

# Retrospective Analysis of Bladder Perforation in Patients after Augmentation Cystoplasty using an Extraperitoneal Approach

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## Background

**Augmentation cystoplasty** is an excellent treatment option for patients with **bladder dysfunction**.

Risk of **bladder perforation** related to augmentation cystoplasty ranges between **0.8-13%**.

### HYPOTHESIS

- Extraperitoneal augmentation cystoplasty reduces the risk of bladder perforation and downstream ICU admissions, exploratory laparotomy, and VP-shunt difficulties.

## Methods

Manual **retrospective** chart review of **pediatric** patients at Children's Hospital Colorado.

Patients who underwent a bladder augmentation between January 2009 and June 2021 were eligible.

Variables of interest abstracted through **operative notes, imaging studies, and clinical documents**.

## Results

**111** patients (37 intraperitoneal & 74 extraperitoneal)

**1** patient found to have a bladder perforation (intraperitoneal group)

ICU admissions (**p= 0.22**), Exploratory Laparotomy (**p= 0.85**), VP shunt-related difficulties (**p=0.34**) were not different between the two groups.

**Extraperitoneal approach** to bladder augmentation **did not change** postoperative risk of **bladder perforation**, which was **rare**.



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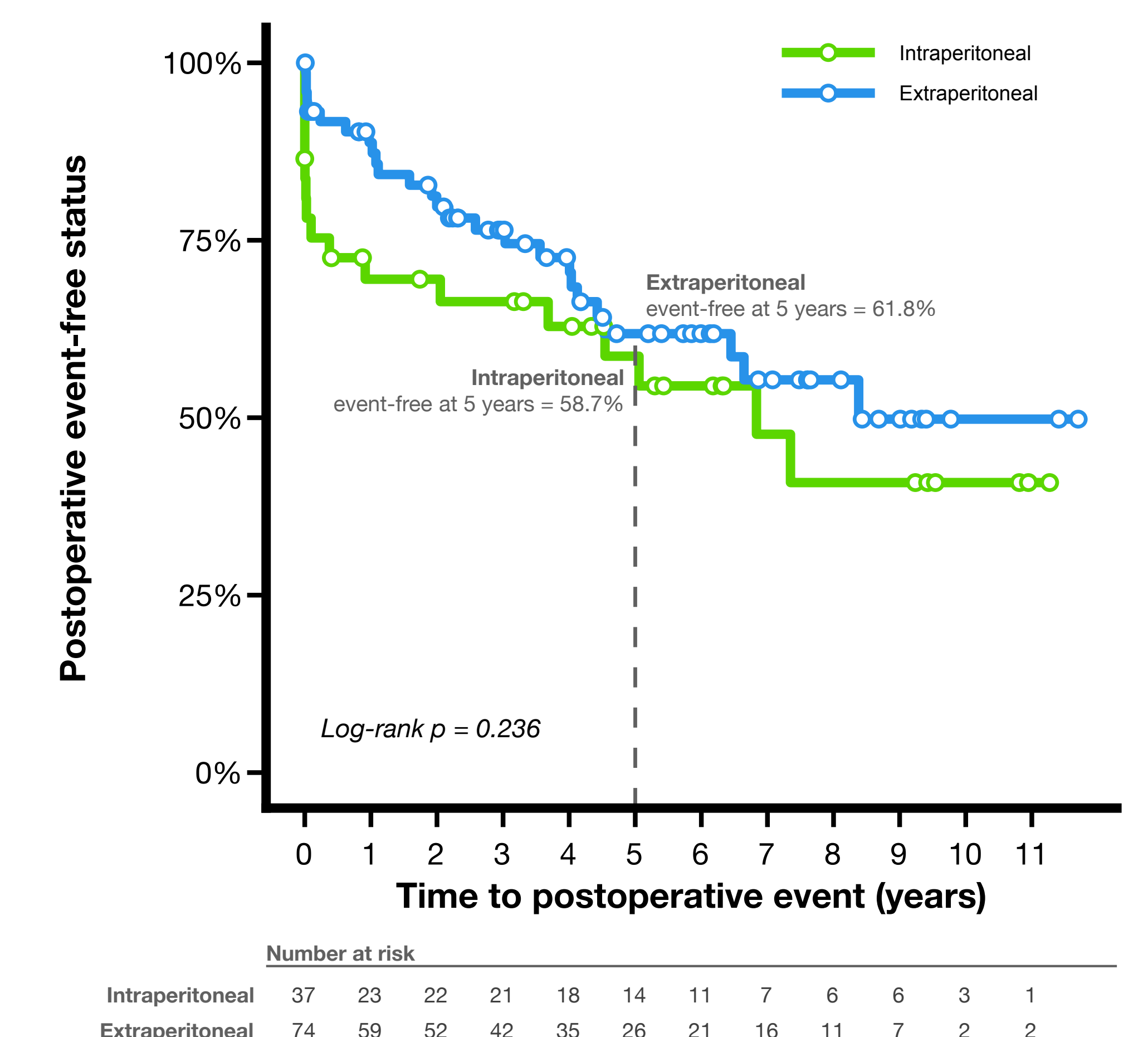
## Conclusions

Larger studies warranted given low adverse events.

Consideration of future studies to evaluate difficult to measure outcomes like minimization of insensible fluid losses, postop urine leak, and ileus.

**Table 1.** Rates of bladder perforation and secondary outcomes.

	Intraperitoneal 37 patients	Extraperitoneal 74 patients	P value
<b>Primary outcome</b>			
Bladder perforation	1 (3%)	0 (0%)	0.16
Time to bladder perforation (years)	0.0 (0.0-0.0)	—	—
<b>Secondary outcomes</b>			
Composite event, any cause	17 (46%)	26 (35%)	0.27
Time to composite event, any cause (years)	0.1 (0.0-4.0)	2.0 (0.6-4.0)	0.08
Alive	37 (100%)	73 (99%)	0.48
<b>ICU admission events</b>			
ICU admission	12 (32%)	16 (22%)	0.22
Time to ICU admission, any cause (years)	0.0 (0.0-4.2)	3.8 (0.4-5.8)	<b>0.02</b>
<b>Exploratory laparotomy events</b>			
Exploratory laparotomy	5 (14%)	11 (15%)	0.85
Time to exploratory laparotomy, any cause (years)	0.1 (0.0-2.5)	1.8 (0.2-4.6)	0.25
<b>VP shunt events</b>			
Any VP shunt event	6 (40%)	9 (26%)	0.34
Time to any VP shunt event (years)	1.5 (0.3-6.9)	4.0 (2.3-6.9)	0.21
VP shunt externalized	2 (13%)	3 (9%)	0.63
VP shunt infected	0 (0%)	0 (0%)	—
VP shunt revised	6 (40%)	8 (24%)	0.24



**Figure 1.** Kaplan-Meier Curve of composite postoperative event-free status in the two cohorts of patients. There was no difference between the two groups by log-rank testing.