

Surgical outcomes are equivalent after pure laparoscopic and robotic-assisted pyeloplasty for ureteropelvic junction obstruction



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Background

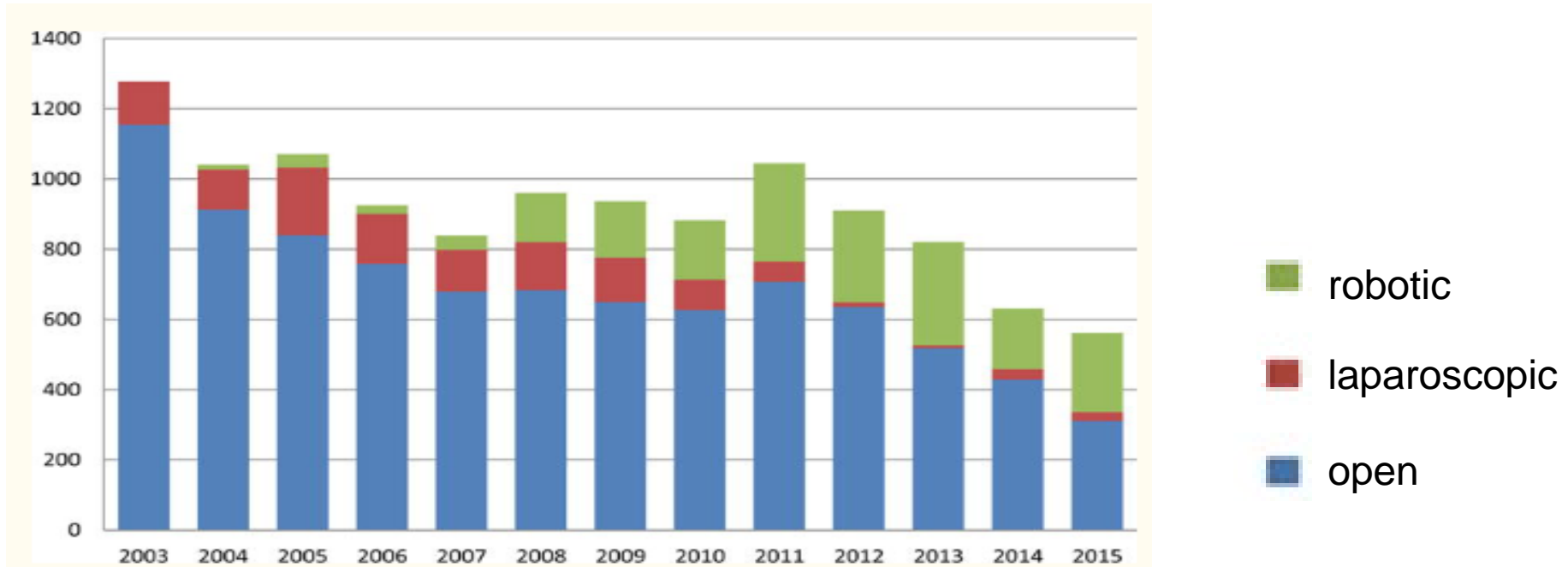


Figure 1

Number and proportion of open, laparoscopic, and robotic pediatric pyeloplasties performed in the U.S. between 2003 and 2015 ($n = 11,899$).

Varda *et al.*, *J Pediatr Urol*, 2018

Background

- *Question posed to one of our faculty: “Am I giving my patients substandard care since I am not doing robot-assisted pyeloplasty?”*
- Objective of study: compare outcomes between pure laparoscopic and robotic-assisted pyeloplasty

Methods

- Single center, retrospective review
- All patients who underwent pure lap or robot-assisted pyeloplasty between 2013-2018
- Exclusions: redo cases, incomplete follow up information
- Data collected
 - Demographics
 - Operative time
 - Length of hospital stay
 - Complication rates

“Operative time”

- Defined as procedure start to procedure finish
 - Including:
 - Retrogrades
 - Docking
 - Repositioning
 - Etc.

Results

- 313 patients underwent lap/robot pyeloplasty
 - 79 excluded
- Study population: 234 patients
 - 119 robotic cases
 - 115 lap cases
- Mean overall follow-up: 20.8 months

Results

	Robotic n=119	Laparoscopic n=115	p value
Mean age (years)	6.8 (STD 5.2)	6.2 (STD 5.4)	<i>p</i> =0.35
Gender			
Male	83 (69.7%)	80 (69.6%)	<i>p</i> =0.98
Female	36 (30.3%)	35 (30.4%)	
Laterality			
Left	83 (69.7%)	74 (64.3%)	<i>p</i> =0.38
Right	36 (30.3%)	41 (35.7%)	
Accessory vessel present	49 (41.2%)	43 (37.4%)	<i>p</i> =0.55

Results

	Robotic n=119	Laparoscopic n=115	p value
Mean operative time (hours)	3.75 (STD 1.41)	3.12 (STD 0.66)	p<0.001
Mean length of stay (days)	1.22 (STD 0.87)	1.50 (STD 1.61)	p=0.095
Adverse events			
Overall	36 (30.2%)	29 (25.2%)	p=0.39
Infectious	13 (10.9%)	14 (12.2%)	p=0.77
Secondary procedure	13 (10.9%)	11 (9.6%)	p=0.73

Results

- Secondary procedures
 - Urine leak requiring nephrostomy tube
 - Lap = 3 patients (one went on to develop obstruction)
 - Robot = 0 patients
 - Procedures for secondary obstruction
 - Lap = 4 endoscopic management, 4 redo pyeloplasty
 - Robotic = 4 endoscopic management, 4 redo pyeloplasty
 - Other secondary procedures not related to obstruction or leak
 - Lap = 1 patient
 - Robot = 5 patients
- **Total: lap = 11, robotic = 13 ($p=0.73$)**

Multiple weaknesses

- Operative time definition
- Differences in surgeon experience
- Differences in technique
 - Lap:
 - Some had US guided antegrade nephrostomy tubes placed
 - Robot:
 - HIDES vs more standard port placement

Conclusions

- There is no difference in outcomes between robotic and pure laparoscopic pyeloplasty
 - Differences in operative time were statistically significant but not likely clinically meaningful
- Surgeons performing laparoscopic and robotic pyeloplasty are offering the same level of care for surgical management of UPJ obstruction