

Intracranial Solitary Fibrous Tumor Treatment

- A clinical investigation of extracranial metastases in 17 cases of intracranial solitary fibrous tumors
- A systematic review and meta-analysis on the efficacy of postoperative radiotherapy after gross total resection of intracranial solitary fibrous tumors
- Differential diagnosis of intracranial solitary fibrous tumor and high-grade meningioma based on CT and MRI features
- A Case of Intracranial Solitary Fibrous Tumor Followed by Distant Metastasis without Local Recurrence
- Meningeal malignant solitary fibrous tumor with multiple recurrence, extracranial extension, cervical lymph node metastases: case report and review of the literature
- Postoperative stereotactic radiosurgery for intracranial solitary fibrous tumors/hemangiopericytomas: A systematic review and meta-analysis
- Low-grade intracranial solitary fibrous tumor with early metastasis to lumbar spine and recurrence twice: case report
- Apparent Diffusion Coefficient (ADC) and Magnetic Resonance Imaging (MRI) Nomogram for Differentiating a Solitary Fibrous Tumor (World Health Organization Grade II) From an Angiomatous Meningioma

The management of **intracranial solitary fibrous tumors (SFTs)** is based on histological grade, resection extent, and recurrence risk. Due to their potential for recurrence and metastasis, even many years after diagnosis, long-term follow-up and multimodal treatment are often warranted.

Primary Treatment

- **Gross Total Resection (GTR):**
 - Mainstay of treatment for all WHO grades.
 - Achieving GTR significantly improves **local control** and **progression-free survival (PFS)**.
 - Intraoperative navigation and careful dural dissection may assist in achieving clear margins.

Postoperative Radiotherapy (PORT)

- **Indicated in the following scenarios:**
 - WHO **Grade II or III** tumors
 - **Subtotal resection (STR)**
 - Recurrent disease
- Improves **local control**, especially in high-grade or incompletely resected tumors.
- Techniques:
 - **External Beam Radiotherapy (EBRT)**
 - **Stereotactic Radiotherapy (SRT)** for focal or residual disease
 - Dose range: 50–60 Gy in conventional fractionation

Role of Chemotherapy

- Generally **limited** due to lack of robust evidence.
- May be considered in:
 - **High-grade, metastatic, or unresectable tumors**
 - **Recurrent disease** after surgery and radiotherapy
- Agents used (off-label): temozolomide, bevacizumab, or anthracycline-based regimens

Recurrence and Metastasis

- Even **Grade I SFTs** can recur locally.
- Grades II-III are associated with:
 - Higher recurrence rates
 - Distant metastases (e.g., lung, liver, bone)
- **Surveillance imaging** (MRI) is recommended:
 - Every 6 months for the first 2-3 years
 - Annually thereafter for long-term follow-up

Summary Table

Treatment Modality	Indication	Notes
Gross Total Resection	All grades	Aim for complete resection with clear margins
Postoperative Radiotherapy	Grade II-III, STR, recurrence	Improves local control
Chemotherapy	Refractory, metastatic cases	Limited evidence; palliative role
Surveillance Imaging	All patients	Lifelong follow-up due to delayed recurrence/metastasis

Systematic review and meta-analysis

In a [systematic review](#) and [metaanalysis](#) Na et al. from the Hanyang University, Seoul; Kangnam Sacred Heart Hospital, Seoul; Chung-Ang University, Seoul & Gwangmyeong; Dongsan Medical Center, Daegu published in the Journal [Scientific Reports](#) (Nature) to determine whether postoperative radiotherapy (PORT) after [gross total resection](#) (GTR) of intracranial [solitary fibrous tumors](#) (SFT) improves [Progression-Free Survival](#) (PFS), [overall survival](#) (OS), and [metastasis-free survival](#) (MFS). PORT significantly improved both PFS and OS after GTR; no effect on MFS. [Authors](#) suggest PORT should be considered for all intracranial SFT patients post-GTR ¹⁾.

Critical appraisal

* **Scope & relevance** – Addresses a clinically important and under-consensus management question: role of radiotherapy after resection of rare intracranial SFT.

* **Methodology** – Follows PRISMA guidelines; searched Medline, Embase, Cochrane. Included 12

studies totalling 419 patients. Meta-analysis of hazard ratios for survival. However, heterogeneity among included studies—some retrospective, variable PORT protocols (dose, timing), inconsistent follow-up durations.

* **Statistical strength** – Pooled HRs show clear benefit in PFS and OS. Subgroup analysis for grades 2–3 supports findings. Yet, no mention of publication-bias assessments (e.g., funnel-plot or Egger's test) or sensitivity analyses excluding poor-quality studies.

* **Limitations** – Lack of detailed quality scoring for individual studies; variation in grading systems over time (hemangiopericytoma terminology overlap); absence of toxicity or quality-of-life data post-PORT; no randomized controlled trials included.

* **Clinical impact** – Suggests consistent survival advantage favoring PORT, but generalizability is limited by retrospective data and tumor rarity.

Final Verdict

While methodologically sound and compelling in its aggregate survival benefit findings, the [evidence](#) remains moderate due to heterogeneity and [retrospective](#) design. More robust [prospective](#) data are needed, but in high-grade or borderline cases, PORT can be strongly considered.

Rating:: 7.5 / 10

Takeaway for practicing neurosurgeon

After [gross total resection](#) of [intracranial solitary fibrous tumors](#)—especially [WHO](#) grade 2 or 3—[adjuvant radiotherapy](#) appears to provide meaningful improvements in both progression-free and [overall survival](#). Given the [retrospective](#) evidence, surgeons and neuro-oncologists should include PORT in multidisciplinary [discussions](#) and patient [counseling](#).

Bottom line:: In the absence of randomized [evidence](#), PORT is a reasonable addition to surgery for intracranial SFT to extend [survival](#).

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Na MK, Choi KS, Lim TH, Shin H, Lee J, Lee H, Kim W, Kim JG, Cho Y, Ahn C, Kim JH, Jang BH, Namgung M, Kwon SM. A [systematic review](#) and [meta-analysis](#) on the [efficacy](#) of [postoperative radiotherapy](#) after [gross total resection](#) of [intracranial solitary fibrous tumors](#). Sci Rep. 2025 Jul 2;15(1):23368. doi: 10.1038/s41598-025-02170-0. PMID: 40603922.

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