BACKGROUND: The optimal radiation field in patients with bifocal GCTs (GCTs) is controversial. METHODS: The data of 87 patients diagnosed with bifocal GCTs at our hospital during the last 15 years were analyzed. The WHO AnatomPlus software—used to monitor the growth of persons aged 5–19 years—was employed to calculate the Z-score of height (ZSOH) at diagnosis and the last follow-up. The absolute change in the ZSOH was defined as ZSOH last follow-up – ZSOH diagnosis. The Pediatric Quality of Life Inventory 4.0 was used to evaluate HRQOL. RESULTS: The median follow-up was 49 months (range, 6–134 months). Among 49 patients with non-metastatic germinoma, those receiving cranial spinal irradiation (CSI) (n=12) or whole-brain radiotherapy (WBRT; n=37) had significantly better disease-free survival (DFS) (p<0.56) than those receiving focal radiotherapy (n<0.016). Furthermore, among 17 patients with non-metastatic non-germinomatous GCTs, DFS was not significantly different between those treated with CSI (n=4) and those receiving WBRT (n=13; p<0.11). Twenty-nine patients had paired ZSOH data at both diagnosis and the last follow-up. Patients receiving CSI (p=0.026) or >40 Gy (p=0.048) experienced a significant decline of absolute change in the ZSOH. HRQOL analysis (n=35) did not reveal difference between patients receiving CSI and those not receiving CSI. CONCLUSIONS: Given the comparable DFS and HRQOL, but negative impact on growth, CSI could be spared, especially in patients with non-metastatic germicidal biopsy.

GCT-06. DIAGNOSIS OF A RARE CASE OF RECURRENT GERM CELL TUMOR BY CSF PLACENTAL ALKALINE PHOSPHATASE PRESENTING WITH DIFFUSE INTRAAXIAL ABNORMALITY IN THE LOWER BRAINSTEM

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INTRODUCTION: Germ cell tumors in the central nervous system (CNS) typically arise either at suprasellar and/or pineal region, and occasionally at basal ganglia. We report a case of diagnostically challenging, recurrent germ cell tumor that presented with diffuse intraaxial abnormality in and across the lower brainstem, which was diagnosed by the elevated placental alkaline phosphatase (PLAP) level in cerebrospinal fluid (CSF). CASE DESCRIPTION: A 28-year-old man had been treated by chemoradiotherapy at the previous hospital for bifocal suprasellar and pineal lesions with the diagnosis of recurrent germ cell tumor. Magnetic resonance imaging showed a diffuse, bilateral symmetric high intensity lesion on T2-weighted image with slight contrast enhancement across the ventral side of the medulla oblongata to the upper cervical spinal cord. Serum and CSF hCG, hCG-β, and AFP were all negative. Since the image findings were atypical for recurrent germ cell tumor, the differential diagnosis of Klinefelter’s syndrome was initially suspected. Therefore, gonadotropin-releasing hormone (GnRH) agonist therapy was administered. However, the patient’s symptom was still gradually progressing. Then, the CSF PLAP turned out to be positive, indicating the recurrence of germioma. Accordingly, platinum-based chemotherapy was administered, and the imaging findings, patient’s symptoms, and CSF PLAP began to improve. The patient is to be treated with radiotherapy followed by chemotherapy. CONCLUSION: We report a rare case of CNS germ cell tumor that presented with diffuse intraaxial lesion in the lower brainstem in which examination of CSF PLAP was extremely useful.