

# Growing teratoma syndrome

Growing teratoma syndrome (GTS) is a rare clinical entity, which presents with enlarging [retroperitoneal teratomas](#) masses or other locations, occurring during or after systemic [chemotherapy](#) for the treatment of [Nonseminomatous germ cell tumor](#) of the testis (NSGCT), with normalized tumor markers. The [pathogenesis](#) of growing teratoma syndrome remains unclear.

The incidence of GTS after testicular NSGCT is 1.9–7.6%, while in the setting of ovarian germ cell neoplasia is unknown <sup>1)</sup>

## Treatment

Surgical resection is currently the gold standard treatment for GST, since [teratomas](#) are resistant to chemotherapy and radiotherapy

## Case reports

A mixed [germ cell tumor](#) including immature teratoma exhibiting [growing teratoma syndrome](#) is presented. GCTs are often located within the ventricles, causing hydrocephalus, which sometimes improves after the removal of the tumor due to the restoration of cerebrospinal fluid (CSF) flow. On the other hand, even if the flow route of CSF from the [third ventricle](#) to [arachnoid granulations](#) on the brain surface [quadrigeminal cistern](#) is restored after removal of the tumor, hydrocephalus may not improve.

A case whose intractable hydrocephalus improved after penetrating the aqueductal membrane via [endoscopy](#) is described. An 11-year-old boy was treated for pineal [intracranial growing teratoma syndrome](#) (IGTS). The tumor grew rapidly in a short period, and hydrocephalus progressed despite an [endoscopic third ventriculostomy](#) (ETV). Although the obstruction was removed by radiation, chemotherapy, and total tumor resection, the hydrocephalus did not improve. Endoscopic membrane perforation was performed because a membrane-like structure was seen at the entrance of the cerebral aqueduct on magnetic resonance imaging. The hydrocephalus improved immediately after the operation, and the patient's consciousness disturbance also improved significantly.

The purpose of this report is to update the current knowledge and standards of management for patients with [growing teratoma syndrome](#), as well as to drive future translational and clinical studies by recognizing the unmet needs concerning [hydrocephalus](#) <sup>2)</sup>.

## Latest articles

- [Fertility-preserving approach in growing teratoma syndrome with repeated ovarian surgeries](#)
- [Growing teratoma syndrome with extra pelvic metastasis and gliomatosis peritonei](#)
- [Fertility-sparing surgery for growing teratoma syndrome: a case of complete cytoreductive surgery with a colo-rectal re-section](#)

- [Intracardiac Teratoma in a Patient With Nonseminomatous Germ Cell Tumor](#)
- [Total en bloc spondylectomy in testicular immature teratoma: Long-term survival amidst vertebral metastasis escalated by growing teratoma syndrome](#)
- [Coexisting growing teratoma syndrome and gliomatosis peritonei following ovarian immature teratoma: a case report and literature review](#)
- [Late Recurrence of a Growing Teratoma Syndrome-Like Lesion in a 54-Year-Old Female Patient: A Follow-up Case Report](#)
- [Growing teratoma syndrome after treatment of ovarian immature teratoma: ultrasound images of a very rare condition](#)

1)

Gorbatiy V, Spiess PE, Pisters LL. The growing teratoma syndrome: Current review of the literature. Indian J Urol. 2009 Apr;25(2):186-9. doi: 10.4103/0970-1591.52910. PMID: 19672343; PMCID: PMC2710061.

2)

Kajiwara S, Nakamura H, Sakata K, Komaki S, Negoto T, Morioka M. Endoscopic aqueductal membrane fenestration was effective for intractable hydrocephalus after removal of a nongerminomatous germ cell tumor exhibiting growing teratoma syndrome: a case report. BMC Pediatr. 2022 Nov 28;22(1):683. doi: 10.1186/s12887-022-03743-y. PMID: 36443673.

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