Introduction
Intracranial germinoma is a rare type of brain tumors in children. The management of intracranial germinoma is complex because of different clinical manifestations, tumor location, treatment and outcomes, as well as the need for multidisciplinary input.

Aims
To evaluate the potential role of emergency radiotherapy in intracranial germ cell tumors (GCTs) patients with KPS ≤ 40.

Materials & methods
A total of 27 primary intracranial germ cell tumors (GCTs) patients with KPS ≤ 40 between Jan 2007 and Dec 2018 were retrospectively evaluated. The median age at initial diagnosis was 15 years (range, 5-28 years).

Among those, 11 patients were diagnosed as germinoma and 16 patients were diagnosed as non-seminomatous germ-cell tumors (NGGCTs). There were 9 solitary pineal, 5 suprasellar, 3 basal ganglia and 10 multifocal and disseminated tumors.

All patients received emergency radiotherapy (2 Gy/fx/d). Prior to radiotherapy, 11 patients were manifested with hydrocephalus, 10 with hypopituitarism and 5 with intracranial tumor apoplexy.

Results
- The average follow-up time was 44.4 months (range, 1-132 months). The 5-year progression free survival rate and overall survival rate were 88.0% and 89.5%.
- In particular, the median intracranial hypertension symptoms relief time was 2 days (range, 0.5-6 days).
- The median KPS following radiotherapy was 80 comparing to 30 prior to radiotherapy (P < 0.05). A significant improvement on KPS of 46.7±27.3 was observed in this study.

Conclusions
- Emergency radiotherapy is implicated as a promising intervention for GCTs patients with elevated intracranial pressure (ICP).
- These advantages can be interpreted as direct cell killing effect and fast tumor shrinkage by ionizing radiation. However, to substantiate our findings, further investigations were highly warranted.

![Image](https://via.placeholder.com/150)

Fig. 1. a. The 5-year progression free survival rate and overall survival rate were 78.2% and 72.1%.
b. The median KPS following radiotherapy was 80 comparing to 30 prior to radiotherapy, delta KPS = 46.7±27.3. (P < 0.0001).
c. The median GCS following radiotherapy was 15 comparing to 12 prior to radiotherapy, delta GCS = 4.4±4.0. (P < 0.0001).

![Image](https://via.placeholder.com/150)

Fig. 2. a. Patients with GCS > 12 were found to have a longer survival than patients with GCS ≤ 12. (p = 0.043)
b. Patients with KPS > 20 were found to have a longer survival than patients with KPS ≤ 20. (p = 0.019)
c. Patients without tumor stroke were found to have a longer survival than patients with tumor stroke. (p = 0.004)

![Image](https://via.placeholder.com/150)

Fig. 3. 1 week radiation therapy. a. Brain MRI of before emergency radiotherapy (2018-10-10). b. Brain MRI of after emergency radiotherapy (2018-10-16).