



ROBOT-ASSISTED HEMI-NEPHROURETERECTOMY IN PEDIATRIC PATIENTS WITH DUPLEX COLLECTING SYSTEM: INITIAL EXPERIENCE

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INTRODUCTION

A duplex collecting system with ureterocele represents one of the most common congenital anomalies of the urinary tract in pediatrics and may, in selected cases, require hemi-nephroureterectomy. Open techniques have traditionally been the standard; however, in recent years, minimally invasive robot-assisted approaches have gained ground due to advantages in precision, ergonomics, and visualization. International studies have shown that robotic surgery provides equivalent or superior outcomes in terms of safety and postoperative recovery. Nevertheless, evidence in Latin America remains limited, and this study aims to provide local data.

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METHODS

This is an observational, descriptive, and retrospective study of children diagnosed with a complete duplex collecting system with an upper pole ureterocele who underwent robot-assisted hemi-nephroureterectomy by the Pediatric Surgery and Urology Service at the Hospital de Especialidades Carlos Andrade Marín between April 2022 and June 2025.

Variables evaluated: Age, sex, operative time, hospital stay, postoperative complications, infection, and need for conversion.

Data sources: Medical records, operative reports, hospital registries.

Docking: 3 ports of 8mm and 1 port of 5 mm for the accessory instrument.

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RESULTS

Table 1.

N	Variable	Result
1	Median age	46 months (3.8 years)
2	Median operative time	143 minutes
3	Median hospital stay	3 days
4	Complication rate	0%

Surgical Outcomes

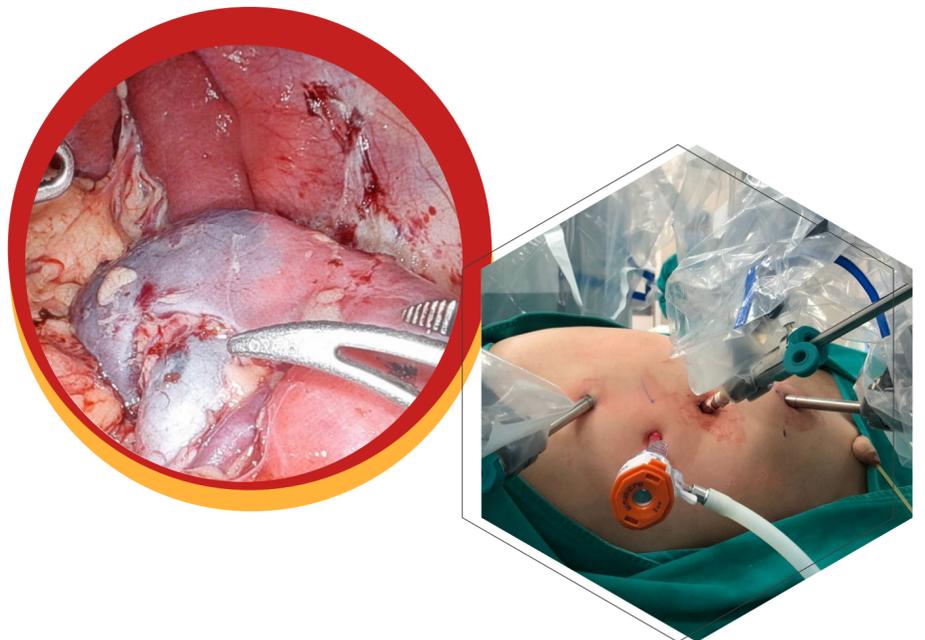


Table 2.

N	Surgery Date	Diagnosis	Procedure	Total OR time (min)	Docking time (min)	Console time (min)	Age at surgery	Sex	Post-op UTI	Complications	Hospital stay (days)	Blood loss
1	4/22/2022	Left Duplex collecting System	Left Hemi-nephroureterectomy	143	10	133	3 y 10 m	M	NO	NO	4	MINIMAL
2	11/13/2023	Left duplex collecting System	Left Hemi-nephroureterectomy	213	8	205	2 y 7 m	F	NO	NO	3	MINIMAL
3	10/28/2024	Left duplex collecting System	Left Hemi-nephroureterectomy	173	10	163	7 y 9 m	F	NO	NO	3	MINIMAL
4	1/13/2025	Left duplex collecting System	Left Hemi-nephroureterectomy	145	10	135	8 y 5 m	F	NO	NO	2	MINIMAL
5	24/3/2025	Right duplex collecting System	Right Hemi-nephroureterectomy	123	5	118	4 y	M	NO	NO	3	MINIMAL
6	6/16/2025	Left duplex collecting System, Upper Pole Atrophy	Left Hemi-nephroureterectomy	133	15	118	1 y 2 m	F	NO	NO	3	MINIMAL
7	6/30/2025	Left duplex collecting System, Upper Pole Atrophy	Left Hemi-nephroureterectomy	80	10	70	1 y 10 m	M	NO	NO	2	MINIMAL

Patient Characteristics

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CONCLUSIONS

Robot-assisted hemi-nephroureterectomy in children with duplex collecting system and ureterocele is a safe, effective procedure with low morbidity. Our results support its implementation in specialized centers with access to technology and trained robotic surgery teams. Limitations of this study include the small sample size and retrospective design, which restrict comparative analysis. Nevertheless, it provides relevant data in a Latin American context where evidence is still scarce.

REFERENCES

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