overall survival (OS) were similar for LITT versus craniotomy, respectiv-
ely; %PS-survival at 1-year = 72.2% versus 61.1%, %PS-survival at 2-
years = 60.0% versus 61.1%, p = 0.72; %SOS-survival at 1-year = 69.0% 
versus 62.2%, p = 0.14; %SOS-survival at 2-years = 49.5% versus 42.9%
This finding persisted on sub-analysis of smaller lesions under < 3 cm in
diameter. Craniotomy resulted in higher rates of pre-operative deficit im-
provement than LITT (p < 0.01). On sub-group analysis, the single factor 
mortally associated with OS and PS 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 craniotomy in 
achieving local control of recurrent irradiated brain metastases and 
facilitating steroid taper, regardless of pathology. Craniotomy 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 Basto, Jonathan Lorré, Vinodh Kumar, Komal Shah, Ganesh Rao, 
Jeffrey S Wernberg, and Sajit Prabhu
PURPOSE: Describe and analyze the volumetric responses of metastatic 
brain tumors treated with LITT and how changes correlate with local re-
currence (LR). MATERIALS AND METHODS: Retrospective study with 
consecutive patients with progressive disease after SRS for brain me-
tastasis. Spider and scatter plots and Locally Weighted Scatterplot Smoothing 
(LOWESS) for tumor and edema volume were created to analyze volume 
changes. Patients were compared using Student t-tests and odds ratio 
(OR). RESULTS: 61 consecutive patients with 82 lesions (5 newly diag-
nosed, 46 recurrence and 31 radiation necrosis). Mean tumor volume was 
4.8±3.9cm³, mean edema volume was 43.8±63.9cm³ and the mean ablation 
volume was 8.0±9.3cm³. LOWESS showed an initial increase in the first month fol-
lowed by steady decrease in the following months. Tumor edema showed 
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 and edema volume 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 1.501–11.89, p=0.005). Tumor volume 
increased if the edema ablation volume or increasing from a nadir on the 
first scan after day 60 had an increased risk of recurrence (OR 3.46; 95% 
CI 1.239.71,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 1.411.36,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. Qualita-
tively 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 Tu-
mors (GIST) is rare but presents unique treatment challenges. We present a 
case of intracranial metastasis with a systematic review of the litera-
ture. RESULTS: 1 case of GIST with intracranial metastasis. METHODS: 
A systematic review of published literature was undertaken. RESULTS: 
Out of the 18 articles included for analysis in this review and our present 
case, 17 were considered frail and 24% were female. The common 
30-day medical complications were pneumonia (4%), venous thromboembolism (VTE;3%), and urinary tract infections (2%). Cardiac events and cerebrovascular accidents tended to occur in the early post-operative period, while VTEs and infections occurred in a multi-
layered fashion. Reoperation and unplanned readmission occurred in 5% 
and 12% of patients, respectively. Infratentorial approach and frailty 
were associated with reoperation before discharge (OR 2.0 for both; 
p=0.01 and p=0.03 respectively), but not after discharge. Frail patients 
were marginally at risk for neurological deficit (OR 2.5 vs. 1.0, p=0.05). 
Infratentorial approaches conferred heightened risk for readmission due to 
hydrocephalus (OR 5.1, p=0.02) and reoperation for cerebrospinal fluid 
diversion (OR 7.1, p<0.001). Overall 30-day mortality was 4%, with 
three-quarters occurring after discharge. Pre-frailty and frailty 
were associated with increased odds for post-discharge mortality (OR 
1.7 and 2.7, p<0.05), but not pre-discharge mortality. We developed a 
model to predictors of death, which identified frailty, thrombocytopenia, 
and high- and platelet counts. The model was then translated into 
clinical practice, showing improved outcomes and a 12% reduction in 
mortality rate. CONCLUSIONS: Infratentorial metastases should be 
recognized and managed as a separate entity, with improved outcomes 
for infratentorial metastases requiring systemic therapy or resection. 

SURG-09. SURGICAL AND PERI-OPERATIVE CONSIDERATIONS 
FOR BRAIN METASTASES: A NATIONWIDE ANALYSIS 
Sakshi Gupta, Alexandre Giani Larsson, Hassan Dawood, Luis Fandino, 
Erik Knelson, Timothy Smith, Eudocia Lee, Ayal Aizer, and 
Wenya Bi
BACKGROUND: Brain metastases are the most frequent brain tu-
mors in adults, whose management remains nuanced. We aim to improve 
risk stratification for brain metastases patients who might be candidates 
for surgical resection. METHODS: We conducted a nationwide, retro-
spective cohort analysis of adult patients who received craniotomy for 
resection of brain metastasis using the 2012-2015 American College of 
Surgeons National Surgical Quality Improvement Project databases. 
Our primary outcomes of interest were post-operative medical complications, 
reoperation, readmission, and mortality. RESULTS: 3300 cases were 
included which 17% were considered frail and 24% were female. 
The most common 30-day medical complications were pneumonia (4%), 
venous thromboembolism (VTE;3%), and urinary tract infections (2%). 
Cardiac events and cerebrovascular accidents tended to occur in the early 
post-operative period, while VTEs and infections occurred in a multi-
layered fashion. Reoperation and unplanned readmission occurred in 5% 
and 12% of patients, respectively. Infratentorial approach and frailty 
were associated with reoperation before discharge (OR 2.0 for both; 
p=0.01 and p=0.03 respectively), but not after discharge. Frail patients 
were marginally at risk for neurological deficit (OR 2.5 vs. 1.0, p=0.05). 
Infratentorial approaches conferred heightened risk for readmission due to 
hydrocephalus (OR 5.1, p=0.02) and reoperation for cerebrospinal fluid 
diversion (OR 7.1, p<0.001). Overall 30-day mortality was 4%, with 
three-quarters occurring after discharge. Pre-frailty and frailty 
were associated with increased odds for post-discharge mortality (OR 
1.7 and 2.7, p<0.05), but not pre-discharge mortality. We developed a 
model to predictors of death, which identified frailty, thrombocytopenia, 
and high- and platelet counts. The model was then translated into 
clinical practice, showing improved outcomes and a 12% reduction in 
mortality rate. CONCLUSIONS: Infratentorial metastases should be 
recognized and managed as a separate entity, with improved outcomes 
for infratentorial metastases requiring systemic therapy or resection. 

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. Melanoma metastasising to the brain is an infrequent but high 
clinical occurrence, educational programs and future treatments.

SURG-11. THE ROLE OF MAGNETIC RESONANCE-GUIDED LASER 
ABLATION FOR INTRACRANIAL METASTATIC TUMORS 
Alexa Semence, Daniel Eichberg, Christian Theodotou, Ashish Shah, 
Christopher Banerjee, Michael Berger, Amanda Wallo, Ricardo Komotor, and 
Michael Ivan
INTRODUCTION: Laser interstitial thermal therapy (LITT) is a novel, 
miminally-invasive adjuvant therapy that is well-suited for intracranial tu-
mors/craniopharyngiomas, especially in eloquent areas given its ability to 
impinge on high-risk, selective open-surgery candidates. To better characterize safety and clinical outcomes, we present the largest single-institutional experience with LITT for recurrent tu-
mor/craniopharyngiomas in Ireland-Getting under the skin.