

Department of Surgery 2026 Research Day

Title:

Presentation, management, and outcomes of malignant vascular sarcomas: a National Cancer Database comparison of pediatrics and adults

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Background:

Vascular sarcomas, including angiosarcoma (AS) and epithelioid hemangioendothelioma (EHE), are rare tumors without standardized treatment guidelines. Using the National Cancer Database, we identified 12,640 cases (11,311 AS; 1,329 EHE) and compared presentation, treatment, and survival across pediatric, young adult, and older adult groups. Pediatric AS patients more often presented with metastatic and visceral disease, and metastatic AS had the highest mortality across cohorts. Despite higher-risk presentation, pediatric patients had better survival than adults. Non-metastatic (M0) status was associated with surgical management, though surgery and chemotherapy were not consistently used. These findings highlight the heterogeneity of vascular sarcomas and the need for standardized, age-specific treatment strategies.

Methods:

We performed a retrospective analysis of the National Cancer Database (NCDB) for patients aged 0–90 years diagnosed with AS (ICD-O code 9120/3) or EHE (9133/3) between 2004-2019. Patients were categorized into cohorts: Pediatrics (PED, ≤ 21 yrs), Young Adults (YA, 22–49 yrs), and Older Adults (OA, ≥ 50 yrs). Demographics, staging, interventions, and overall survival (OS) were analyzed using Chi-squared tests, ANOVA, Kaplan-Meier survival analysis, and Cox proportional hazards regression.

Results (or Preliminary Results):

We identified 118 PED, 1,460 YA, and 9,733 OA patients. PED were more likely to present with metastasis (PED 48.0%, YA 36.8%, OA 25.2%; $p < 0.001$). In stage M0, chemotherapy was inconsistently applied within PED. In stage M1, PED were more likely to receive surgery and chemotherapy. PED showed similar survival risk as YA, with PED and YA both superior to OA (hazard ratio: PED-YA 0.89, $p = 0.349$; PED-OA 0.71, $p < 0.01$; YA-OA, 0.80 $p < 0.001$).

Conclusions (or Preliminary Conclusions):

This retrospective analysis of 12,640 patients provides a comprehensive characterization of vascular sarcoma presentation, management, and outcomes. The survival advantage observed in pediatric patients, likely reflecting lower comorbidities and more aggressive treatment, highlights the importance of specialized, multidisciplinary care for younger patients with these rare tumors. Collectively, these findings underscore the need for age-appropriate management strategies and further investigation into the distinct molecular drivers of pediatric versus adult vascular sarcomas.