

grade 0 was 23 cases (33%), grade 1 was 18 cases (26%), grade 2 was 28 cases (41%). There were 16 deaths in grade 0 (69.6%), 10 deaths in grade 1 (55.6%), 15 deaths in grade 2 (53.5%). **CONCLUSIONS:** In this study, there was no statistically significant difference in the SWI or T2\*-positive group. However, there was a tendency for many long-term survivors in the SWI or T2\*-positive group.

#### MET-10

##### PRELIMINARY REPORT OF RADIOTHERAPY FOR BRAIN METASTASES FROM BREAST AND KIDNEY USING MASK SYSTEM OF LEKSELL GAMMA KNIFE ICON

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**OBJECT:** Leksell Gamma Knife Icon enables us to apply new methods of immobilization using mask fixation and the option of fractionated treatment. This provides exceptional accuracy and precision of radiosurgery, making it a possibility for many more disease types and many more patients to be treated.

**METHODS:** We retrospectively analyzed 97 patients (140 times) with brain metastases from breast (B group) and 26 patients (33 times) with brain metastases from kidney (K group) and who underwent Gamma Knife Icon using mask fixation between September 25th, 2017 and June 30th, 2020 at Rakusai Shimizu Hospital. Patients with small, few, newly diagnosed, and non-eloquent area tumors were treated in a single session. If the tumor volume was larger than 5.0 ml, recurrence, or the location was in an eloquent area, we applied a fractionated schedule. If the tumor number was large, we selected a multisession schedule. Median tumor number was three (1–64) in B group and two (1–31) in K group. Median tumor size was 2.7 (0.01–58.8) ml in B group and 2.8 (0.02–123.5) ml in K group. We selected fractionated schedules as follows; 7.0 Gy x 5Fr (5–10 ml), 4.2Gy x 10Fr (10–20ml), 3.7Gy x 10Fr (20–30ml), 3.2Gy x 10Fr (30ml-).

**RESULTS:** 32 (B) and 14 (K) cases were treated in a single session, 80 (B) and 17 (K) with fractionation, and 28 (B) and 2 (K) with multiple sessions. Median survival times after Icon treatment was 28.2 (B) and 15.5 (K) months. Local control rates were 89 % (B) and 85% after 12-month Icon treatment. Qualitative survival rates were 91% (B) and 86% (K) after 12-month Icon treatment. There were no statistically differences between two groups.

**CONCLUSIONS:** Although these results are limited to short periods, survival rates, local control rates and qualitative survival rates were within the acceptable ranges.

## OTHER BRAIN TUMORS (BT)

#### BT-09

##### ANHIDROSIS IN NEUROHYPOPHYSEAL GERMINOMA TREATED WITH CBDCA AND VP-16

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**INTRODUCTION:** Acquired generalized anhidrosis (AGA) is the disease with non-congenital, non-segmented diffuse sweating dysfunction and is associated with neurological signs and dysautonomia except for anhidrosis. Here we have experienced 2 cases of AGA in the patient with neurohypophyseal germinoma after carboplatin (CBDCA) plus etoposide (VP-16) (CARE) therapy. Relationship of AGA to neurohypophyseal germinomas and their treatment is discussed. **CASES:** We experienced two young (26 y/o and 27 y/o) female neurohypophyseal germinoma cases of anhidrosis. They received CARE as chemotherapy and whole ventricular irradiation. They showed heat retention 2 to 3 years after initial treatment without recurred germinoma. Because acetylcholine sweating test was negative and skin biopsy revealed normal sweat gland structure, the diagnosis of acquired idiopathic generalized anhidrosis (AIGA), idiopathic pure sudomotor failure subtype, was initially made. After steroid pulse therapy, sweat function recovered partially and completely. **DISCUSSION:** AIGA and germinoma are both rare diseases. So, the present 2 cases have similar clinical settings, that anhidrosis may not be idiopathic but secondary. Affected responsible site of anhidrosis in the present cases is thought to be acetylcholine receptor in the sweat cells. The present cases did not have any known disease with anhidrosis and did not receive any medication which cause anhidrosis written in the statement of the virtues of a medicine. Commonly used drugs in both cases are infusion solutions, CARE and related drugs, hormone stimulating test agents. Recently anhidrosis is reported in a case of cancer of unknown primary tumor site after using CBDCA and PTX. Both of the present cases are used CBDCA, which may cause anhidrosis. **CONCLUSION:** CBDCA may attributed to the occurrence of AGA based on hypothalamic vulnerability.

## RARE CASE SERIES (CS)

#### CS-01

##### RAPID RECURRENCE AND ANAPLASTIC TRANSFORMATION OF A PILOCYTIC ASTROCYTOMA IN AN ELDERLY PATIENT

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**BACKGROUND:** Rapid recurrence of a pilocytic astrocytoma with anaplastic transformation is extremely rare. The case of an elderly patient with a cerebellar pilocytic astrocytoma with anaplastic transformation during short-term follow-up is reported. **CASE DESCRIPTION:** An 83-year-old woman presented initially with dizziness and a gait deviation to the right. Magnetic resonance imaging (MRI) demonstrated a homogeneously enhanced mass in the right cerebellar hemisphere, and the tumor was subtotally removed by right suboccipital craniotomy. Histological examination showed that the tumor cells contained eosinophilic cytoplasm and spindle-shaped processes with Rosenthal fibers and eosinophilic granular bodies, diagnosed as a typical pilocytic astrocytoma (PA). The MIB-1 index was less than 1%. The patient did not receive postoperative adjuvant radiation and chemotherapy. Two months after surgery, MRI showed growth of the residual tumor adjacent to the fourth ventricle, causing obstructive hydrocephalus. She underwent surgery again, and the tumor was totally removed. Histological findings showed mitotic cells and increased cellularity compared with the primary tumor, which was compatible with anaplastic transformation of PA with a MIB-1 index of 50%. Postoperatively, she was observed with best supportive care without postoperative adjuvant therapy. Nine months after the second operation, she died due to tonsillar herniation and obstructive hydrocephalus caused by a recurrent tumor. An autopsy was performed. **CONCLUSION:** It is extremely rare, as in the present case, that a cerebellar PA in an elderly patient recurs rapidly with anaplastic transformation, despite deferred postoperative adjuvant therapy including radiation and chemotherapy. A novel molecular-targeted therapy is needed for anaplastic PA showing aggressive biological behavior.

#### CS-03

##### BRAF V600E MUTATION MEDIATES FDG-METHIONINE UPTAKE MISMATCH IN POLYMORPHOUS LOW-GRADE NEUROEPITHELIAL TUMOR OF THE YOUNG

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We present a case of a 14-year old boy with tumor-associated refractory epilepsy. Positron emission tomography imaging demonstrated a region with heterogeneous high 11 C-methionine uptake and a region with homogenous low 18 F- fluorodeoxyglucose uptake within the tumor. Histopathological and genomic analyses confirmed the tumor as BRAF V600E-mutated PLNTY (polymorphous low-grade neuroepithelial tumor of the young). Within the high-methionine-uptake region, we observed increased protein levels of L-type amino acid transporter 1 (LAT1) and constituents of the mitogen-activated protein kinase (MAPK) pathway. We also found that LAT1 expression was linked to BRAF V600E mutation and subsequent activation of MAPK signaling. Pharmacological inhibition of the MAPK pathway suppressed LAT1 expression and cell viability in PLNTY cells. Collectively, our results indicate that BRAF V600E mutation-activated MAPK signaling induces specific metabolic alterations in PLNTY, and may represent an attractive target in the treatment of the disease.

#### CS-09

##### EXTRA-PARENCHYMAL (PERIPHERAL) ATYPICAL TERATOID / RHABDOID TUMORS

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AT/RT is a malignant embryonal tumor reported by Rorke in 1996. Authors reported first AT/RT in Japan in 1998. This tumor entity was included as new malignant embryonal tumor in WHO 2000, and tumors of Japanese patients has been reported more than 80 cases in the past. This AT/RT is a tumor in the brain parenchyma that a medulloblastoma and PNET and the possibility that it has been misdiagnosed have had pointed out. On the other hand, it is reported that there is the type that we should call peripheral AT/RT which rarely occurs in extra-parenchyma. We want to propose that there is such special tumor group. In the results, age: 17 infants were