage to tumor tissue. LITT provides a surgical cytoreduction option for this challenging patient population. We present our experience treating thalamic brain tumors with LITT.

Objective: To describe our experience and outcomes using LITT on patients with thalamic tumors.

Methods: We analyzed 13 consecutive patients treated with LITT for thalamic tumors from 2012 to 2017. Radiographic, clinical characteristics, and outcome data were collected via review of electronic medical records.

Results: Thirteen patients with thalamic tumors were treated with LITT. Most had high-grade gliomas, including glioblastoma (n = 9) and anaplastic astrocytoma (n = 2). The average tumor volume was 12.0 cc and shrank by 42.9% at 3 mo. The average hospital stay was 3.0 d. Median ablation coverage as calculated by thermal damage threshold (TDT) lines was 98% and 95% for yellow (>43°C for >2

min) or blue (>10 min), respectively. Median disease-specific progression-free survival calculated for 8 patients in our cohort was 6.1 mo (range: 1.1-15.1 mo). There were 6 patients with perioperative morbidity and 2 perioperative deaths because of intracerebral hematoma.

Conclusion: LITT is a feasible treatment for patients with thalamic tumors. LITT offers a cytoreduction option in this challenging population. Patient selection is key. Close attention should be paid to lesion size to minimize morbidity. More studies comparing treatment modalities of thalamic tumors need to be performed ³⁾.

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