

The Utility of Radiologic and Symptomatic Surveillance After Pyeloplasty

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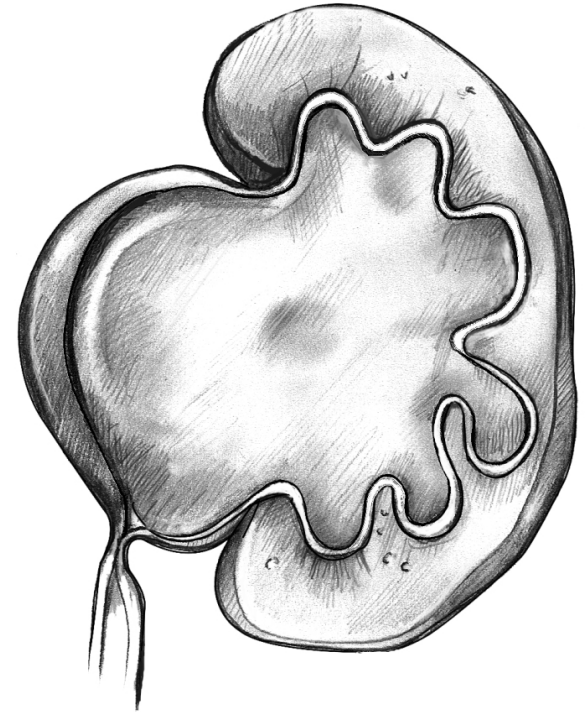
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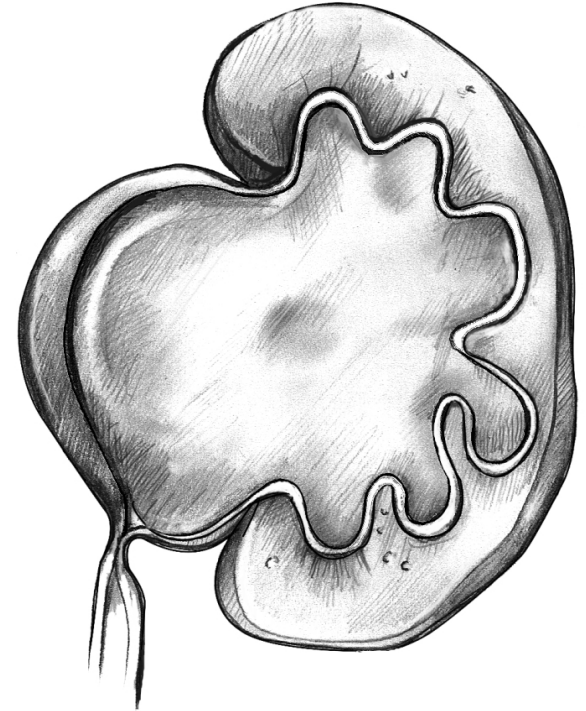
Background

- Overall Incidence of UPJO: 1 in 1,500
- The treatment of choice for UPJO is minimally-invasive pyeloplasty → high success rates, low complication
- Combination of symptom assessment and imaging are used to assess for obstruction after pyeloplasty



Problem

- No standard definition of success
 - Relief of Symptoms
 - Absence or reduction of obstruction on imaging
 - No indication for secondary procedure
- No guidelines for radiologic surveillance schedule
- Lack of evidence supporting the utility of post-operative imaging to detect asymptomatic obstruction



Study Aim

Stratify post-op patients into groups based on

- 1) Radiologic Imaging
- 2) Symptoms

and evaluate the risk of pyeloplasty failure in each group.

Kahn 2017



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Questions

- Is initial post-op imaging useful to guide surveillance?
- What is the pattern of failure based on initial post-operative imaging?
- How should we follow patients?



Methods

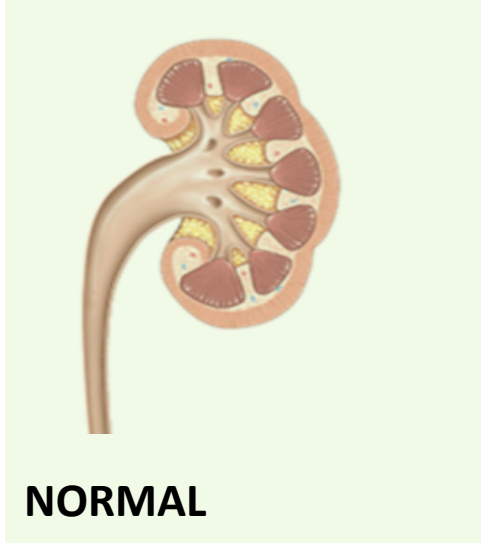
- Single center; retrospective review
- All primary minimally invasive pyeloplasties (1996-2019)
 - 18+
 - Postoperative imaging available
- Patients grouped into 3 cohorts after pyeloplasty and ureteral stent removal

1° Outcome: Procedural Failure

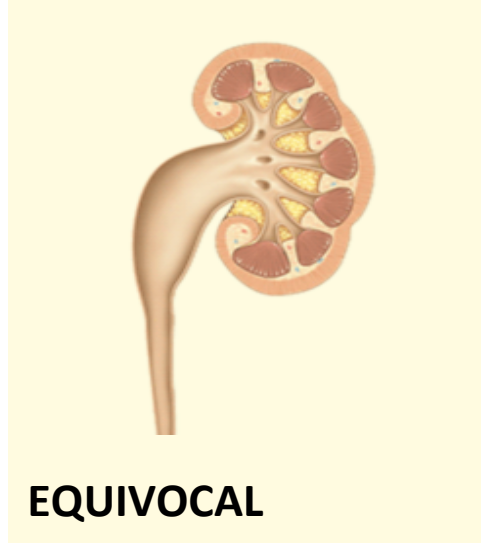
2° Outcomes: Radiologic and Symptomatic Failure



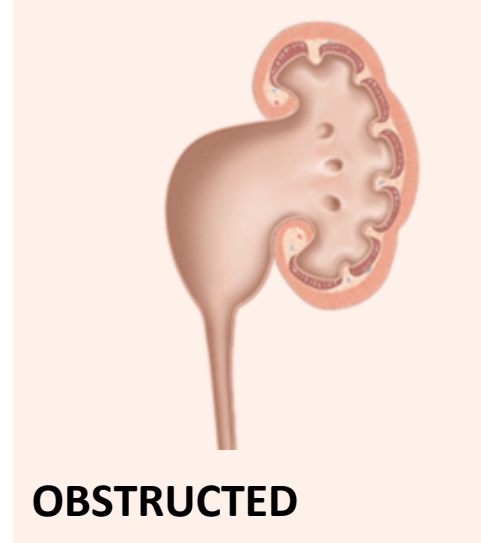
Methods: Groups by Initial Radiologic Imaging



- $T_{1/2} \leq 20$
- Mild or improved hydronephrosis



- $T_{1/2} > 20$ but improved
- Moderate or unchanged hydronephrosis



- $T_{1/2} > 20$
- Severe or worsening hydronephrosis



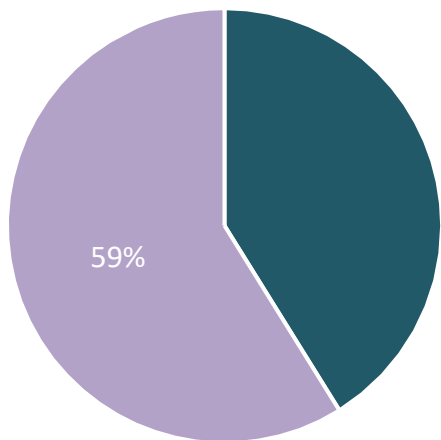
Methods: Groups by Symptoms

Asymptomatic	Symptomatic, Non-severe	Symptomatic, Severe
No flank pain at any point after stent removal	Flank pain reported at any point after stent removal and not meeting Symptomatic, Severe criteria	<ul style="list-style-type: none">• Flank Pain severity 8-10 OR• Flank pain reported as similar to/worse than pain prior to surgery OR• Flank pain requiring clinic or emergency room visit OR• Flank pain reported to interfere with daily activities



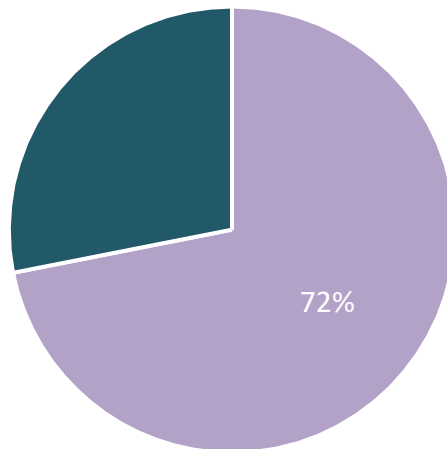
Results

299 Patients
Age 41.7 (17.2)



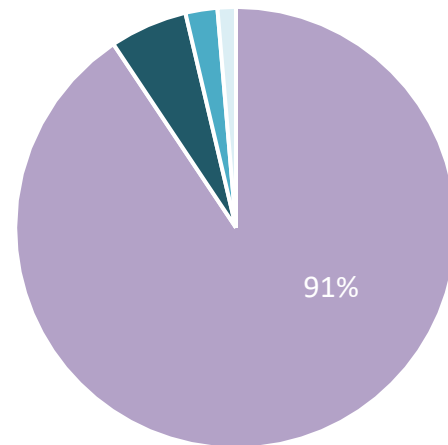
■ Male ■ Female

Procedure Type



■ Lap ■ Robotic

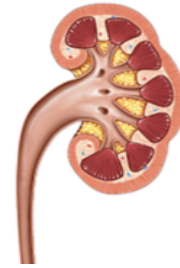
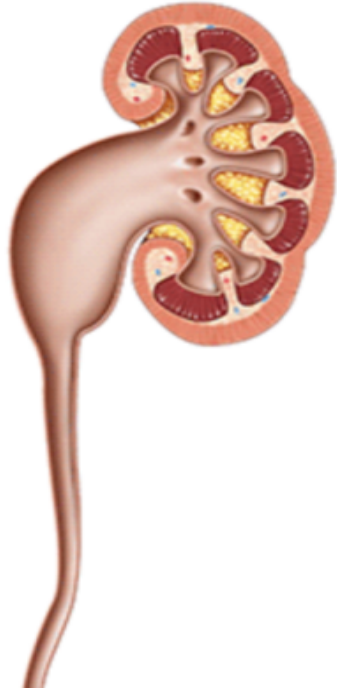
Initial Image Type



■ DRS ■ CT ■ US ■ Other



Results: Initial Imaging



Unobstructed
226 (76%)



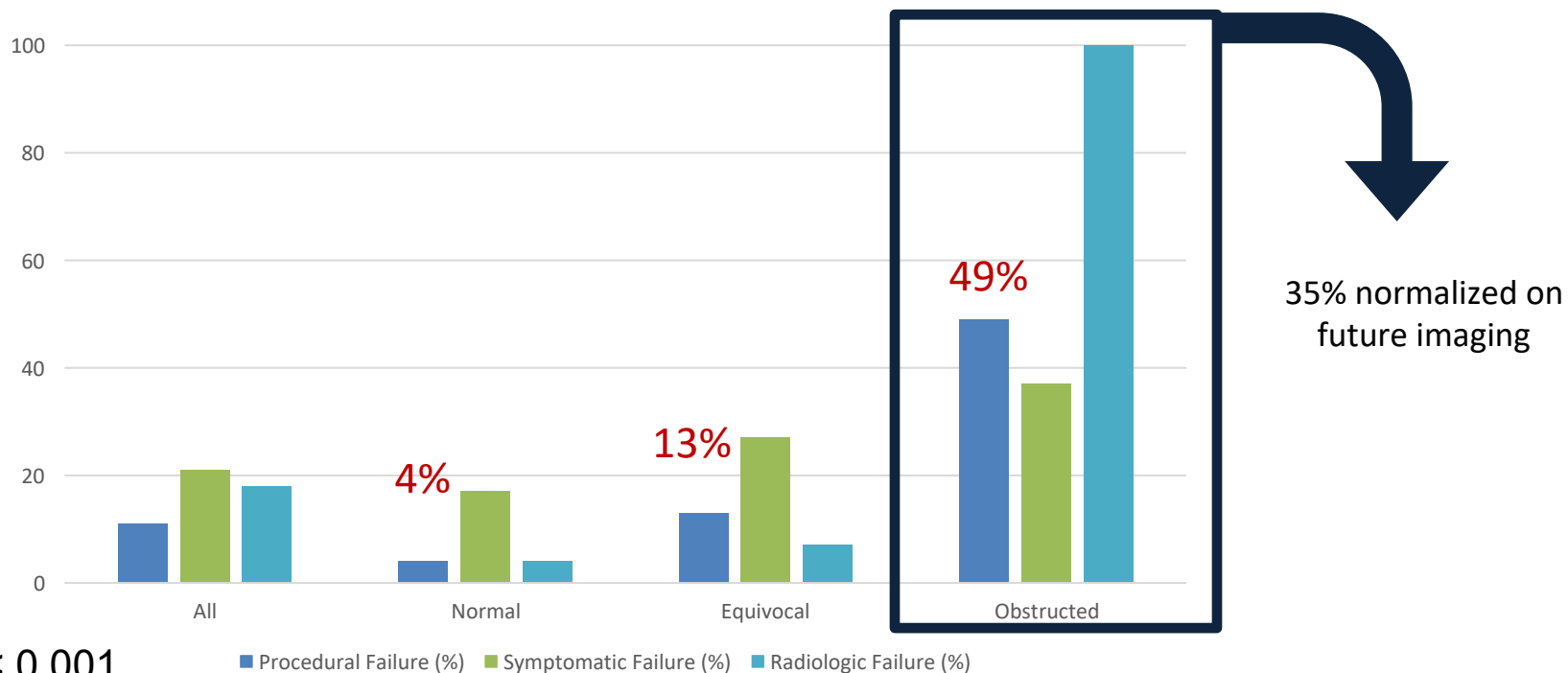
Equivocal
30 (10%)



Obstructed
43 (14%)



Results: Failure Based on Initial Imaging



Rates of Procedural Failure by Imaging + Symptoms

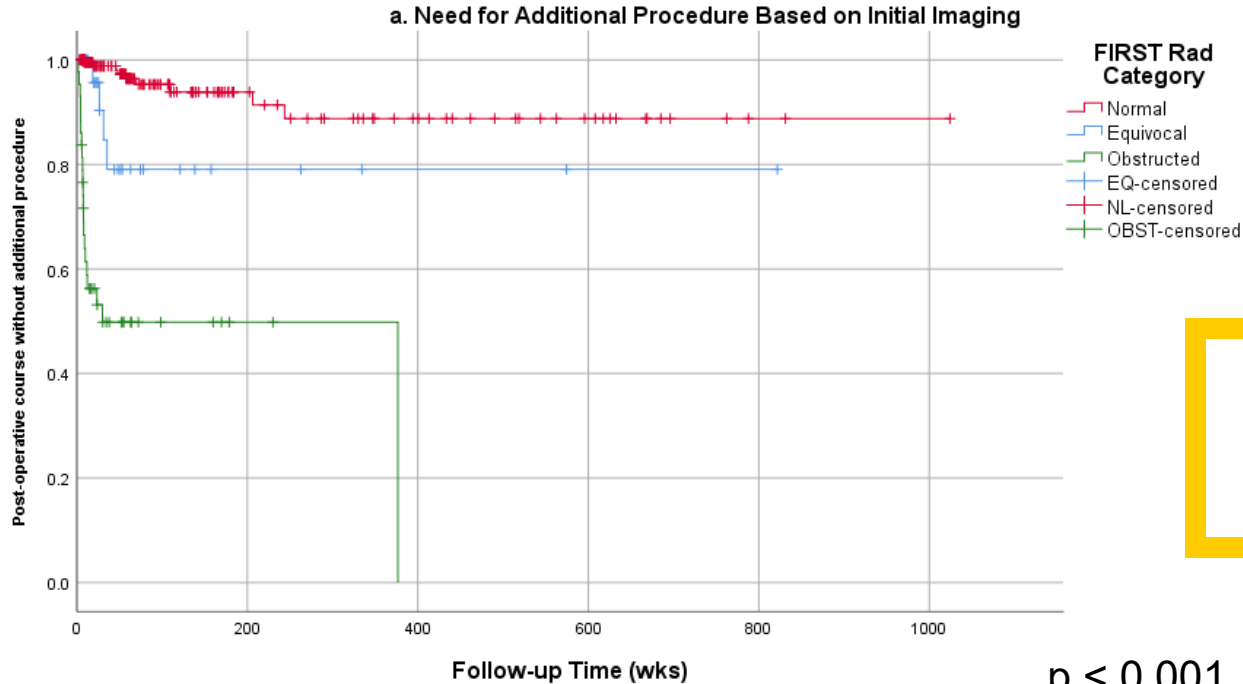
	Normal (n=226)	Equivocal (n=30)	Obstructed (n=43)
Asymptomatic (n=181)	0.6% (n=151)	6% (n=16)	14% (n=14)
Non-Severe Symptoms (n=55)	3% (n=36)	17% (n=6)	46% (n=13)
Severe Symptoms (n=63)	18% (n=39)	25% (n=8)	81% (n=16)



When will failure occur?



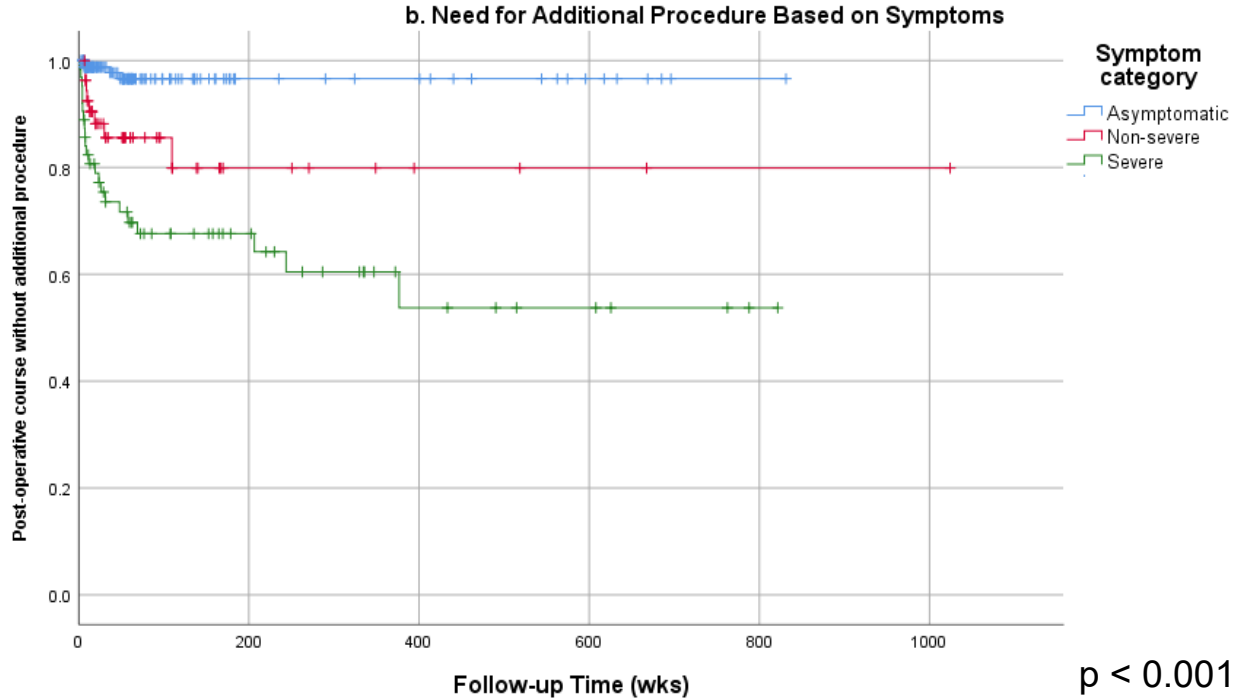
Time to Procedural Failure: Initial Imaging



In all but 3 cases,
procedural failure occurred
within the first **2 years**



Time to Procedural Failure: Symptoms



Conclusions

- Recurrent obstruction rates varied depending on outcome of initial radiologic study
 - Initial imaging helps guide management
- Risk of failure is very low in asymptomatic patients with normal initial imaging
 - The utility of routine radiologic surveillance in these patients may be low
- Failure unlikely to occur after 2 years unless severely symptomatic or normal initial radiological imaging

