Pineal region tumor (PRT)

Key concepts

● wide variety of pathology: germ cell tumors (mostly germinomas, teratomas), astrocytomas, & pineal tumors (mostly pineoblastomas) account for most tumors

● pineal region tumors are more common in children than in adults

● in children, most tumors are germinomas or astrocytomas; in adults, meningiomas and gliomas predominate

● see germ cell tumors

● see pineal cysts

Epidemiology

Pineal region tumors (PRTs), which are rare tumors, account for approximately 0.4-1.0% of intracranial tumors.

Pineal parenchymal tumors (PPTs) are even rarer, and approximately 30% of PPTs occur in neoplasms of the pineal region 1).

Over the age of 40 is more likely to be a meningioma or a glioma.

Tumors in this region are more common in children (3-8% of pediatric brain tumors) than in adults (≤1%). 2)

Over 17 tumor types occur in this region 3).

Pineal germinoma is the most common tumor (21- 44% in American/European population, 43-70% in Japan), followed by pineal astrocytoma, pineal teratoma and pineoblastoma 4).

Many tumors are of mixed cell type.

Germ cell tumors (GCT), ependymomas and pineal cell tumors metastasize easily through the CSF (“drop metastases”).

Pineal region tumor classification

Pineal region tumor classification.

Clinical

Pineal region tumor clinical.

Diagnosis

see Pineal region tumor diagnosis.
Differential diagnosis

see Pineal region tumor differential diagnosis.

Treatment

see Pineal region tumor treatment.

Case series

see Pineal region tumor case series.

Case reports

Cho et al. presented a case of a 75-year-old woman with known pineal region mass for 18 years, who presented with progressive classic signs and symptoms of obstructive hydrocephalus over the past six months. The preoperative imaging confirmed a contrast-enhancing pineal region tumor, which appeared to be obstructing the aqueduct of Sylvius, causing proximal obstructive hydrocephalus. 5mg/kg of ICG was delivered intravenously 24 hours before the surgery. The patient underwent an endoscopic third ventriculostomy and a biopsy of the pineal lesion. The tumor demonstrated clear near-infrared fluorescence which was distinct from surrounding third ventricle floor and ependyma. The signal to background ratio was 2.9. The final pathology report revealed a WHO Grade I pineocytoma.

They reported on a novel application of near-infrared fluorescence for tumor identification of pineal region tumors, using the Second Window ICG technique.


