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Long-term tolerance of dense-dose temozolomide and the development of secondary diffuse large b-cell lymphoma in a patient with anaplastic astrocytoma

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Temozolomide (TMZ) is a standard treatment for high-grade gliomas like anaplastic astrocytoma. While short-term toxicity profiles are well-documented, there is limited evidence on long-term tolerance and rare complications such as secondary malignancies or paraneoplastic syndromes. This case explores the clinical course of a patient who tolerated dense-dose TMZ for 5 years without major side effects but later developed diffuse large B-cell lymphoma (DLBCL) and paraneoplastic pemphigus—highlighting potential under-recognized risks in long-term management.

Methodology & Theoretical Orientation: This retrospective case study analyzed the clinical progression, radiological stability, and complications in a 57-year-old male diagnosed with anaplastic astrocytoma (IDH1 wild-type, 1p/19q non-deleted) in 2015. Treatment history, radiology, histopathology, and follow-up records over 10 years were reviewed to identify correlations between prolonged TMZ exposure and subsequent complications. The case is framed within a clinical oncology context, exploring oncological decision-making, treatment resilience, and secondary disease monitoring.

Findings: Following initial surgery, radiotherapy, and adjuvant TMZ, the patient received dense-dose TMZ for 5 years with excellent disease control and minimal side effects. In 2023, he developed DLBCL, treated successfully with R-CHOP. Subsequently, he developed paraneoplastic pemphigus without evidence of glioma recurrence or lymphoma relapse. Despite complex events, MRI scans consistently showed stable brain disease from 2017 to 2025.

Conclusion & Significance: This case demonstrates that long-term TMZ therapy can be well-tolerated and effective, but rare complications such as secondary lymphomas and paraneoplastic syndromes can emerge. It emphasizes the importance of extended follow-up and vigilance for late effects in long-term survivors. Oncology services should consider risk stratification and regular systemic surveillance for patients receiving extended chemotherapy.