Cerebellar metastases surgery

- A rare case of desmoplastic medulloblastoma in a 65-year-old male: A case report on achieving stability post-grade IV surgical resection
- AZIN1 level is increased in medulloblastoma and correlates with c-Myc activity and tumor phenotype
- A Case of Multiple Brain Metastasis after Resection of Gastric Cancer with Adrenal Metastasis
- Cerebellar re-irradiation after whole brain radiotherapy significant symptom relief with minimal toxicity in metastatic brain patients
- Long-Term Intracranial Progression-Free Survival in Lung Cancer Brain Metastases Extended Beyond 50 Months with Gubenxiaoyi Formula (GBXY): A Groundbreaking Case Study
- Rare Neoplastic Meningitis in Cerebellar Medulloblastoma Detected by PET/CT
- Acute embolic infarcts of bilateral cerebellar lobes, cerebral peduncles, thalami and left parietal lobe cortex following HIPEC surgery
- The METACER national cohort study of brain metastases in gastrointestinal cancers prospectively establishes prognostic factors

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Indications

The decision to perform surgery for cerebellar metastases depends on several factors, including the patient's overall health, the size and location of the tumors, the extent of metastatic disease, and the potential benefits and risks of the procedure. Some key points to consider regarding cerebellar metastases surgery include:

Surgery is typically considered when the metastatic tumors in the cerebellum are causing significant neurological symptoms, such as imbalance, coordination problems, headaches, or other neurological deficits. In some cases, surgery may be part of a multimodal treatment plan that includes radiation therapy, chemotherapy, or other interventions.

Preoperative Evaluation

Before surgery, patients undergo a thorough evaluation, including imaging studies like CT scans or MRIs, to assess the size and location of the tumors and to plan the surgical approach.

Surgical Procedure

The goal is to remove as much of the tumor as possible while minimizing damage to healthy brain tissue. Depending on the tumor's location, the surgeon may use various techniques, such as craniotomy (removing a portion of the skull) or minimally invasive approaches.

Suboccipital craniotomy

Risks and Complications

Cerebellar metastases surgery carries potential risks, including bleeding, infection, damage to surrounding brain structures, and neurological deficits. The patient's overall health and the extent of the tumor's involvement can influence the risk profile.

Recovery

Recovery from cerebellar metastases surgery can vary depending on the individual and the specific surgical approach used. Some patients may experience improved neurological symptoms, while others may require rehabilitation and ongoing medical management.

Follow-up

After surgery, patients typically undergo follow-up imaging and medical evaluations to monitor for any recurrence of tumors or complications.

The choice to undergo cerebellar metastases surgery is a complex one that should be made in consultation with a multidisciplinary medical team, including neurosurgeons, oncologists, and other specialists. The treatment plan should be tailored to the individual patient's circumstances and the nature of their cancer. It's important to discuss all available treatment options, potential benefits, and associated risks with your healthcare providers.

Videos

https://surgicalneurologyint.com/videogallery/right-cerebellar-metastasis/

The impact of surgery for cerebellar brain metastases in elderly population has been the object of limited studies in literature. Given the increasing burden of their chronic illnesses, the decision to recommend surgery remains difficult. All patients aged ≥65 years, who underwent surgical resection of a cerebellar brain metastasis from May 2000 and May 2021 at IRCCS National Cancer Institute “Regina Elena”, were analyzed. The study cohort includes 48 patients with a mean age of 70.8 years. 7 patients belonged to the II Class according to the RPA classification, 41 to the III Class; the median GPA classification was 1.5. Median pre-operative and post-operative KPS was 60. Median Charlson Comorbidity Index (CCI) was 11; median 5-variable modified Frailty Index was 2. Overall, 14 patients (29%) presented perioperative neurologic and systemic complications. 34 patients (71%) were able to perform adjuvant therapies as RT and/or CHT after surgery. A higher CCI predicted complications occurrence ($p = 0.044$), while significant factors for a post-operative KPS ≥70, were i) hemispheric location of the metastasis, ii) higher pre-operative KPS, iii) RPA II classification. Median Overall

Survival was 7 months. A post-operative KPS <70 (p = 0.004) and a short time interval between diagnosis of the primary tumor and cerebellar metastasis appearance, were predictive for a worse outcome (p = 0.012). Our study suggests that selected elderly patients with cerebellar metastases may benefit from microsurgery to continue their adjuvant therapies, although a high complications rate should be taken in account [1].

Ersoy et al. retrospectively studied 73 consecutive patients who underwent surgery 2015-2020 for removal of cerebellar metastases (CM). Median overall survival (medOS) varied widely between patients and compared favorably with the more recent literature (9.2, 25-75% IQR: 3.2-21.7 months vs. 5-8 months). Prognostic factors included clinical (but not radiological) hydrocephalus (medOS 11.3 vs. 5.2 months, p = 0.0374). Of note, a third of the patients with a KPI <70% or multiple metastases survived >12 months. Chemotherapy played a prominent prognostic role (medOS 15.5 vs. 2.3, p < 0.0001) possibly reflecting advances in treating systemic vis-à-vis controlled CNS disease. Major neurological (≥30 days), surgical and medical complications (CTCAE III-V) were observed in 8.2%, 13.7%, and 9.6%, respectively. The occurrence of a major complication markedly reduced survival (10.7 vs. 2.5 months, p = 0.020). The presence of extracerebral metastases did not significantly influence OS. Postponing staging was not associated with more complications or shorter survival. Together these data argue for individualized decision making which includes offering surgery in selected cases with a presumably adverse prognosis and also occasional urgent operations in cases without a preoperative oncological work-up. Complication avoidance is of utmost importance [2].

In a retrospective analysis involving 50 patients with cerebellar metastases who underwent surgical resection. Ventriculo-peritoneal shunts were placed in patients necessitating permanent CSF drainage.They evaluated presentation, diagnosis, complications, and outcome.

The review included 21 males and 29 females, 29 to 82 years of age. Primary tumors included lung (48%), breast (14%), GI (14%), endometrial/ovarian (6%), melanoma (6%), sarcoma (4%), lymphoma (4%), laryngeal (2%), and other (2%). Clinical symptoms at presentation commonly were those secondary to elevated intracranial pressure and were the initial complaint in 34% of patients. Preoperatively, 29 patients were noted to have hydrocephalus. Importantly, 76% of these patients were able to avoid placement of a ventriculo-peritoneal shunt following surgery. Only two complications were noted in our series of 50 patients, including a symptomatic pseudomeningocele and a wound infection. No symptomatic postoperative hematoma developed in any surgical case.

A review of the literature has shown a high complication rate in patients undergoing surgical resection of cerebellar metastases. They have shown that surgical resection of cerebellar metastases is a safe procedure and is effective in the treatment of hydrocephalus in the majority of patients harboring cerebellar lesions [3].

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Telera S, Gazzeri R, Villani V, Raus L, Giordano FR, Costantino A, Delfinis CP, Piludu F, Sperduti I, Pace A. Surgical treatment of cerebellar metastases in elderly patients: A threshold that moves forward? World Neurosurg X. 2023 Jan 26;18:100164. doi: 10.1016/j.wnsx.2023.100164. PMID: 36818737; PMCID: PMC9932212.
2)
Ersoy TF, Mokhtari N, Brainman D, Berger B, Salay A, Schütt P, Weissinger F, Grote A, Simon M. Surgical Treatment of Cerebellar Metastases: Survival Benefits, Complications and Timing Issues. Cancers (Basel). 2021 Oct 20;13(21):5263. doi: 10.3390/cancers13215263. PMID: 34771427; PMCID:

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3)
Ghods AJ, Munoz L, Byrne R. Surgical treatment of cerebellar metastases. Surg Neurol Int. 2011;2:159. doi: 10.4103/2152-7806.89859. Epub 2011 Nov 14. PMID: 22140644; PMCID: PMC3228392.