Title

P10.09 Outcomes in elderly patients with low-grade glioma undergoing surgical resection

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including those that may appear inoperable based solely on radiologic studies. Here we describe the extent of resection and functional outcomes following resections of tumors deemed inoperable by referring physicians and neurosurgeons. METHODS: We retrospectively examined the cases of 58 adult patients who underwent glioma resections within six months of undergoing brain biopsies of supposedly inoperable gliomas at outside hospitals. We characterized the extent of resection and six-month functional outcomes for this population. RESULTS: Intraoperative DES mapping was performed on 96.6% of patients (56 of 58). Nearly half of patients (46.6%, 27 of 58) underwent an awake surgical procedure with DES. Overall, the mean extent of resection was 87.6% ± 13.6% (range, 39.0% to 100%). Gross total resection (resection of >99% of the pre-operative tumor volume) was achieved in 29.3% of patients (17 of 58). Sub-total resection (95-99% resection) and partial resection (<95% resection) were achieved in 12.1% (7 of 58) and 58.6% of patients (34 of 58), respectively. Of the cases that involved partial resection, the mean extent of resection was 79.4% ± 12.2%. Six months after surgery, no patient was found to have a new post-operative neurologic deficit. The majority of patients (87.9%, 51 of 58) were free of neurologic deficits both pre- and post-operatively. The remainder of patients exhibited either residual but stable deficits (5.2%, 3 of 58), or complete correction of pre-operative deficits (6.9%, 4 of 58). CONCLUSIONS: The use of DES enabled maximal safe resections of tumors that were deemed inoperable by referring physicians and neurosurgeons. With rare exceptions, the resectability of a glioma cannot be determined solely by radiologic studies.

P10.09 OUTCOMES IN ELDERLY PATIENTS WITH LOW-GRADE GLIOMA UNDERGOING SURGICAL RESECTION

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INTRODUCTION: Low-grade gliomas are mostly commonly diagnosed in patients in the third and fourth decade of life, and are not commonly seen in patients older patients. Thus there is a lack of consensus in disease management within this age group. While maximizing the extent of resection has been reported to improve outcomes in patients with low-grade gliomas, data in the subgroup of individuals over the age of 60 is limited, and there are some reports that outcomes are worse compared to younger counterparts. While in younger patients, an aggressive resection may obviate the need for adjuvant therapy, in older patients, upfront adjuvant therapy has been advocated regardless of the extent of resection achieved. Thus, some practitioners may feel an aggressive resection is worth pursuing in older patients given the increased perioperative morbidity profile. MATERIALS AND METHODS: In order to assess whether these patients may be safely treated with and benefit from aggressive surgical resection, we identified 22 patients at least 60 years of age who had undergone resection of a low-grade glioma between January 1997 and September 2015. Pre-operative and post-operative tumor volumes were quantified using BrainLab Smartbrush software. To quantify tumor volume, manual segmentation was performed with region-of-interest analysis based on T2 or fluid-attenuated inversion-recovery (FLAIR) sequences from pre- and post-operative MRI scans. RESULTS: Mean age at the time of surgery was 65.55 years (range 61.16 - 71.8) with a median follow-up period of 3.4 years. Pathologic diagnoses included oligodendrogliomas (65%), diffuse astrocytomas (18.18%), and mixed oligoastrocytomas (22.72%). Surgical resection was performed with either language and/or motor mapping in 82% of patients. Mean volumetric extent of resection was 75.05%. No worsened or new neurological deficits were seen in 73% of patients post-operatively. One- and 2-year progression free survival (PFS) rates were found to be 81.25% and 57.14%, respectively, for patients with adequate follow-up. CONCLUSION: This evidence suggests that an aggressive resection strategy can be applied safely to older patients with low-grade gliomas.

P10.10 PLEOMORPHIC XANTHOASTROCYTOMA WITHOUT A TUMOR MASS LESION INFLUENCES INTRACRANIAL HEMORRHAGE: CASE REPORT

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BACKGROUND: Pleomorphic xanthoastrocytoma (PXA) is rare, with slowly growing neoplasms corresponding to World Health Organization (WHO) grade II. Intracranial hemorrhage associated with lower grade glioma is unusual. Some studies have described intracranial hemorrhage associated with PXA. We report have an unusual case of intracranial hemorrhage case in which a cystic lesion appeared at 9 months, for which the pathological diagnosis was PXA. CASE REPORT: An 11-year-old girl was admitted with headache and convulsions. A computed tomography (CT) scan had demonstrated intracranial hemorrhage in the right temporal lobe. She underwent angiography, but we were unable to detect vascular disease including arteriovenous malformation, angioma or aneurysm. Magnetic resonance imaging (MRI) at 9 months after onset of the intracranial hemorrhage revealed a cystic lesion, with a mass lesion on Gd-enhancement, in the right temporal. Following surgery, pathological examinations demonstrated PXA. PATHOLOGICAL FINDINGS: The tumor cells displayed cytoplasmic pleomorphism and xanthomatous changes. Microvascular proliferation and bleeding scars were evident, but there was no mitosis or necrosis. The tumor exhibited glial components including eosinophilic granular bodies. DISCUSSION: PXAs tend to appear as hypo-vascular mases on angiography, and histological hyper-vascularity is rare. In the present case, microvascular proliferation and lymphocyte cells surrounded by tumor vessels were observed. These findings suggested that microvascular proliferation and vasculitis had led to intratumor hemorrhage and intracranial hemorrhage.

P10.11 ADJUVANT TEMOZOLOMIDE AND RADIATION FOR ANAPLASTIC OLIGODENDROGLIOMA: A SINGLE CENTER EXPERIENCE

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BACKGROUND: Adjuvant management of anaplastic Oligodendroglial tumors (AOTs) is controversial. Outcomes with temozolomide (TMZ)-based adjuvant chemo- radiation (ACRT) have been inadequately explored. METHODS: We analysed our database between 2000 and 2014. All patients were treated with maximally safe surgical resection followed by post-operative radiation. Radiation dose was 60 Gy in 30 fractions. Patients treated after 2007 also received concurrent daily temozolomide(TMZ) (75 mg/m2) then four weeks later, adjuvant TMZ started at 150 mg/m2 day 1 to 5 every 28 days and escalated to 200 mg/m2 after the 2nd cycle. Kaplan Meier method was used to estimate survival, and the impact of various factors on survival of patients with ODG was estimated using log rank. RESULTS: We analysed data of 81 patients. Median age was 40 years (Range: 7-77 years). 39 (48.1%) underwent gross/near total resection; 26 (32.1%) underwent a subtotal resection; 14(17.3%) underwent decompression and 2(2.5%) patient had unknown resection status. Median MIB labelling index was 20 (Range: 5-45).Median radiotherapy dose was 60 Gy (Range 40-60). 50 patients (61.7%) received concurrent chemotherapy while 44(54.3%) also received adjuvant chemotherapy. In patients receiving temozolomide based chemoradiation grade III or IV thrombocytopenia was noted in 10% cases, and 2% had grade III or IV neutropenia.Median number of adjuvant chemotherapy cycles was 6 (range: 1 to 12). Median follow-up was 25 months. Estimated median progression free survival (PFS) was 5.2 years. 2 and 5 year PFS were 76.2% and 50.5% respectively. Median overall survival was 6.71 years. Univariate analysis for prognostic factors influencing survival did not find any significant factor associated with better survival in anaplastic ODG. CONCLUSION: Adjuvant Temozolomide with radiation is a safe and feasible approach in the treatment of anaplastic ODG and should be evaluated in randomized trial.

P10.12 PROGNOSTIC IMPACT OF 2016 WHO CLASSIFICATION IN ANAPLASTIC GLIOMAS

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OBJECTIVE: 2016 World Health Organization (WHO) classification of Tumors of the Central Nervous System (CNS) added molecular information to histology to redefine CNS tumors. We investigated whether the updated 2016 WHO classification in anaplastic gliomas has more prognostic impact for disease progression and mortality than 2007 WHO classification. METHODS: A total of 113 consecutive patients with newly diagnosed anaplastic gliomas by 2007 WHO classification at our hospital from Jan. 2001 to Dec. 2013 were enrolled in this study. We integrated the molecular profiles in each patient and reclassified the diagnosis according to 2016 WHO classification. The Kaplan-Meier methods and a stepwise multivariate Cox proportional regression analysis were performed to evaluate the survival and prognostic factors. To further evaluate the predictability of 2016 WHO classification across the entire follow-up period, we applied a time-dependent receiver operating characteristic (ROC) analysis for censored survival data. We then compared the global concordance probability (integrated area under the curve, iAUC) of the 2016 model with 2007 model. RESULTS: A total of 57 anaplastic astrocytoma (AA) patients in the 2007 classification were classified by the new 2016 classification as 51 patients of AA, IDH-wildtype (AAw); 3 patients of AA, IDH-mutant (AAm); 2 patients of Anaplastic oligodendroglioma, NOS (AOnos); 1 patient of AO, IDH-mutant and 1p/19q-codeleted (AOmc). A total of 27 anaplastic oligoastrocytoma (AOA) patients were newly classified as 7 patients of AAw; 10 patients of AAm; 2 patients of AOnos; 8 patients of AOmc. And 29 AO patients were newly classified as 4 patients of AAw; 2 patients of AAm; 6 patients of AOnos; 17 patients