

BACKGROUND

Growing teratoma syndrome (GTS) is a rare complication of non-seminomatous germ cell tumors, characterized by progressive growth of metastatic masses despite normalized tumor markers following chemotherapy. Mature teratoma is resistant to chemotherapy and radiotherapy, making complete surgical resection the only potentially curative treatment.

We report an unusual case of late-onset, progressive GTS with multisite thoracic, pelvic, and cervical spine involvement, rendering the disease irresectable.

CASE PRESENTATION

A 28-year-old male presented in September 2021 with right testicular swelling. Imaging revealed a right testicular mass with pulmonary and pelvic/inguinal metastases and markedly elevated AFP. Right orchidectomy confirmed a mixed germ cell tumor containing 75% mature teratoma, 20% embryonal carcinoma, and 5% yolk sac tumor. Following four cycles of BEP chemotherapy, tumor markers normalized, but residual metastatic masses persisted and subsequently progressed, consistent with Growing Teratoma Syndrome (GTS).

CLINICAL COURSE

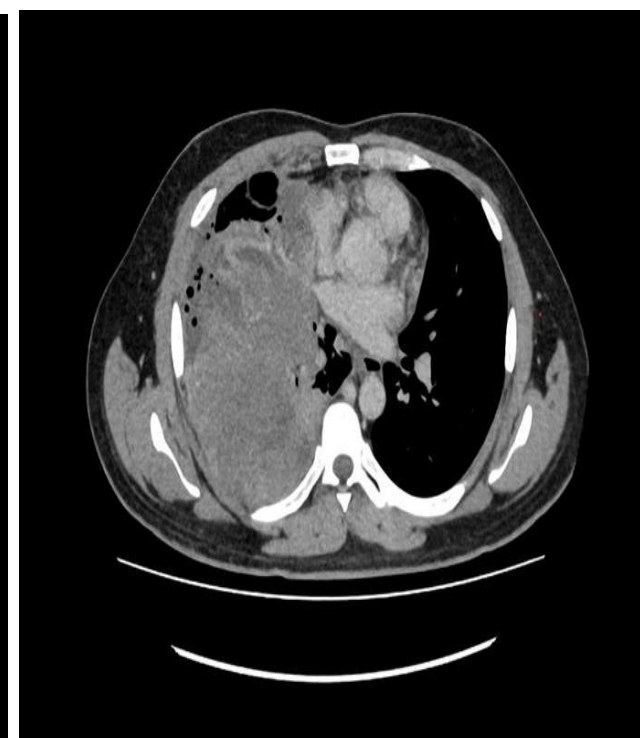
Date	Clinical Course & Management
Sep 2021	Right testicular swelling; CT showed pulmonary and pelvic/inguinal metastases.
16 Sep 2021	Right orchidectomy → mixed germ cell tumor with 75% mature teratoma, 20% embryonal carcinoma, and 5% yolk sac tumor.
Oct 2021 – Jan 2022	4 cycles BEP chemotherapy; tumor markers normalized.
2022 – 2023	Persistent pulmonary and pelvic masses despite normalized tumor markers; surveillance continued.
Sep 2024	Neck pain and radiculopathy; MRI showed C4 vertebral metastasis with progressive thoracic and pelvic disease.
Sep–Oct 2024	Palliative cervical radiotherapy followed by TIP chemotherapy; partial radiological response with persistently normal tumor markers.
March 2026	Inguinal lymph-node biopsy confirmed metastatic mature teratoma without somatic malignant transformation.
April 2026	Massive right pleural effusion with rapid thoracic disease progression; surgical resection deemed unfeasible due to extensive local infiltration.
April 2026	Active oncological therapy discontinued; transitioned to palliative care and received chest-wall radiotherapy for pain control.

RADIOLOGICAL PROGRESSION



Jan 2022

Initial contrast enhanced axial CT of the chest demonstrating a solitary, well-circumscribed soft-tissue mass



April 2026

Restaging Contrast-enhanced axial CT of the chest, alongside demonstrating massive interval disease progression

MANAGEMENT

Restaging scan in April 2026 confirmed significant interval growth of the right thoracic mass with stable pelvic disease; cardiothoracic MDT deemed surgical resection infeasible due to extensive local infiltration. Following acute clinical deterioration, the patient was transitioned to palliative care, with palliative radiotherapy delivered to the right chest wall for pain control.

DISCUSSION

- GTS was diagnosed based on the classical Logothetis criteria:
 - Complete normalization of previously elevated AFP and β -hCG levels.
 - Progressive enlargement of metastatic masses on serial imaging.
 - Histological confirmation of mature teratoma without malignant germ-cell elements.
- The persistent normal tumor markers despite progressive radiological disease highlights the characteristic biochemical–radiological discordance of GTS.

CONCLUSION

- GTS can progress for years despite persistently normal tumor markers.
- Progressive residual masses after chemotherapy warrant close imaging surveillance and early surgical evaluation.
- Early multidisciplinary intervention may prevent progression to multifocal, irresectable disease.

REFERENCES

- Logothetis CJ, Samuels ML, Trindade A, Johnson DE. The growing teratoma syndrome. Cancer. 1982;50(8):1629–1635.
- Rathod PS, Singh A, Punyashree RM, Pallavi VR, USBA A, Vijay CR, et al. Growing teratoma syndrome a rare clinical entity: two decades management experience from the regional cancer institute. Indian J Surg Oncol. 2021;12:31–38.
- Satake D, Natsumeda M, Satomi K, Tada M, Sato T, Okubo N, et al. Successful multimodal treatment of intracranial growing teratoma syndrome with malignant features. Curr Oncol. 2024;31(4):1831–1838.