Long-Term Survival of Children with Wilms Tumor: Insights from a Tertiary Cancer Center in a Lower-Middle-Income Country

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EPOSTER
25th SKCS
Shaukat Khanum Cancer Symposium
November 6–8, 2026

376
Children < 18 years treated, Jan 2011 – Dec 2023

30.1%
Metastatic at diagnosis (n = 113)

88.7% vs **68.7%**
5-year OS, non-metastatic vs metastatic

77.9% vs **62.6%**
5-year EFS, non-metastatic vs metastatic

9.0%
Treatment abandonment (n = 34); 8.8% lost to follow-up

1 Purpose

- Determine survival outcomes of children with Wilms tumor (WT) and compare them with national and international WT studies.
- Review presentation, treatment and prognostic factors in a resource-limited setting.

2 Materials & Methods

- **Design:** retrospective review, single tertiary centre (SKMCH&RC, Lahore).
- **Population:** 376 patients aged < 18 years, Jan 2011 – Dec 2023.
- **Staging:** per SIOP guidelines.
- **Analysis:** Kaplan–Meier survival; Cox regression for prognostic factors; two-sided p < 0.05.

3 Presentation

38.4 mo
Mean age

8 wk
Median symptom duration

59.3%
Male

PRESENTING FEATURES

Abdominal mass	59.3%
Pain	26.6%
Hematuria	9.6%
Fever	4.3%

4 Treatment & Risk Stratification

n (%)	Non-met	Met
Upfront treatment		p = 0.174
Pre-operative chemo	142 (54.0)	70 (61.9)
Nephrectomy	121 (46.0)	43 (38.1)
Post-operative stage		p < 0.001
Stage I	60 (24.5)	24 (22.4)
Stage II	83 (33.9)	28 (26.2)
Stage III	102 (41.6)	28 (26.2)
Stage IV	—	27 (25.2)
Histology risk group		p < 0.001
Low	83 (33.2)	29 (26.9)
Intermediate	141 (56.4)	48 (44.4)
High	26 (10.4)	31 (28.7)
Metastatic disease		
Metastasectomy	—	23 (21.5)
Metastases resolved	—	48 (42.5)

Overall: pre-operative chemotherapy 56%; radiotherapy 45%.

5 Clinical Characteristics

Residence	n (%)
Rural	248 (66.0)
Urban	128 (34.0)

Laterality	n (%)
Right	189 (50.3)
Left	170 (45.2)
Bilateral	14 (3.7)
Isthmus	3 (0.8)

6 Treatment Outcomes

n (%)	Non-met	Met	Total
End of treatment			p < 0.001
Remission	208 (79.1)	65 (57.5)	273 (72.6)
Residual	2 (0.8)	13 (11.5)	15 (4.0)
Progression	28 (10.6)	34 (30.1)	62 (16.5)
Events			p = 0.003
Any event	53 (20.2)	40 (35.4)	93 (24.7)
Abandoned	25 (9.5)	9 (8.0)	34 (9.0)
Site of relapse			p = 0.290
Localized	19 (41.3)	8 (25.0)	27 (34.6)
Distant	15 (32.6)	15 (46.9)	30 (38.5)
Both	12 (26.1)	9 (28.1)	21 (26.9)

Non-met, non-metastatic (n = 263); Met, metastatic (n = 113). Filled p-values are significant at p < 0.05.

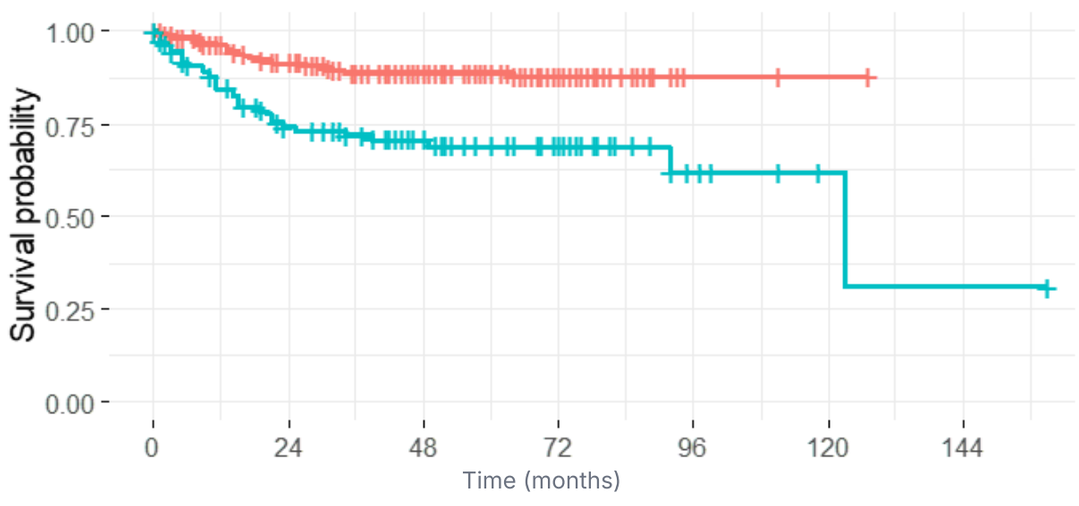
7 Basis of Diagnosis

Nephrectomy	38.0%
CT	31.1%
Biopsy	23.7%
Ultrasound	7.2%

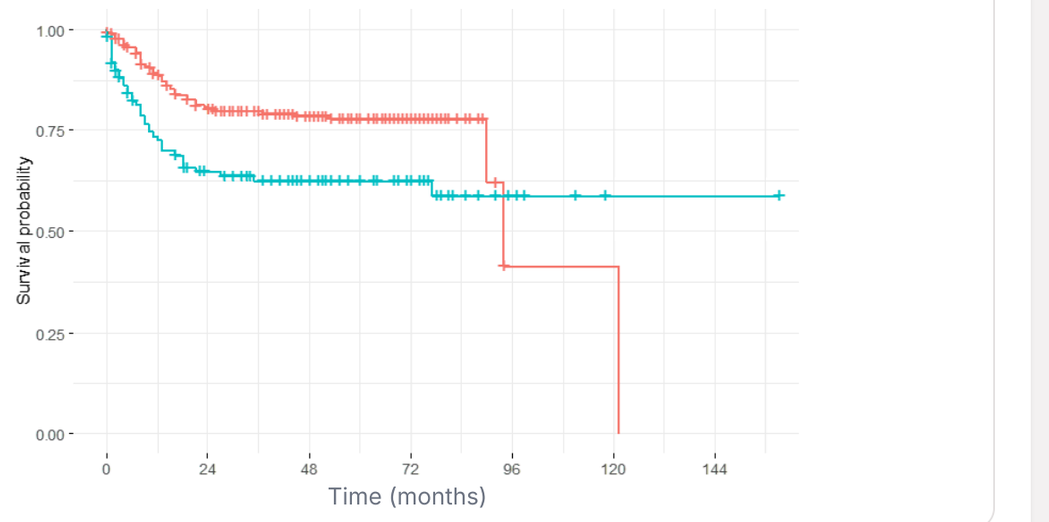
8 Overall & Event-Free Survival by Metastatic Status

Non-metastatic — Metastatic

Overall survival — 5-year: 88.7% vs 68.7%



Event-free survival — 5-year: 77.9% vs 62.6%



9 Results at a Glance

- Metastatic patients had **lower remission** (57.5% vs 79.1%) and **more progression** (30.1% vs 10.6%).
- High-risk histology was nearly **3× as frequent** in metastatic disease (28.7% vs 10.4%).
- Relapse pattern did not differ significantly by metastatic status (p = 0.290).

10 Discussion

- Abandonment (9.0%) and loss to follow-up (8.8%) remain critical contributors to the survival gap.
- Metastatic patients relapsed or progressed more often, with an early survival drop.

11 Conclusion

- Non-metastatic WT outcomes approach those of upper-middle-income countries; metastatic disease still carries a poor prognosis.
- Earlier detection, specialized care and molecular testing may help close the gap.

Abbreviations: WT, Wilms tumor; SIOP, International Society of Paediatric Oncology; OS, overall survival; EFS, event-free survival; CT, computed tomography; Non-met / Met, non-metastatic / metastatic at diagnosis.