

# INPLASY PROTOCOL

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**Support:** Not applicable.

**Review Stage at time of this submission:** The review has not yet started.

**Conflicts of interest:**  
None.

## Optimal treatment and long-term outcomes of primary solitary fibrous tumor/hemangiopericytoma of spinal cord: a systematic review

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**Review question / Objective:** To identify risk factors for progression-free survival in primary solitary fibrous tumor/hemangiopericytoma of spinal cord and to propose the optimal treatment protocol.

**Condition being studied:** According to the 2016 World Health Organization classification of central nervous system (CNS) tumors, solitary fibrous tumor (SFT) and hemangiopericytoma (HPC) are combined into one category as SFT/HPC and are classified in Grade I, II, and III based on their aggressiveness of growth pattern and propensity for recurrence and metastasis. In CNS, they account for 1% of all primary tumors. Primary SFT/HPCs occurred in the spinal meninges is extremely rare, and because of that, no specific treatment strategies are proposed. The formal approach of primary SFT/HPCs of spinal cord consists of surgical resection combined with or without radiotherapy. Although the role of adjuvant radiotherapy in the management of primary spinal cord SFT/HPCs is not well defined, some recent clinical studies have supported it in achieving local tumor control and improving survival, and chemotherapy also plays a role in final outcomes in some reported cases. However, because of the limited number of reports from literatures, controversy still exists regarding the most appropriate approach in the management of primary spinal cord SFT/HPCs, and the systematic assessment of prognostic factors on progression-free survival and/or overall survival is still unknown.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 12 April 2020 and was last updated on 12 April 2020 (registration number INPLASY202040062).

### INTRODUCTION

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primary solitary fibrous tumor/hemangiopericytoma of spinal cord and to propose the optimal treatment protocol.

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## METHODS

**Search strategy:** Search Terms: “solitary fibrous tumor,” “hemangiopericytoma,” or “haemangiopericytoma” and “spinal,” “spinal cord,” “intraspinal,” “cervical,” “thoracic,” “lumbar,” or “sacral.”; Sources: Ovid MEDLINE, Embase, PubMed, and Cochrane database; Search Dates: From May 1, 2020 to June 1, 2020; Language: English; Publication period: January 1, 1954 to May 1, 2020.

**Participant or population:** Inclusion criteria: 1. pathological diagnosis of solitary fibrous tumor (SFT), hemangiopericytoma (HPC), or SFT/HPC; 2. primary spinal location; 3. detailed information of treatment, neurological outcome, status of recurrence or death; Exclusion criteria: 1. primary location other than spine; 2. osseous spinal

tumors; 3. unavailable or incomplete clinical data; 4. basic research rather than clinical report without data which was necessary for statistical analysis; 5. pathological diagnosis was undefined; and/or 6. duplicated report.

**Intervention:** Surgical treatment (gross total resection, subtotal resection, partial resection, or biopsy); 2. Radiation (radiotherapy type and dose).

**Comparator:** Not applicable.

**Study designs to be included:** No restrictions on the types of study design due to the rarity of the disease.

**Eligibility criteria:** Clinical information including demographic features (age, sex), location of tumor, duration of symptoms, extent of resection, treatment modalities, WHO grade, Ki-67 index, PFS, recurrence status, follow-up time, patient clinical status on the last follow-up, and OS were extracted from the included cases. Similar studies done in the same place were not included in our analysis to exclude the duplicate patients. Reports from the same institution in different time frames were included after careful examination. Two review authors independently assessed the bias in the included studies by considering the completeness of outcome data and selective outcome reporting. Disagreement between the review authors over the bias in particular studies was resolved by discussion, with involvement of a third review author when necessary.

**Information sources:** Search Terms: “solitary fibrous tumor,” “hemangiopericytoma,” or “haemangiopericytoma” and “spinal,” “spinal cord,” “intraspinal,” “cervical,” “thoracic,” “lumbar,” or “sacral.”; Sources: Ovid MEDLINE, Embase, PubMed, and Cochrane database; Search Dates: From May 1, 2020 to June 1, 2020; Language: English; Publication period: January 1, 1954 to May 1, 2020. The reference lists of all selected studies will be checked as well as the grey literature. In addition, references to relevant assessments, guidelines and

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comments identified in MEDLINE, Embase, PubMed, and Cochrane Library will be found.

**Main outcome(s):** Adverse factors for recurrence, progression-free survival and overall survival.

**Additional outcome(s):** Optimal treatment for primary solitary fibrous tumor/hemangiopericytoma of spinal cord.

**Data management:** The following data were extracted independently by two authors from each study whenever possible, and discrepancies rendered to Dr Liang W. Data to be extracted: author and year of diagnosis, main preoperative complaint, tumor location, tumor size, tumor volume, surgical approach, symptom duration, magnetic resonance imaging features, histological types, extent of resection, adjuvant therapy of type, status of survival and duration of follow-up.

**Quality assessment / Risk of bias analysis:** Two review authors will independently assess the risk of bias in included studies by considering the following discrepancies, with involvement of a third review author where necessary. Quality of individual studies: (1) patients with a pathological diagnosis of primary spinal cord solitary fibrous tumor/hemangiopericytoma (SFT/HPC) who underwent neurosurgery and histological types were not restricted; (2) primary tumor location; (3) detailed information on treatment, status of survival. This will define the risk factors and appropriate treatment for patients with SFT/HPC.

**Strategy of data synthesis:** Individual participant data will be used, and we will provide a narrative synthesis of the findings from the included studies (univariate analysis and multivariate analysis), structured around the type of intervention, target population characteristics, type of outcome and intervention content.

**Subgroup analysis:** If the necessary data are available, subgroup analysis will be

done for people with different treatment protocol.

**Sensibility analysis:** If it is necessary, sensitivity analysis will be performed by Stata 15.1 using the leave-one-out approach.

**Language:** English.

**Country(ies) involved:** China.

**Keywords:** Central nervous system neoplasms; Solitary fibrous tumor; hemangiopericytoma; Spinal cord tumor; Surgery; Radiotherapy; Systematic review.

**Dissemination plans:** This study will be published on completion.

**Contributions of each author:**

Author 1 - Liang Wu drafted the manuscript.

Author 2 - Ning Yao provided statistical expertise.

Author 3 - The author contributed to the development of the selection criteria, and the risk of bias assessment strategy.

Author 4 - The author provided statistical expertise.