overall survival (OS) were similar for LITT versus craniotomy, respectively; %PFS-survival at 1-year = 72.2% versus 61.1%, %PFS-survival at 2-years = 60.0% versus 61.1%, p = 0.72; %OS-survival at 1-year = 89.0% versus 74.5%, p = 0.90. This finding persisted on sub-analysis of smaller lesions under < 3 cm in diameter. Cranionytem resulted in higher rates of pre-operative deficit improvement than LITT (p < 0.01). On sub-group analysis, the single factor most significantly associated with OS and PFS was pathology of the lesion. About 40% of tumor lesions needed post-operative salvage with radiation after both craniotomy and LITT. LITT was as efficacious as cranionytem in achieving local control of recurrent irradiated brain metastases and facilitating steroid taper, regardless of pathology. Cranionytem appears to be more advantageous for providing symptom relief in those with pre-operative symptoms.

SURG-07. CORRELATION BETWEEN VOLUMETRIC ANALYSIS AND CLINICAL OUTCOMES OF BRAIN METASTASES TREATED WITH LASER INTERSTITIAL THERMAL THERAPY (LITT) Dhego Banton, Jonathan Lorre, Vinodh Kumar, Komal Shah, Ganesh Rao, Jeffrey S Weinberg, and Sajit Prabhu

PURPOSE: Describe and analyze the volumetric responses of metastatic brain tumors treated with LITT and how changes correlate with local recurrence (LR), METATERIALS AND METHODS: Retrospective study with consecutive patients with progressive disease after SRS for brain metastasis. Spider and scatter plots and Locally Weighted Scatterplot Smoothing (LOWESS) for tumor and edema volume were created to analyze volume change. Patients were compared using Kaplan-Meier square tests and odds ratio (OR). RESULTS: 61 consecutive patients with 82 lesions (5 newly diagnosed, 46 recurrence and 31 radiation necrosis). Mean tumor volume was 4.8±4.3 cm³, mean edema volume was 43.8±63.6 cm³ and the mean ablation volume was 8.9±23.9 cm³. LOWESS showed an initial increase in the first 30 days followed by steady decrease in the following months. Tumor edema shows a plateau or a slight increase in the first month, followed by a steady decrease in the subsequent months. Patients with LR showed an increase in the tumor volume above 60 days, whereas tumor volume tended to remain stable, increasing in size after the third/fourth month. After 60 days, if edema volume is above baseline or increasing in size from nadir, there is an increased risk of LR (OR 4.22, 95% CI 1.33–13.69, P<0.005). Tumor volume was greater in patients with ablation volume or increasing from a nadir on the first scan after day 60 had an increased risk of recurrence (OR 3.64; 95% CI 1.239-1.71; P=0.0016). If both edema and tumor volume are above baseline or increasing after day 60, there is also an increased risk of LR (OR 4.00; 95% CI 1.411-13.6; P=0.0077). CONCLUSIONS: If either edema or tumor volume fail to fall below baseline or show an increasing trend on the first scan after day 60 post LITT, patients have an increased risk of LR. Qualitatively edema was the first feature observed in LR followed by increase in the subsequent months. Patients with LR showed an increase in the tumor volume above 60 days, whereas tumor volume tended to remain stable, increasing in size after the third/fourth month. After 60 days, if edema volume is above baseline or increasing in size from nadir, there is an increased risk of LR (OR 4.22, 95% CI 1.33–13.69, P<0.005). Tumor volume was greater in patients with ablation volume or increasing from a nadir on the first scan after day 60 had an increased risk of recurrence (OR 3.64; 95% CI 1.239-1.71; P=0.0016). If both edema and tumor volume are above baseline or increasing after day 60, there is also an increased risk of LR (OR 4.00; 95% CI 1.411-13.6; P=0.0077). CONCLUSIONS: If either edema or tumor volume fail to fall below baseline or show an increasing trend on the first scan after day 60 post LITT, patients have an increased risk of LR. Qualitatively edema was the first feature observed in LR followed by increase in tumor volume.

SURG-08. GASTROINTESTINAL STROMAL TUMOR WITH INTRACRANIAL METASTASIS: CASE REPORT AND SYSTEMATIC REVIEW OF LITERATURE Akash Patel

BACKGROUND: Intracranial metastasis of Gastrointestinal Stromal Tumors (GIST) is rare but presents unique treatment challenges. We present a case of intracranial metastasis of GIST with a systematic review of the literature regarding this rare clinical scenario. METHODS: A systematic review of the literature was performed to identify cases of intradural GIST metastases and extrahaemorrhage, which were selected for further review based on their inclusion of metrics contributing to patient frailty and heightened surveillance in patients with intracranial metastases may be considered in the peri-operative period.

SURG-10. MELANOMA CEREBRAL METASTASES IN IRELAND- GETTING UNDER THE SKIN Philip O’Halloran, Anna Cleary, Jane Cryan, and John Caird

BACKGROUND: Ireland has the highest rate of melanoma related deaths in Europe. The incidence of melanoma reaching record highs there remains a paucity of information in Ireland regarding the factors associated with melanoma brain metastasis (MBM). METHODS: Patients diagnosed with MBM in Ireland were retrospectively identified in Beaumont Hospital database between 1999 and 2018. Patients diagnosed in 1999 and 2018, were classified into primary MBM and diagnosis of primary melanoma, age at detection of MBM, anatomical location of primary melanoma, BRAF mutation analysis and the number of metastases were investigated. Follow up data was also derived, including overall survival (OS). RESULTS: The incidence of malignant melanoma has increased by 158% over the past 20 years with 1,092 and 422 cases diagnosed in 2018 and 1999, respectively.128 patients with melanoma brain metastases were identified during this period. The median OS after detection of MBM was 5 months (95% CI 6.49–19.359 months). There was a male predominance with a ratio of 1.7 to 1 (P=0.02). The median age at diagnosis of MBM was 59 years (95% CI 41.6–66.9 years). The primary site of metastasis was the brain in 50.8% of patients, followed by the lung (32.1%) and bone (14.2%). The most common sites for MBM were the cerebrum (50.8%) and cerebellum (16.1%). The median OS after detection of MBM was 5 months (95% CI 0.641–9.359 months). There was a male predominance with a ratio of 1.7 to 1 (P=0.02). The median age at diagnosis of MBM was 59 years (95% CI 41.6–66.9 years). The primary site of metastasis was the brain in 50.8% of patients, followed by the lung (32.1%) and bone (14.2%). The most common sites for MBM were the cerebrum (50.8%) and cerebellum (16.1%). The median OS after detection of MBM was 5 months (95% CI 0.641–9.359 months). There was a male predominance with a ratio of 1.7 to 1 (P=0.02). The median age at diagnosis of MBM was 59 years (95% CI 41.6–66.9 years). The primary site of metastasis was the brain in 50.8% of patients, followed by the lung (32.1%) and bone (14.2%). The most common sites for MBM were the cerebrum (50.8%) and cerebellum (16.1%). The median OS after detection of MBM was 5 months (95% CI 0.641–9.359 months). There was a male predominance with a ratio of 1.7 to 1 (P=0.02). The median age at diagnosis of MBM was 59 years (95% CI 41.6–66.9 years). The primary site of metastasis was the brain in 50.8% of patients, followed by the lung (32.1%) and bone (14.2%). The most common sites for MBM were the cerebrum (50.8%) and cerebellum (16.1%). The median OS after detection of MBM was 5 months (95% CI 0.641–9.359 months). There was a male predominance with a ratio of 1.7 to 1 (P=0.02). The median age at diagnosis of MBM was 59 years (95% CI 41.6–66.9 years). The primary site of metastasis was the brain in 50.8% of patients, followed by the lung (32.1%) and bone (14.2%). The most common sites for MBM were the cerebrum (50.8%) and cerebellum (16.1%). The median OS after detection of MBM was 5 months (95% CI 0.641–9.359 months). There was a male predominance with a ratio of 1.7 to 1 (P=0.02). The median age at diagnosis of MBM was 59 years (95% CI 41.6–66.9 years). The primary site of metastasis was the brain in 50.8% of patients, followed by the lung (32.1%) and bone (14.2%). The most common sites for MBM were the cerebrum (50.8%) and cerebellum (16.1%). The median OS after detection of MBM was 5 months (95% CI 0.641–9.359 months). There was a male predominance with a ratio of 1.7 to 1 (P=0.02). The median age at diagnosis of MBM was 59 years (95% CI 41.6–66.9 years). The primary site of metastasis was the brain in 50.8% of patients, followed by the lung (32.1%) and bone (14.2%). The most common sites for MBM were the cerebrum (50.8%) and cerebellum (16.1%). The median OS after detection of MBM was 5 months (95% CI 0.641–9.359 months). There was a male predominance with a ratio of 1.7 to 1 (P=0.02). The median age at diagnosis of MBM was 59 years (95% CI 41.6–66.9 years). The primary site of metastasis was the brain in 50.8% of patients, followed by the lung (32.1%) and bone (14.2%). The most common sites for MBM were the cerebrum (50.8%) and cerebellum (16.1%). The median OS after detection of MBM was 5 months (95% CI 0.641–9.359 months). There was a male predominance with a ratio of 1.7 to 1 (P=0.02). The median age at diagnosis of MBM was 59 years (95% CI 41.6–66.9 years). The primary site of metastasis was the brain in 50.8% of patients, followed by the lung (32.1%) and bone (14.2%).