Intracranial germ cell tumor

Intracranial germ cell tumors (iGCTs) are a heterogeneous group of tumors with peculiar characteristics clearly distinguished from other brain tumors of neuroepithelial origin [1].

Primary intracranial germinomas are a rare subset of intracranial tumors derived from mis-incorporated germ cells within the folding neural plate during embryogenesis.

When they arise in the CNS, GCTs occur in the midline in the suprasellar and/or pineal region (simultaneous suprasellar and pineal region lesions is diagnostic of a GCT, so-called synchronous germ cell tumors, comprise 13% of GCTs, and are highly sensitive to XRT [2].

In the pineal region, these tumors occur predominantly in males. In females, GCTs are more common in the suprasellar region [3].

Aside from benign teratomas, all intracranial GCTs are malignant and may metastasize via CSF and sys- temically.

Classification

Intracranial germ cell tumor classification

Epidemiology

see Intracranial germ cell tumor epidemiology.

Pathogenesis

IGs may result from the mismigration of embryonic cells into the neural plate area and so the midline of the embryonic disk has been reported to be a site of germ cell tumor origin [4].

Clinical features

Intracranial germinoma is almost always located in the midline and its more common manifestation is hydrocephalus due to aqueductal occlusion.

Diagnosis

Intracranial germ cell tumor diagnosis.

Differential diagnosis

Differential diagnoses of cognitive symptoms are various, but germinoma could be considered as a possible pathology for it. Early MRI and tumor marker exams are recommended, unless organic brain diseases are completely denied. MR spectroscopy and biopsy with ventriculoscope are useful for diagnosis [5].

The pathophysiology of IGs masquerading as inflammatory brain disease (IBD), remains unclear, but one hypothesis is that the leptomeningeal dissemination of germinoma cells precedes tumor development, and that non-specific inflammatory reactions in tumor tissues may generate intrathecal IgG [6].

To better distinguish such atypical IGs from IBD, Tao et al. reported the role of MRI and tumor markers in the CSF, and found that an increased level of Beta-human chorionic gonadotropin in the CSF preceded MRI abnormalities [7].

Treatment

Intracranial germ cell tumor treatment.

Outcome

Intracranial germ cell tumor outcome.

Case series

Intracranial germ cell tumor case series.

Case reports

see Intracranial germ cell tumor case reports.

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