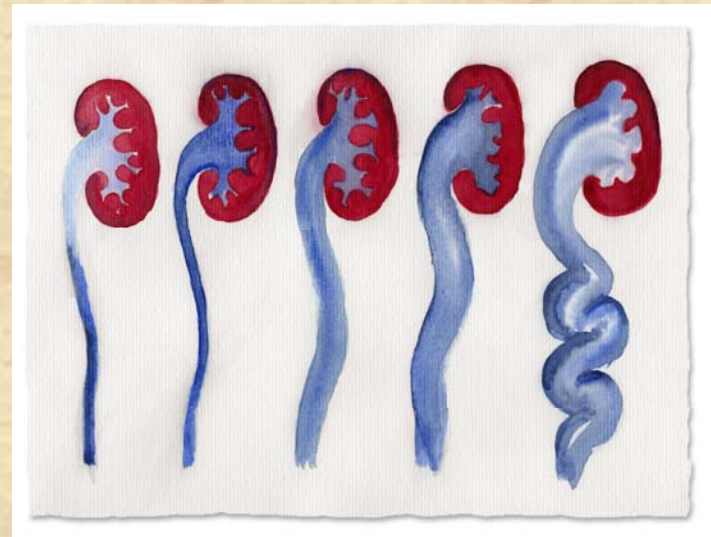


Longitudinal study of infants with high-grade vesicoureteral reflux

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List of Publications

- I. Sjostrom S., Sillén U., Bachelard M., Hansson S. and Stokland E.,
Spontaneous resolution of high grade infantile vesicoureteral reflux.
J Urol, 2004. **172**(2): p. 694-8; discussion 699.

- II. Sjostrom S., Jodal U., Sixt R., Bachelard M. and Sillén U.,
*Longitudinal Development of Renal Damage and Renal Function
in Infants With High Grade Vesicoureteral Reflux.*
J Urol, 2009. **181**, 2277-2283.

- III. Sjostrom S., Bachelard M., Sixt R. and Sillén U.,
*Change of urodynamic patterns in infants with dilating vesicoureteral
reflux;three year followup.*
J Urol, 2009. **182**(5):2453-4 .

- IV. Sjostrom S., Jodal U., Stokland E., Sixt R., Wahll L., and Sillén U.,
*Predictive factors for resolution of high-grade infantile vesicoureteral
reflux.-Results of uni and multivariate analyses.*
J Urol, 2010. **183**(3), 1177-1184.

Research questions

•What is the spontaneous resolution rate in dilated infantile VUR and which factors affect the outcome?

Can we select patients with a high chance of resolution from those with a low probability of resolution?

•What is the frequency of renal abnormality in dilated infantile VUR and how many have impaired renal function?

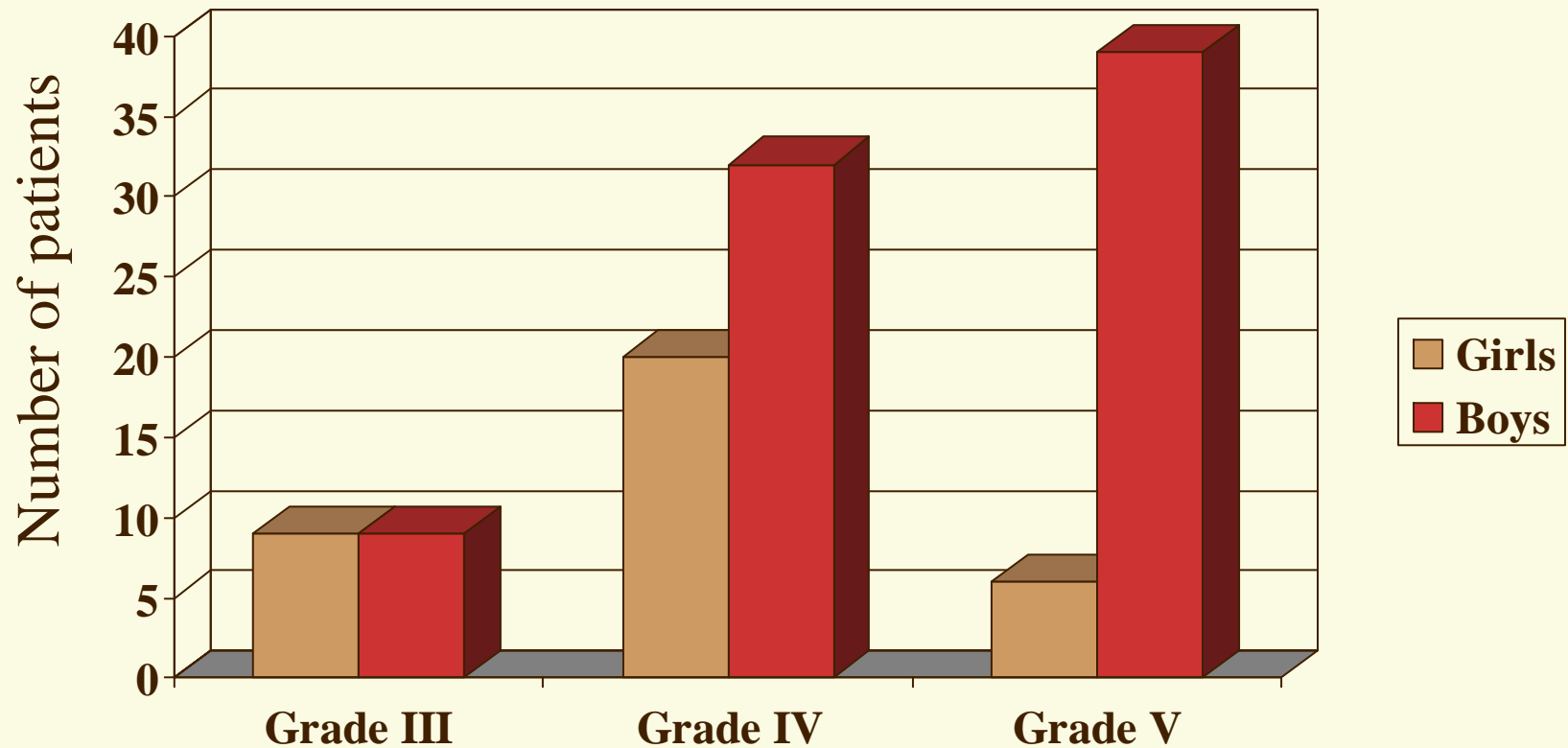
Can we identify riskfactors for deterioration of renal status?

•What are the bladder function characteristics in infantile dilated VUR and do they change during the first years of life? How many develop bladder dysfunction?

Study design

- 📄 Prospective longitudinal observational study.
- 📄 Eligible; Children with primary dilated vesicoureteral reflux (grade III-V) diagnosed during the first year of life.
- 📄 Monitoring of renal status, bladder function and natural course of reflux over time.

Grade of VUR at inclusion



Methods

	Number of investigations per child Median (range)	Age at first investigation Median months (range)	Follow-up time Median months (range)
VCM, (VCU) & Free voiding studies	3 (2-5)	2.7 (0.03-12)	36 (2-69)
Scintigrams (DMSA&MAG3)	4 (1-10)	4.7 (0.2-54)	62 (4-135)
Clearance (51Cr-EDTA-clearance)	3 (1-11)	7.7 (0.5-72)	53 (1-145)

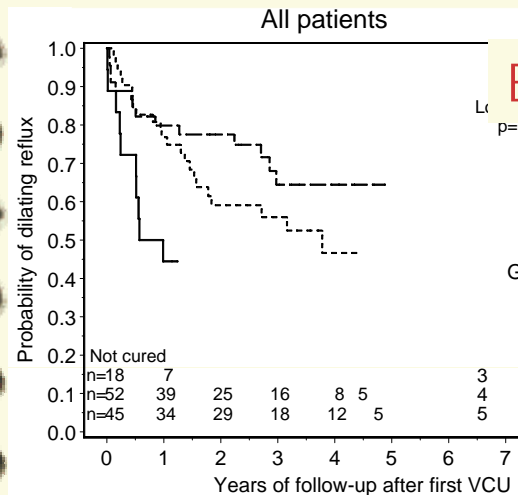
Results

Complete resolution of VUR in 30 (26%)

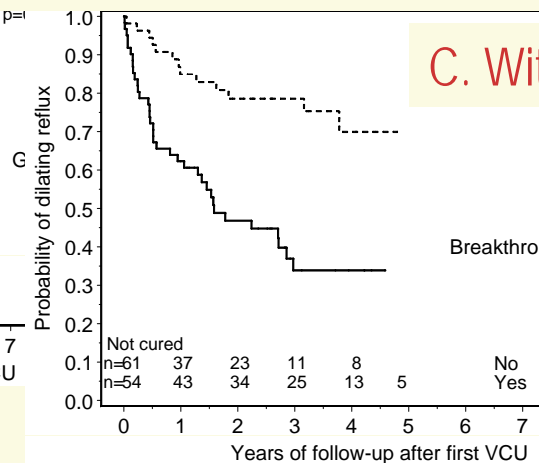
Downgrading of VUR to grade I-II in 14 (12%)

Probability of dilated VUR

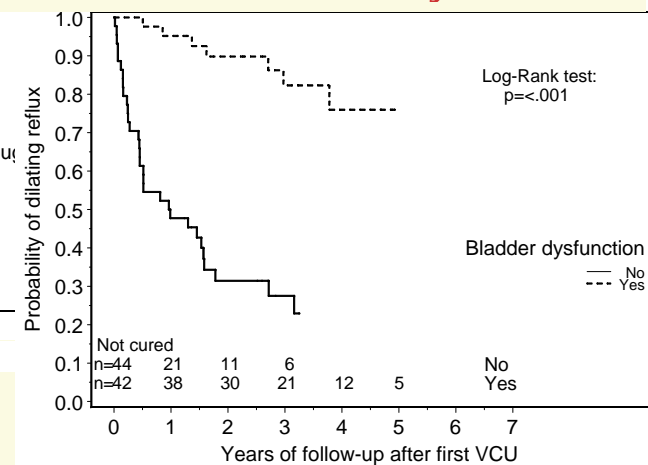
A. Split by grade of VUR at inclusion



B. With or without breakthrough infections



C. With or without bladder dysfunction



Results

Independent variables negatively associated to VUR resolution in multivariate analyses

Variable	Hazard Ratio (95% CI)	p-value
Renal abnormality	0.43 (0.29-0.63)	<0.0001
Bladder dysfunction	0.36 (0.24-0.53)	<0.0001
Breakthrough UTI	0.49 (0.25-0.97)	0.0397

Conclusion

The spontaneous resolution rate in infantile high-grade VUR:

- Is high (Resolution or downgrading in 38%)
- Is higher in boys during the infant year
- Is negatively associated with breakthrough infections, bladder dysfunction, higher grades of VUR and renal abnormalities.

Conclusion

Multivariate analyses

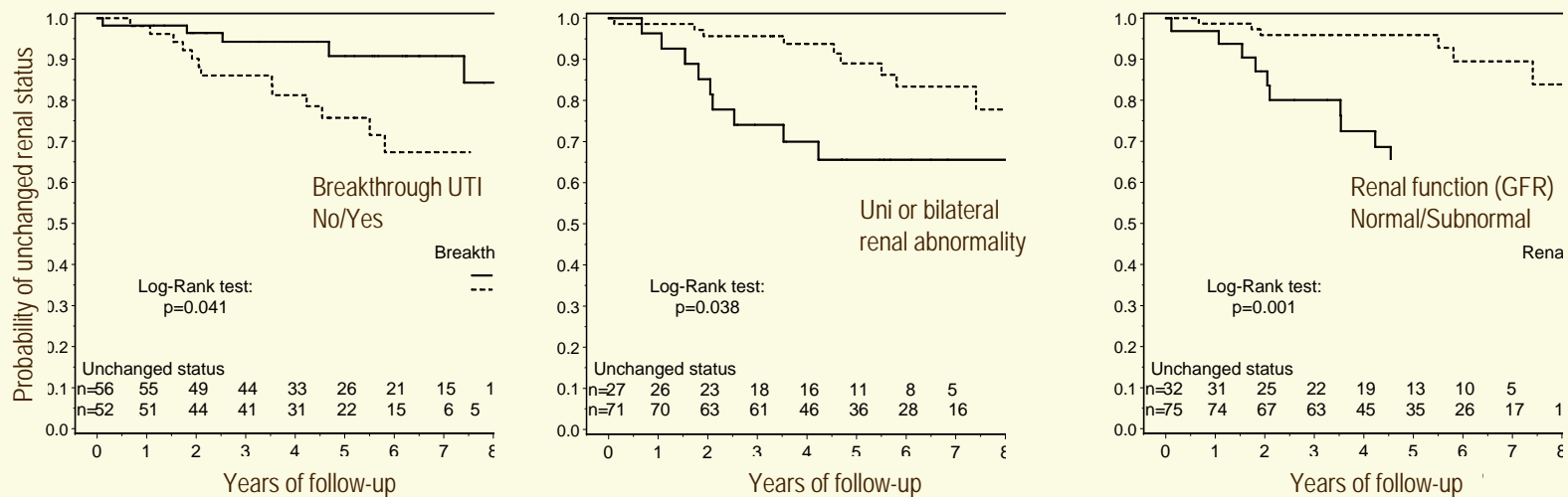
Renal damage, Bladder dysfunction

and Breakthrough UTI

have shown to be three strong independent factors for prediction of resolution of VUR in multivariate analyses.

Results

Probability of unchanged or deteriorated renal status



Breakthrough UTI, bilateral renal damage and subnormal GFR were predictors for deterioration in renal status. Deterioration was more frequent in prenatally diagnosed patients ($p=0.047$)

Conclusion

The frequency of renal abnormality in infantile dilated VUR is high (85%)
Subnormal renal function is seen in 30%.



Renal status

- Remains unchanged in the majority (82%) during the first years of life.
- Breakthrough UTI, bilateral renal damage and subnormal renal function are predictors for deterioration in renal status.

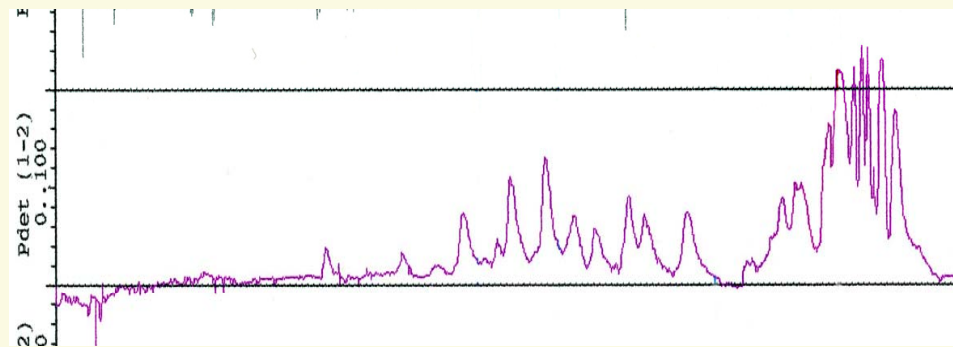
Results

TYPE OF BLADDER DYSFUNCTION

Bladder dysfunction was found in 48 (42%) of study patients



- HIGH CAPACITY & INCOMPLETE EMPTYING
34 of 48 (71%)
- OVERACTIVE CONTRACTIONS
14 of 48 (29%)



Conclusion

In infants with dilated VUR:

- Bladder dysfunction is common.

- The urodynamic pattern changes during the first years of life.

- High pressure and low capacity turns into high capacity with incomplete emptying.

- Bladder dysfunction can only be diagnosed from the second year of life and is seen in almost half of the patients.

A decorative graphic on the left side of the slide, resembling a spiral-bound notebook. It features a vertical metal spiral binding on the left edge, with the wire looping through a series of circular holes. The background of the notebook page is a light cream color, and the entire graphic is set against a dark brown border.

General Conclusion

This observational study has resulted in:

- a detailed description of the characteristics and course of dilated VUR in infants.
- a description of changes in urodynamics during the first years of life.
- a description of renal status at inclusion and over time.
- risk factors affecting the outcome have been identified.



Clinical Implications

Our study has provided tools for distinguishing infants with a high chance of spontaneous resolution from those with a high risk of remaining dilated reflux.

The study results can be used to formulate hypotheses for future management of infants with dilated VUR.

Thank You!

The doctoral thesis
*Longitudinal study of infants
with high-grade
vesicoureteral reflux*
is available on internet

<http://hdl.handle.net/2077/20459>

