Synchronous intracranial germ cell tumor

Synchronous intracranial germ cell tumor in the pineal region and suprasellar region is rare. They represent only 5-10% of all intracranial germinomas. They are also known by the entity “double midline atypical teratoma” and are common in the second decade of life.

Case reports

2015

A 19-year-old woman with a highly malignant intracranial germ cell tumor (GCT) that developed 14 years after treatment for neurohypophyseal germinoma. Magnetic resonance imaging (MRI) showed a large neurohypophyseal mass and a synchronous lesion in the pineal region. Plasma alpha fetoprotein was elevated to 3038 ng/mL. Although the tumor shrank and tumor marker levels normalized after chemotherapy and craniospinal irradiation, treatment was switched to oral etoposide for the residual tumor because of adverse events. MRI after oral etoposide introduction showed additional tumor shrinkage for 27 months after the onset of the second tumor. To the best of the author knowledge, this is the longest interval between germinoma onset and the development of highly malignant recurrent GCT to be reported in the English-language literature. Oral etoposide prevented regrowth of the GCT, which has a poor prognosis, and decreased the size of the residual tumor [1)].

Gupta et al. report a case of an 11-year-old girl having dual midline intracranial lesions with obstructive hydrocephalus treated by ventriculo-peritoneal shunt. Diagnosis of germinoma was made on the basis of imaging and elevated beta-human chorionic gonadotropin in cerebrospinal fluid. Radiotherapy was instituted, which resulted in the total disappearance of both the lesions. Clinical expression, diagnosis and management strategies are discussed [2)].

Van Battum et al. [3)] postulated that in the case of multiple intracranial midline tumors with normal or slightly elevated values of β-hCG and normal values of AFP in both the serum and CSF, the only possible diagnosis is a germinoma, and, in such a situation, no histological confirmation was required to start low-dose radiotherapy. Since germinomas are curable in the majority of cases when treated early, these observations should be examined further.

Ectopic germinoma involving multiple midline and paramedian structures outside the pineal gland or hypophyseal region of the brain prior to tumor development [4)]

1)
Fukuoka K, Yanagisawa T, Suzuki T, Shirahata M, Adachi JI, Mishima K, Fujimaki T, Matsutani M, Nishikawa R. Malignant transformation of germinoma 14 years after onset: Favorable efficacy of oral etoposide. Pediatr Int. 2015 Feb 24. doi: 10.1111/ped.12559. [Epub ahead of print] PubMed PMID: 25712128.
2)
Gupta R, Songara A. Management of dual intracranial germinoma by radiotherapy alone. J Pediatr Neurosci. 2015 Jan-Mar;10(1):38-40. doi: 10.4103/1817-1745.154330. PubMed PMID: 25878742;

PubMed Central PMCID: PMC4395943.

3)

van Battum P, Huijberts MS, Heijckmann AC, Wilmink JT, Nieuwenhuijzen Kruseman AC. Intracranial multiple midline germinomas: is histological verification crucial for therapy? Neth J Med. 2007 Nov;65(10):386-9. PubMed PMID: 18057461.

4)

Hayashi S, Okamoto K. Ectopic germinoma involving multiple midline and paramedian structures outside the pineal gland or hypophyseal region of the brain prior to tumor development. J Neurol Sci. 2015 Sep 28. pii: S0022-510X(15)02457-0. doi: 10.1016/j.jns.2015.09.369. [Epub ahead of print] PubMed PMID: 26432576.