

Patency and Disease Free Status After Oncovascular Resection of Truncal Malignancies with Major Vascular Invasion

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Background

Historically, vascular invasion precluded surgical resection of many malignant truncal tumors. Advances in systemic therapies and surgical technique have expanded the population of cancer patients who are deemed surgically resectable, however data remains sparse regarding their oncologic and vascular outcomes.

Objective

To define mortality and tumor-related outcomes of patients undergoing oncovascular tumor resection to identify factors associated with vascular reconstruction complications and oncologic recurrence.

Table 1. Outcomes by Tumor Pathology

	Total (n=104)	Renal cell carcinoma (n=58)	Sarcoma (n=23)	Germ Cell tumor (n=6)	Pancreatic adenocarcinoma (n=6)	Urothelial/Transitional cell carcinoma (n=3)	Other (n=8)
30-day mortality, n (%)	1 (1)	1 (1.7)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
1 year mortality, n (%)	15 (14.4)	9 (15.5)	4 (17.4)	0 (0)	1 (16.7)	1 (33.3)	0 (0)
Disease free post-op, n (%)	89 (85.6)	44 (75.9)	22 (95.7)	6 (100)	6 (100)	3 (100)	8 (100)
Tumor recurrence, n (%)	34 (38.2)	14 (31.8)	11 (50)	0 (0)	4 (66.7)	2 (66.7)	3 (37.5)
Median time to recurrence, months (range)	11.4 (1.2-100)	17 (1.2-99)	12.8 (2.3-48.8)	-	12.2 (7-24.2)	5.2 (5.1-5.3)	4 (3-19.7)
1-year primary patency, %	98.5	97.2	100	100	100	100	100
Vascular reintervention, n (%)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Figure 1. Overall Survival

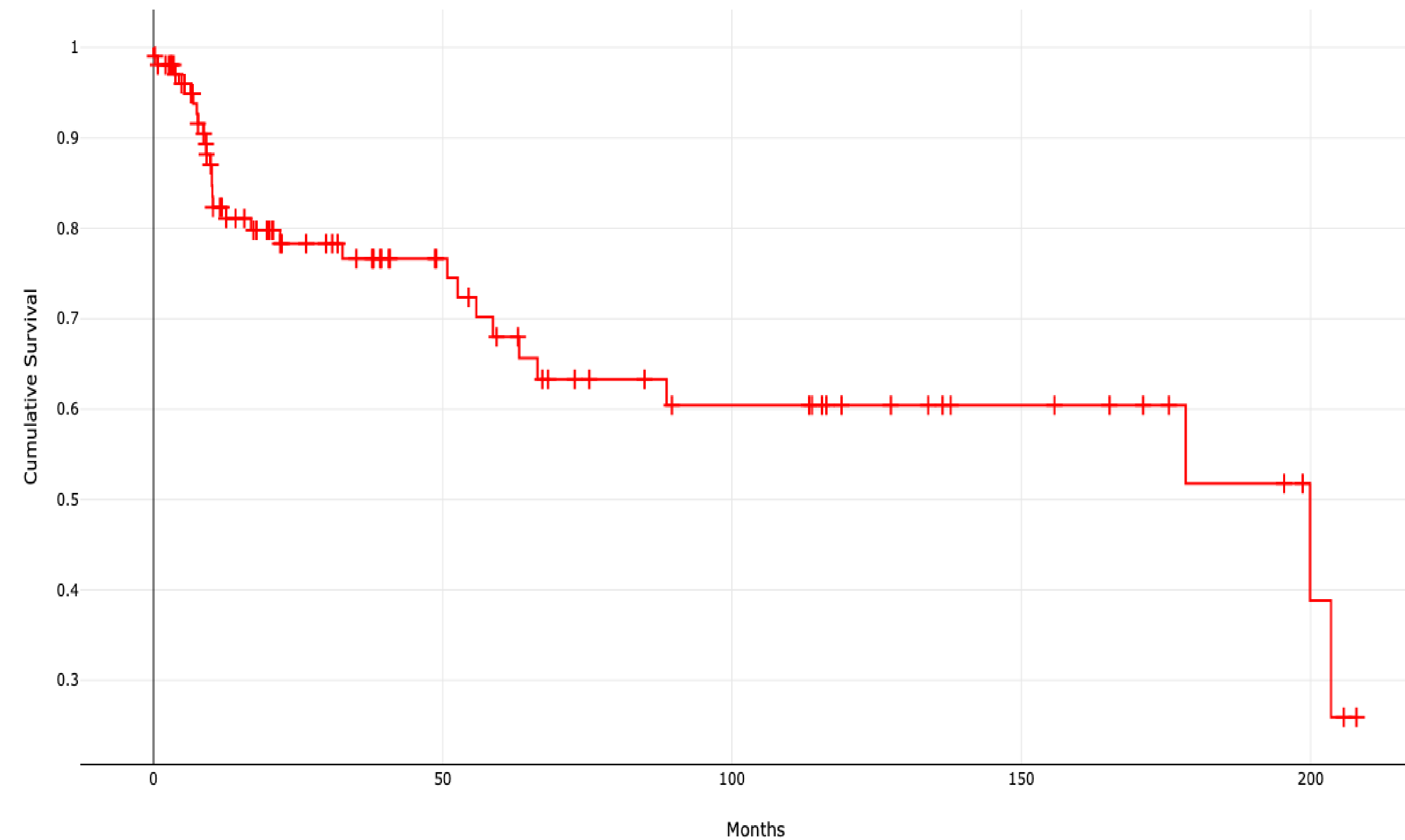
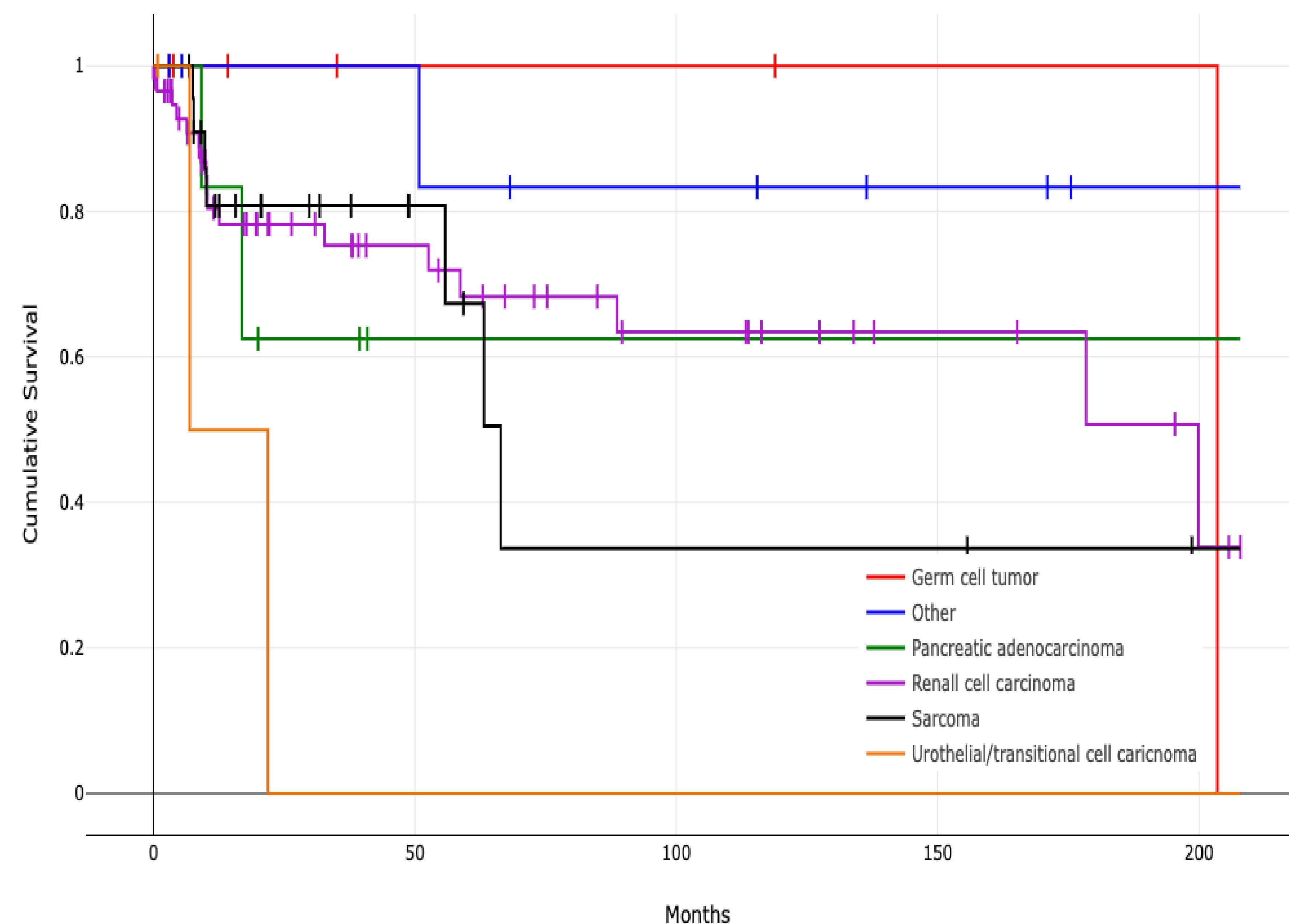


Figure 2. Survival by Tumor Pathology



Methods

- Retrospective chart review of patients undergoing oncologic resection requiring vascular surgery assistance between January 1, 2002 and June 1, 2022
- Patient demographics, tumor anatomy, tumor pathology, operative details, and clinical outcomes extracted from electronic medical record
- Primary endpoints of 30-day mortality, 1-year mortality, and 1-year primary patency of vascular reconstruction
- Secondary endpoints of vascular reintervention and tumor recurrence

Results

- 104 patients (43.3% female), mean age 57.7 years, median follow up 22.1 months
- 98 venous and 6 arterial interventions
 - 77 primary repairs, 19 interposition grafts, 5 patch angioplasties, 3 ligations without reconstruction
- 1% 30-day and 14.4% 1-year overall mortality
- 98.5% 1-year primary vascular patency
 - 3 occlusions due to local tumor recurrence
- 34 (38%) of 89 patients disease free post-op developed tumor recurrence during study period
 - 23.5% local, 76.5% metastatic

Conclusions

Oncovascular resections of truncal tumors involving major vascular structures can be safely performed with a low incidence of vascular complications, while tumor recurrence remains the major contributor to morbidity. Further investigation of factors associated with tumor recurrence in these patients may help refine surgical techniques.