Melanoma brain metastases surgery

Indications

- Contemporary trends in utilization of metastasectomy in the era of targeted and immunotherapies
- Personalised PET imaging in oncology: an umbrella review of meta-analyses to guide the appropriate radiopharmaceutical choice and indication
- Revisiting Temozolomide's role in solid tumors: Old is gold?
- Nivolumab and Relatlimab (Opdualag): CADTH Reimbursement Recommendation: Indication: For the treatment of adult and pediatric patients 12 years of age or older with unresectable or metastatic melanoma who have not received prior systemic therapy for unresectable or metastatic melanoma
- Proton Radiosurgery: Current Concepts and Limitations for CNS Radiosurgery
- Neoadjuvant Stereotactic Radiotherapy for Brain Metastases: Systematic Review and Meta-Analysis of the Literature and Ongoing Clinical Trials
- Orbital indications
- Time from stereotactic radiosurgery to immunotherapy in patients with melanoma brain metastases and impact on outcome

Surgery is mainly limited to patients with solitary or single brain metastases and is often performed for symptomatic relief. Compared with radiation therapy alone, an overall survival benefit in all patients with single brain metastases who undergo resection has been demonstrated: median survival was 9.2 months for patients who received surgery as compared with 3.5 months for patients who received radiotherapy alone [1)]

There may also be a role for resection in oligometastatic disease of dominant, symptomatic lesions. As the field comes closer to achieving integrated histologic and genetic diagnoses for these patients, a secondary benefit of debulking is the procurement of adequate tumor tissue for molecular characterization. Investigators in one study compared the genomics of matched brain metastases and primary tumors across multiple histologies and demonstrated that more than 50% of brain metastases harbored genetic alterations that were not detected in the clinically sampled primary tumor [2)]

Although melanoma metastatic to the brain carries a foreboding prognosis, patients who do not display preoperative neurological deficits, harbor a single lesion situated supratentorial, and have no lung or visceral metastases may derive significant palliative benefit from surgical resection of brain metastases [3)].

Case series

13 patients underwent 19 craniotomies for resection of metastatic malignant melanoma at the

University of Colorado (Denver, CO) between 1983 and 1989. There was preoperative evidence of extracranial disease in 11 patients. Eight patients had more than one intracranial metastases at operation. Intraoperative ultrasound was used in 18 of the 19 craniotomies to minimize surgical trauma to the brain. The 30-day mortality was zero. The 30-day morbidity was minimal. No patient acquired a new neurologic deficit as a result of surgery. All patients regained at least their preoperative level of functioning. Six of the patients who were living at the time of review have been followed for 4 to 25 months (median, 7.5 months). The seven patients who were dead at the time of review survived 4 to 18 months (median, 10 months). These results compare favorably with the survival of untreated patients with metastatic melanoma to the brain (median, 1 month), patients treated with radiation therapy alone (median, 2-4 months), and those treated with chemotherapy alone (median, 2-4 months). The excision of metastatic melanoma from the brain, although not curative, may increase survival in patients with this problem with little morbidity and mortality even in the presence of other metastases [4].

1)
S. M. Goldinger, C. Panje, and P. Nathan, “Treatment of melanoma brain metastases,” Current Opinion in Oncology, vol. 28, no. 2, pp. 159–165, 2016.
2)
P. K. Brastianos, S. L. Carter, S. Santagata et al., “Genomic characterization of brain metastases reveals branched evolution and potential therapeutic targets,” Cancer Discovery, vol. 5, no. 11, pp. 1164–1177, 2015.
3)
Wroński M, Arbit E. Surgical treatment of brain metastases from melanoma: a retrospective study of 91 patients. J Neurosurg. 2000 Jul;93(1):9-18. doi: 10.3171/jns.2000.93.1.0009. PMID: 10883899.
4)
Brega K, Robinson WA, Winston K, Wittenberg W. Surgical treatment of brain metastases in malignant melanoma. Cancer. 1990 Nov 15;66(10):2105-10. doi: 10.1002/1097-0142(19901115)66:10<2105::aid-cncr2820661011>3.0.co;2-i. PMID: 2224765.