

Abstracts

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04. ASSESSMENT OF EFFICACY AND SAFETY OF OSIMERTINIB  
FOR PATIENTS WITH INTRACRANIAL METASTATIC DISEASE:  
A SYSTEMATIC REVIEW AND META-ANALYSIS

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**INTRODUCTION:** Intracranial metastatic disease (IMD) is a serious and life-altering complication for many patients with cancer. Targeted therapy may address limitations of current treatments as an additional agent to achieve intracranial disease control in some patients with IMD. Osimertinib is a mutant epidermal growth factor receptor (EGFR) inhibitor that can penetrate the blood-brain barrier and inhibit tumor cell survival and proliferation in patients with non-small cell lung cancer (NSCLC) with specific EGFR mutations. The purpose of this study is to assess the efficacy and safety of osimertinib in the management of IMD. **METHODS:** Studies reporting intracranial outcomes for patients with EGFR-mutant NSCLC and IMD treated with osimertinib were included. Among 271 records identified in MEDLINE and EMBASE, 15 studies fulfilled eligibility criteria. Outcomes were pooled using a random-effects model. Risk of bias was assessed using the Cochrane Risk of Bias tool and modified Newcastle-Ottawa scale. Information extracted included study characteristics, intracranial efficacy measures, and safety measures. Meta-analyses were conducted to pool applicable outcomes. **RESULTS:** 15 studies reporting on 324 patients were included in the analysis. Combined CNS ORR and CNS DCR were calculated to be 64% (95% CI, 53–76%; n = 195), and 90% (95% CI, 85–93%; n = 246). Risk ratios for CNS ORR and CNS DCR were calculated to be 1.44 (95% CI, 1.06–1.96; n = 52) and 1.13 (95% CI, 0.96–1.33; n = 52). Included studies reported complete intracranial response rates of 7–23%, median best decrease in intracranial lesion size of 40–64%, and grade 3+ adverse event rates of 19–39%. **CONCLUSIONS:** Findings reported here support a potential role for osimertinib for patients with EGFR-mutant NSCLC and IMD. Clinical decision-makers would benefit from the inclusion of patients with IMD in future trials to identify factors that predict responses to targeted therapy.

06. MALIGNANT SUBDURAL EFFUSION FROM DURAL  
METASTASES: A CASE REPORT AND REVIEW OF AVAILABLE  
LITERATURE

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Dural metastases from a distant primary site is a relatively uncommon entity. Two complications from this that have similar imaging findings and clinical presentation are subdural hematoma and subdural effusion. Multiple cases of subdural hematoma have been reported, but only eight other cases of subdural effusion have been reported in the literature. Here we present a case of subdural effusion as a complication from dural metastasis from a sigmoid adenocarcinoma in a 43 year old female. We also review the available literature, discussing the possible patho-etiological, clinical presentations and imaging findings, as well as outcomes. We note the high recurrence rate (seen in 66% of all reported cases, including ours) and poor prognosis (days to months) of these cases.

07. RETROSPECTIVE ANALYSIS OF SALVAGE SURGERY FOR  
LOCAL PROGRESSION OF BRAIN METASTASIS PREVIOUSLY

TREATED WITH STEREOTACTIC IRRADIATION: DIAGNOSTIC  
CONTRIBUTION, FUNCTIONAL OUTCOME, AND PROGNOSTIC  
FACTORS

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**BACKGROUND:** Stereotactic irradiation (STI) is a primary treatment for patients with newly diagnosed brain metastases. Some of these patients experience local progression, which is difficult to differentiate from radiation necrosis, and difficult to treat. Just a few studies have clarified the prognosis and effectiveness of salvage surgery after STI. We evaluated the diagnostic value and improvement of functional outcomes after salvage surgery. **METHODS:** We evaluated patients with brain metastases treated with salvage surgery for local progression from October 2002 to July 2019. These patients had undergone salvage surgery based on magnetic resonance imaging findings and/or clinical evidence of post-STI local progression and stable systemic disease. We employed two prospective strategies according to the eloquency of the lesions. Lesions in non-eloquent areas had been resected completely with a safety margin, utilizing a fence-post method; while lesions in eloquent areas had been treated with minimal resection and postoperative STI. Prognostic factors for survival were analyzed. **RESULTS:** Fifty-four salvage surgeries had been performed on 48 patients. The median age of patients was 64 years. The median diameter of the enhanced lesions was 35 mm (range 19–58 mm). The median overall survival was 20.2 months from salvage surgery and 37.5 months from initial STI. Primary cancers were lung 31, breast 9, and others 8. Local recurrence developed in 13 of 54 lesions (24%). Leptomeningeal dissemination occurred after surgery in 3 patients (5.6%). Primary breast cancer (breast vs. lung: HR: 0.17), (breast vs. others: HR: 0.08) and RPA class 1–2 (RPA 1 vs. 3, HR: 0.13), (RPA 2 vs. 3, HR: 0.4) were identified as good prognostic factors for overall survival (OS) in multivariate analyses. **CONCLUSION:** We insist that salvage surgery leads to rapid improvement of neurological function and clarity of histological diagnosis. Salvage surgery is recommended for large lesions especially with surrounding edema either in eloquent or non-eloquent areas.

11. ASSOCIATION OF TUMOR EXPOSURE TO CEREBROSPINAL  
FLUID SPACES TO LEPTOMENINGEAL DISEASE IN PATIENTS WITH  
BRAIN METASTASES

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**BACKGROUND:** Development of leptomeningeal disease in patients with brain metastases is associated with extremely poor survival. Identification of the underlying pathogenesis of leptomeningeal disease is unknown. **METHODS:** This retrospective case control study included consecutive adult patients with at least one cerebral metastasis from a known extracranial primary solid malignancy and at least 3 month follow up (n=366). Patients were treated with radiotherapy with or without surgical resection and primary outcome was development of leptomeningeal disease. **RESULTS:** The overall rate of leptomeningeal disease was 15.0%. Rates of development of leptomeningeal disease correlated with the presence of a dural based lesion (65.7% vs. 9.7%;  $P<0.0001$ ), intraventricular lesion (29.4% vs. 14.3%;  $P=0.0897$ ), and with dural based lesions with sulcal or cortical enhancement (100% vs. 12.9%;  $P<0.0001$ ). Rates of developing leptomeningeal disease were not independently associated with surgical resection (17.2% vs. 14.2%;  $P=0.4859$ ), however did occur significantly more often with piecemeal, as opposed to *en bloc*, resection (31.3% vs. 8.1%;  $P=0.0138$ ) or when the ventricle was entered (61.5% vs. 18.9%;  $P<0.0001$ ). **CONCLUSIONS:** Metastases that are in contact with cerebrospinal fluid spaces are associated with a higher rate of subsequent leptomeningeal disease, with or without surgical resection. Future studies should investigate the use of neoadjuvant radiation, whole brain radiation therapy or adherence to strict surgical technique in high risk brain metastasis patients to mitigate this probability.

12. OUTCOMES AFTER SURGICAL RESECTION OF MELANOMA  
BRAIN METASTASES IN THE AGE OF CHECKPOINT INHIBITOR  
TREATMENT

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**BACKGROUND:** Metastasis of melanoma to the brain is associated with poor outcomes. Recent trials demonstrate improved survival after treatment with immune checkpoint inhibitors. **OBJECTIVE:** To examine the impact that checkpoint inhibitor treatment has on overall survival (OS) and cen-