Nongerminomatous germ cell tumor

see Embryonal carcinoma.

Choriocarcinoma.

Endodermal sinus tumor.

Teratoma

The nongerminomatous or nonseminomatous germ cell tumors (NGGCT, NSGCT) include all other germ cell tumors, pure and mixed.

Mixed germ cell tumors occur in many forms. Among these, a common form is teratoma with endodermal sinus tumor.

Teratocarcinoma refers to a germ cell tumor that is a mixture of teratoma with embryonal carcinoma, or with choriocarcinoma, or with both. This kind of mixed germ cell tumor may be known simply as a teratoma with elements of embryonal carcinoma or choriocarcinoma, or simply by ignoring the teratoma component and referring only to its malignant component: embryonal carcinoma and/or choriocarcinoma. They can present in the anterior mediastinum.

The two classes reflect an important clinical difference. Compared to germinomatous tumors, nongerminomatous tumors tend to grow faster, have an earlier mean age at time of diagnosis (~25 years versus ~35 years, in the case of testicular cancers), and have a lower 5 year survival rate. The survival rate for germinomatous tumors is higher in part because these tumors are very sensitive to radiation, and they also respond well to chemotherapy. The prognosis for nongerminomatous tumours has improved dramatically, however, due to the use of platinum-based chemotherapy regimens.

Intracranial Germ Cell Tumors have been studied through the International CNS GCT Study Group. Under the direction of Jonathan Finlay, the program director, three international treatment studies have been initiated since 1990 with the goal to maintain a high rate of cure while minimizing the late effects of treatment.

see Basal ganglia nongerminomatous germ cell tumor

see Pineal nongerminomatous malignant germ cell tumor.

The role of T2*-based MR imaging in intracranial germ cell tumors (GCTs) has not been fully elucidated. The aim of a study was to evaluate the susceptibility-weighted imaging (SWI) or T2* gradient echo (GRE) features of germinomas and nongerminomatous germ cell tumors (NGGCTs) in midline and off-midline locations.

Morana et al. retrospectively evaluated all consecutive pediatric patients referred to our institution between 2005 and 2016, for newly diagnosed, treatment-naïve intracranial GCT, who underwent MRI, including T2*-based MR imaging (T2* GRE sequences or SWI). Standard pre- and post-contrast T1- and T2-weighted imaging characteristics along with T2*-based MR imaging features of all lesions were evaluated. Diagnosis was performed in accordance with the SIOP CNS GCT protocol criteria.

Twenty-four subjects met the inclusion criteria (17 males and 7 females). There were 17 patients with

germinomas, including 5 basal ganglia primaries, and 7 patients with secreting NGGCT. All off-midline germinomas presented with SWI or GRE Hypointensity; among midline GCT, all NGGCTs showed SWI or GRE Hypointensity whereas all but one pure germinoma were isointense or hyperintense to normal parenchyma. A significant difference emerged on T2*-based MR imaging among midline germinomas, NGGCTs, and off-midline germinomas ($p < 0.001$).

Assessment of the SWI or GRE characteristics of intracranial GCT may potentially assist in differentiating pure germinomas from NGGCT and in the characterization of basal ganglia involvement. T2*-based MR imaging is recommended in case of suspected intracranial GCT [1].

1)
Morana G, Alves CA, Tortora D, Finlay JL, Severino M, Nozza P, Ravegnani M, Pavanello M, Milanaccio C, Maghnie M, Rossi A, Garrè ML. T2*-based MR imaging (gradient echo or susceptibility-weighted imaging) in midline and off-midline intracranial germ cell tumors: a pilot study. Neuroradiology. 2017 Nov 11. doi: 10.1007/s00234-017-1947-3. [Epub ahead of print] PubMed PMID: 29128947.