

# Glioma recurrence

see also [Glioblastoma recurrence](#)

[Glioma recurrence](#) is a significant clinical challenge in [neuro-oncology](#). The [recurrence rate](#) depends on multiple factors, including the tumor's grade, molecular characteristics, and initial treatment response. Here are some key aspects of glioma recurrence:

## 1. Risk Factors for Recurrence

**Tumor Grade:** High-grade gliomas (e.g., glioblastoma, WHO grade 4) have a higher recurrence rate than low-grade gliomas. **Extent of Resection:** Incomplete surgical removal leads to a higher risk of recurrence. **Molecular Markers:** IDH wild-type gliomas tend to be more aggressive. MGMT promoter methylation is associated with better response to temozolomide (TMZ). TERT promoter mutations and EGFR amplification are linked to poor prognosis. **Location:** Tumors in eloquent areas may be less resectable, leading to residual disease and recurrence. **Therapeutic Response:** Resistance to radiotherapy and chemotherapy contributes to recurrence.

## 2. Patterns of Recurrence

Local recurrence is the most common pattern, occurring within 2 cm of the original tumor site. Distant recurrence may occur due to migratory tumor cells or treatment-induced changes. Leptomeningeal spread is rare but seen in aggressive cases.

## 3. Diagnostic Workup for Recurrence

**MRI with contrast:** T1-weighted imaging with gadolinium contrast is the standard for detecting recurrence.

**MR Spectroscopy (MRS):** Helps differentiate recurrence from radiation necrosis.

**PET Imaging (e.g., FDG-PET, amino acid PET):** Can assist in distinguishing viable tumor tissue from treatment effects.

[Liquid biopsy \(circulating tumor DNA, cfRNA\)](#): Emerging tool for non-invasive monitoring.

## 4. Treatment Options for Recurrent Gliomas

**Repeat Surgery:** Considered in select cases, particularly if mass effect is present. **Re-irradiation:** Stereotactic radiosurgery (SRS) or fractionated radiation may be used cautiously. **Chemotherapy:** Temozolomide (TMZ) rechallenge (if MGMT methylated and prior response was good). Bevacizumab (Avastin): Anti-VEGF therapy for edema control and symptom relief. Lomustine (CCNU), procarbazine,

vincristine (PCV regimen): Used in some recurrent cases. Targeted and Experimental Therapies: TTFields (Tumor Treating Fields): Device-based therapy for recurrent glioblastoma. Immunotherapy (e.g., checkpoint inhibitors, vaccines): Limited success but ongoing research. CAR-T therapy and oncolytic viruses: Under investigation.

## 5. Prognosis and Survival

**Recurrent glioblastoma** has a poor prognosis, with median survival of 6–9 months after recurrence. Low-grade gliomas have better outcomes but may transform into higher-grade tumors over time.

**MicroRNAs** (miRs) act as **oncogenes** or tumor-suppressor genes and regulate the **proliferation**, **apoptosis**, **invasion**, differentiation, **angiogenesis**, and behavior of **glioma stem cells**, which are important in **glioma recurrence** and development.

From:

<https://neurosurgerywiki.com/wiki/> - **Neurosurgery Wiki**

Permanent link:

[https://neurosurgerywiki.com/wiki/doku.php?id=glioma\\_recurrence](https://neurosurgerywiki.com/wiki/doku.php?id=glioma_recurrence)

Last update: **2025/04/29 20:28**

