

prior checkpoint inhibitor treatment. The objective of this study was to identify factors associated with local progression, leptomeningeal disease, and survival for patients undergoing surgical resection of a BM in patients previously treated with checkpoint inhibitor immunotherapy. **METHODS:** A retrospective, single-center cohort study was conducted with inclusion of adult patients undergoing surgical resection of a BM in the setting of progression after prior checkpoint inhibitor treatment. Univariate and multivariate analyses were performed to identify factors associated with outcomes of interest. **RESULTS:** Over an 8-year period, 26 patients who underwent resection of 30 BMs met inclusion criteria. Median patient age at surgery was 63.9 years, and median clinical follow-up was 6.9 months (range 0.1–52.9). Extracranial disease was present at the time of surgery in 73.3% of cases. There were 6 postoperative complication events (20% of cases) by 30-days. By last follow-up, 65.4% of the cohort had died with a median censored survival of 7.6 months from surgery. Eight patients (30.8%) died within 3 months of surgery. On multivariate analysis, postoperative complications were associated with worse survival (HR 5.33, 95% CI 1.15–24.77, $p=0.03$). Four BMs had local progression (13.3%), and 60% of procedures were associated with distant progression within a median time of 3.6 months. Leptomeningeal disease developed in 32% of cases. On multivariate analysis, increased time from BM diagnosis to surgery was associated with a greater risk of leptomeningeal disease (OR 1.2, 95% CI 1.00–1.43, $p=0.021$). **CONCLUSION:** Patients who require BM resection after prior checkpoint inhibitor treatment have an overall poor prognosis. Although local control rates are acceptable, these patients are at high risk for developing leptomeningeal disease postoperatively.

SURG-12. MALIGNANT BREAST NEOPLASM AND BRAIN METASTASES: SERIES OF CASES AND MAIN APPROACHES IN A HOSPITAL COMPLEX IN BRAZIL

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INTRODUCTION: With the advancement of clinical and surgical oncology, patients with breast cancer had an increase in survival. In this context, up to 30% of patients affected with metastases from this site will develop brain tumors. The latter is an important impacting factor for life quality and expectancy, therefore, its clinical and surgical management is essential in public health. We present some rare cases and their outcomes. **METHODS:** We describe a case series of 07 patients with breast cancer metastases to the brain, involving large portions of the dura, bone or skin. There were 64 surgical interventions of the disease in the period, but only those with more exuberant and atypical presentations were selected. The interventions were carried out in a hospital oncology complex in northeastern Brazil between 2016 and 2020. The diagnosis was based on the clinical description, laboratory and image exams, histopathology and surgical performance of the patients. **RESULTS:** The mean age of the patients was 49.7 years, with all patients being female. Rare presentations were observed, such as bone and skin meninges. Clinical presentations demonstrated advanced stages of the disease with a large tumor volume. Extra axial involvement was verified. All patients underwent neurosurgery for tumor removal and decompression. Biopsies were submitted to anatomopathological and immunohistochemistry examination. Corticotherapy was instituted in the immediate postoperative period and some cases had genetic analysis due to an important family history. There was a reduction in symptoms in most cases. **CONCLUSION:** Although brain metastases are still a challenge for medical practice, their proper management can prolong and improve patients' lives. Metastatic breast cancers seem to have a predilection for the central nervous system and their detection and intervention, even in an advanced clinical stage, sound as determinant for the control and severity of symptoms.

Keywords: Brain Neoplasms, Neoplasm Metastasis, Breast Neoplasms

SURG-13. MULTIPLICITY DOES NOT AFFECT OUTCOMES IN PATIENTS WITH SURGICALLY TREATED BRAIN METASTASES

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BACKGROUND: Having multiple brain lesions has been considered a negative prognostic factor in patients with brain metastases. The role of surgery in the management of these patients remains a matter of debate. **METHODS:** We retrospectively reviewed our patients who underwent surgical resection of brain metastases from January 2018 to December 2019, and examined outcomes including overall survival (OS), progression free survival (PFS) and rates of local failure. **RESULTS:** We identified 130 patients who underwent surgical resection as the primary treatment modality of brain metastases. At the time of surgery, 117 patients harbored 1–3 lesions, 13 had more than 3 lesions. Overall survival at two years for our entire cohort was 46%. The difference in OS between patients with > 3 metastases (21%) and 1–3 metastases (49%) was not statistically significant (HR=1.34, 95% CI: 0.67–2.68, $p=0.41$). Similarly, 27% of patients had PFS at two years, with 25% in the multiple metastases group and 28% in the comparison group (HR=1.19, 95% CI: 0.63–2.23, $p=0.59$). Additionally, 32% of patients overall experienced local failure at two years and there was no significant difference between patients with >3 metastases (15%) and those with fewer (33%) (HR=0.68, 95% CI: 0.21–2.19, $p=0.52$). A multivariate regression model examining multiple preoperative features revealed large tumor volume to be the only independent predictor of limited OS ($p = 0.017$) and PFS ($p = 0.023$), and local failure ($p = 0.031$). **CONCLUSIONS:** In carefully selected patients, surgical resection is a reasonable management option for patients with multiple brain metastases.

SURG-14. LASER ABLATION FOR BRAIN METASTASES: RISK FACTORS FOR NEUROLOGIC COMPLICATION

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INTRODUCTION: Laser interstitial thermal therapy (LITT) is a routinely used in treatment of recurrent brain metastases following SRS or open craniotomy. While considered safer than craniotomy, patients do experience neurologic decline following LITT. Identifying which patients are at risk for neurologic deterioration can help better advise patients on the most appropriate treatment options for their tumor. **OBJECTIVE:** The objective of the present study was to assess the frequency and identify risk factors for neurologic decline following LITT. **METHODS:** Data was gathered on patients who underwent LITT for ablation of metastatic brain tumors at our institution between 2014–2019. These cases were analyzed retrospectively and data was collected on patient demographics, tumor characteristics, procedural details, and post-operative complications and outcomes. Pre-operative neurologic function was compared to neurologic status at the 6–12 week post-op visit. **RESULTS:** 16 patients underwent LITT of a total of 18 metastatic lesions during the study time period and were included in the analysis. 7/16 patients demonstrated reduced KPS or worse neurologic function at 6–12 week follow up. 4 patients (25%) demonstrated neurologic deficits that were attributable to the laser ablation procedure, and each of these 4 patients had lesions in eloquent areas. Comparatively, none of the other 12 patients analyzed had eloquent lesions ($p = 0.002$). The presence of a pre-op neurologic deficit was not predictive of worsening neurologic function following LITT ($p = 0.35$). Average lesion size in patients who experienced neurologic deficit was 5.69cm³ compared to 3.15cm³ in those that did not ($p = 0.1$). **CONCLUSION:** Our complications rate is similar to other published case series (15–44%). LITT, while better tolerated than standard craniotomy, can lead to neurologic decline in patients with brain metastases regardless of lesion size or pre-operative functional status. Eloquence is a significant predictor of neurologic complications following laser ablation.