

Low Survival Rates for Patients with Tumor Thrombus in Sarcoma

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Disclosures: Annika Myers (N), Abigail Padilla (N), Adrian Lin (N), Brandon Gettleman (N), Michael Colello (N), Bruce Pawel (N), Alexander B. Christ (Onkos Surgical Inc., Smith & Nephew, Inc., Zimmer Biomet Holdings, Inc., Stryker, Daiichi Sankyo, Globus Medical, Inc.)

INTRODUCTION: Tumor thrombus occurs in 2% of sarcomas, with limited previous research reporting a survival of 12 to 13 months. This study aims to determine the survival rate for sarcoma patients with associated tumor thrombus.

METHODS: A retrospective review was conducted of patients diagnosed with sarcoma with tumor thrombus at a single tertiary care pediatric hospital from 1990 to 2023. Patients with a pathologically confirmed bone or soft tissue sarcoma with tumor thrombus were included. Embryonal tumors were excluded. Descriptive statistics were used to analyze the patients.

RESULTS SECTION: Thirteen patients met the eligibility criteria, including 9 males and 4 females. The median age at sarcoma diagnosis was 10.5 years, and the median age at surgery was 11.62 years. Nine of 13 (69.2%) patients were diagnosed with osteosarcoma. Ten of 13 (76.9%) tumors occurred in bone, while the remaining 3 (23.1%) were soft tissue tumors. Seven (53.8%) patients had localized disease at initial diagnosis, and 6 (46.2%) had metastatic disease at presentation (Table 1). Nine (69.2%) patients did not survive, with a median survival time of 44.2 months following sarcoma diagnosis. The median age at death was 14.4 years. The median time from thrombus diagnosis to death was 15.2 months (Table 2).

DISCUSSION: The survival rate for sarcoma with tumor thrombus is low, and patients generally do not survive longer than 14-15 months. Clinicians should consider these findings when counseling patients and developing a care plan.

SIGNIFICANCE/CLINICAL RELEVANCE: (1-2 sentences): Pediatric sarcoma with tumor thrombus is linked to a poor prognosis, regardless of surgical intervention. Tumor thrombus may be noncontiguous with the primary tumor, highlighting the importance of advanced imaging and its implications for treatment planning and counseling.

IMAGES AND TABLES:

Table 1. Patient Demographics

N=13	
Age at Sarcoma Diagnosis (years)	10.5 (IQR 7.3, range: 3.4-17.0)
Age at Surgery (years)	11.6 (IQR 7.1, range: 4.2-17.3)
BMI	17.9 (IQR 4.8, range: 16.2-25.5)
Sex	
Male	9 (69.2%)
Female	4 (30.8%)
Tumor Location	
Femur	3 (23.1%)
Humerus	3 (23.1%)
Pelvis	2 (15.4%)
Sacrum	1 (7.7%)
Tibia	1 (7.7%)
Abdomen	1 (7.7%)
Heart	1 (7.7%)
Kidney	1 (7.7%)
Tumor Type	
Osteosarcoma	9 (69.2%)
Rhabdomyosarcoma	2 (15.4%)
Clear Cell Sarcoma	1 (7.7%)
Small Cell Round Tumor	1 (7.7%)
Disease Type	
Localized	7 (53.8%)
Metastatic	6 (46.2%)

All categorical values are presented as *n (%)* and continuous values as *median (interquartile range, range)*

Table 2. Survival Rate

N=13	
Survival Rate	4 (30.8%)
Age at Time of Death (years)	14.4 (IQR 4.9, range: 4.8-17.8)
Time from Sarcoma Diagnosis to Death (months)	44.2 (IQR 50.8, range: 8.2-131.6)
Time from Initial Surgery to Death (months)	41.4 (IQR 42.7, range: 6.9-73.4)
Time from Thrombus Diagnosis to Death (months)	15.2 (IQR 38.8, range: 0.5-71.9)

All categorical values are presented as *n (%)* and continuous values as *median (interquartile range, range)*