

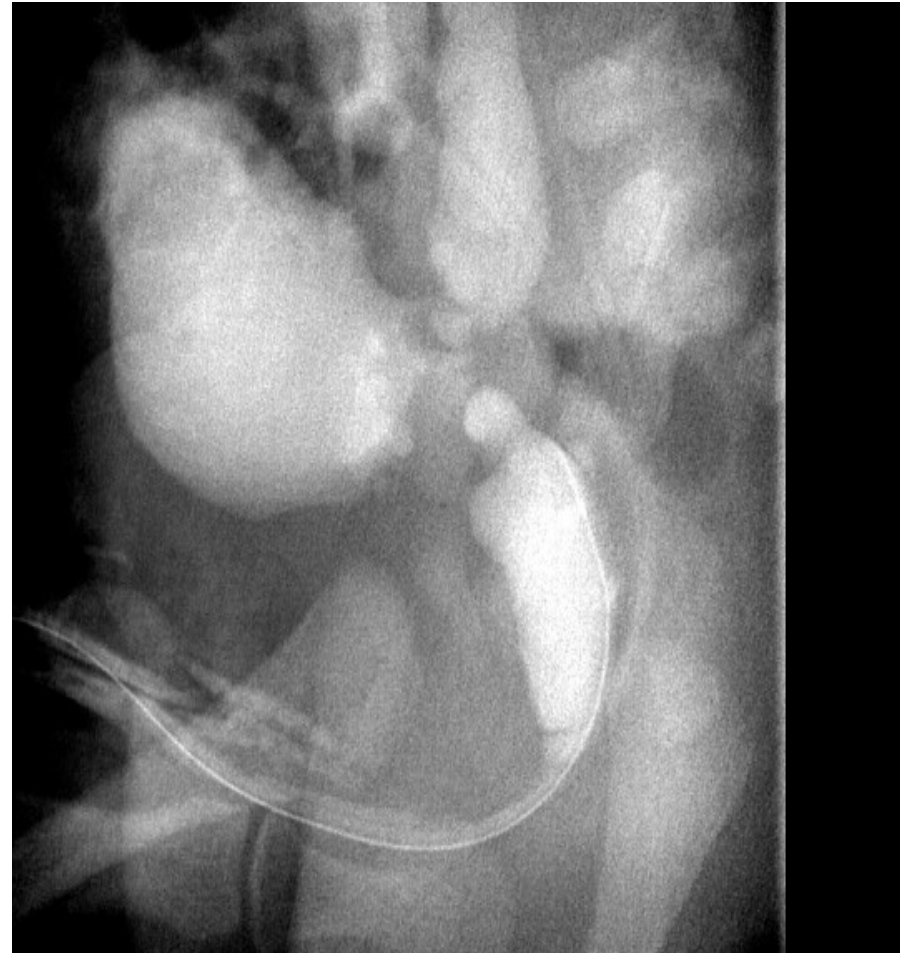
Such a tiny membrane

Yves Heloury

Presentation

- Posterior urethral valves (PUV)
 - Tiny membrane
 - Consequences
 - Kidneys
 - bladder
 - Management

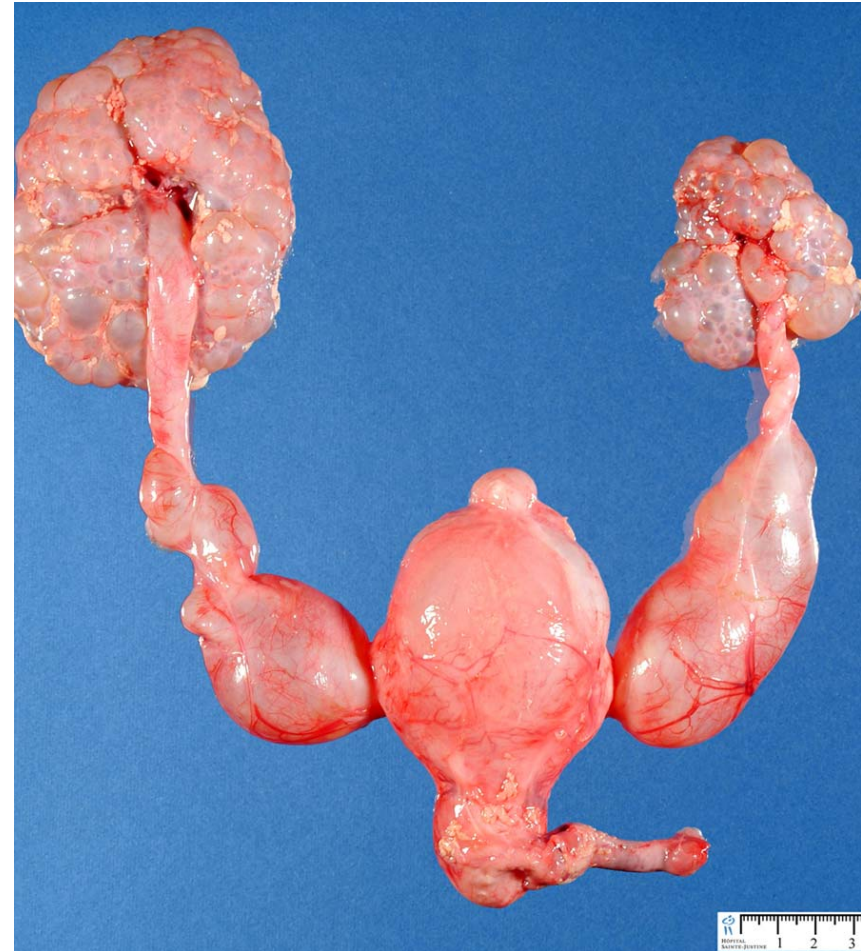
Tiny membrane



Consequences

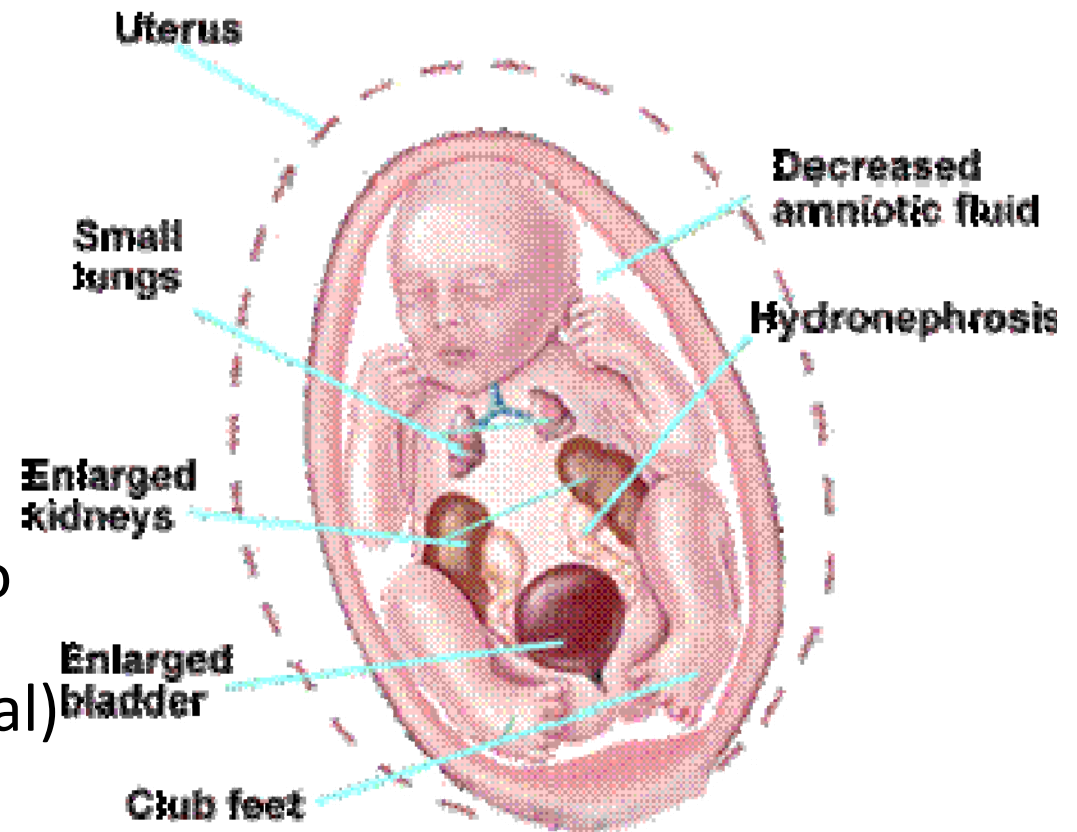
- PUV = spectrum
 - severe cases
 - affect all the urinary tract
 - prenatal diagnosis
 - mild cases
 - affect bladder emptying
 - postnatal diagnosis
 - recurrent UTI
 - continence disorders (abnormal uroflowmetry)

Some folds are non obstructive at all
(cystoscopy in continence disorders only if
abnormal uroflowmetry)



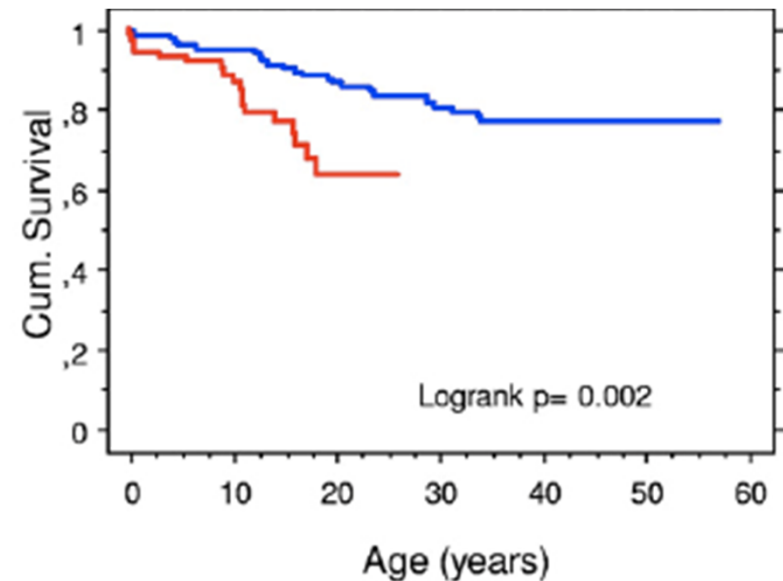
Consequences- kidneys

- Dysplasia occurs very early during gestation
- Prenatal drainage is too late to prevent it
- Vesico-amniotic shunt to prevent further bladder deterioration (PLUTO trial)



Consequences- kidneys

- Lifetime risk of ESRD: 28.5% (Heikkila J, J Urol 2011, 186:2392-6)
- Predictor: lowest creatinine level at 1 year of age
- Increased risks: bilateral VUR, recurrent UTI (bladder dysfunction)



— Early series 1953- 1981	121	114	101	81	44	11
— Late series 1982- 2003	72	52	15			

Consequences- bladder

Glassberg K. The valve bladder: 20 years later- J Urol
2001;166:1406-1414

- I look forward to the next 20 years to determine if our knowledge of the valve bladder syndrome in the last 20 years has helped us to improve outcomes.
- I particularly look forward to clinical and animal studies

The bladder of PUV- experimental studies

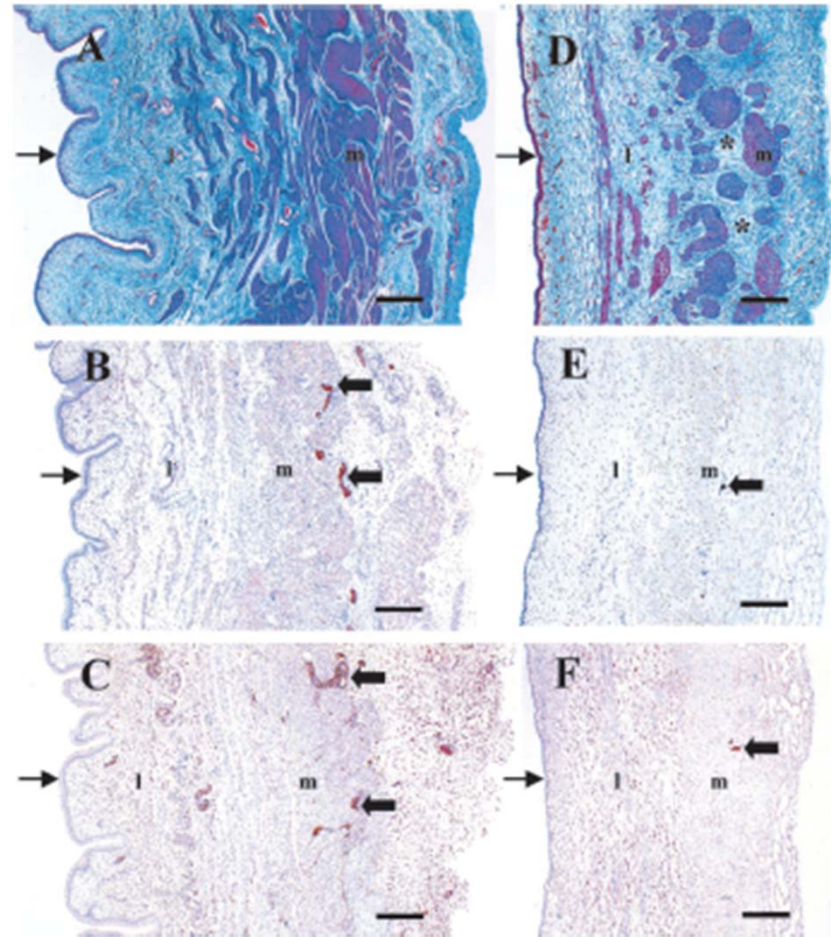
- Long-term obstruction (30-day)

- bladder becomes large and hypocontractile with increased compliance

- relative denervation

Nyiradi P et al

J Urol 2002;168:1615-1620

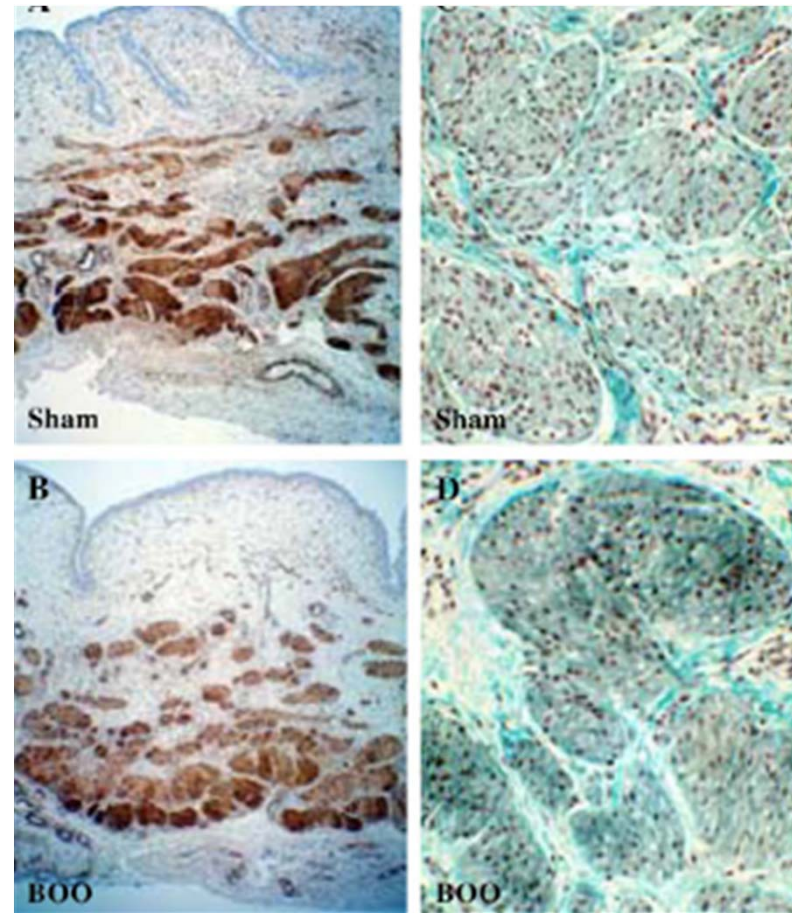


The bladder of PUV- experimental studies

- Short-term obstruction (9-day)
 - bladder increased in size
 - compliance increased
 - no evidence of contractile failure

Interest of prenatal drainage of the bladder?

Farrugia MK et al
J Pediatr Urol, 2006:243-60



The bladder of PUV- Clinical series

- Lopes Perreira P et al, Br J Urol 2002;90:308-11
 - 59 boys
 - Mean age (10 years)
 - Bladder function (2UDS)
 - normal: 25 (42%)
 - abnormal: 34 (58%)
 - OAB: 22 (65%)
 - poor compliance: 9 (26%)
 - acontractile bladder: 3 (9%)

The bladder of PUV- Clinical series

- Lopes Perreira P et al, Br J Urol 2002;90:308-311
 - ESRF: 22 with 15 abnormal bladders (68%)
 - Abnormal compliance: 9 (8 with ESRF)
 - No difference between valve ablation and urinary diversion

The bladder of PUV- Clinical series

- Holmdhal G et al (J Urol 2005;174:1031-4)
 - 19 men
 - Mean age: 39 years
 - 6 ESRF
 - All continent night and day
 - 37% weak stream and double voiding

The bladder of PUV- Clinical series

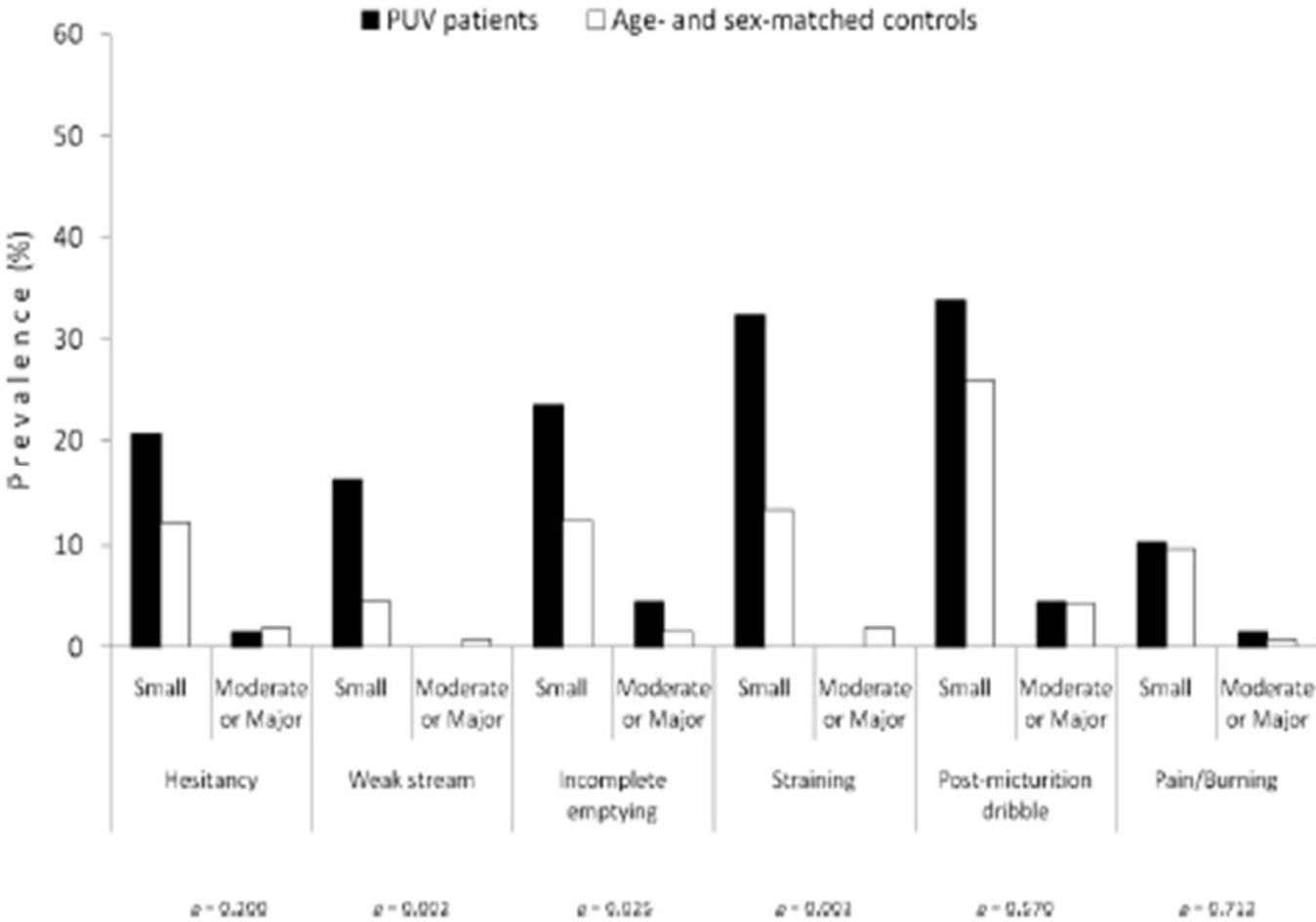
- Holmdhal G et al (J Urol 2005;174:1031-4)

	Median age day continence	Day Continence at 5 YO	Night continence at 5 YO
ESRD	12.5	0/6	1/6
Mild CKD	6	2/4	4/4
Normal renal function	6	3/9	6/9

The bladder of PUV- Clinical series

- Tikkinen K et al, J Urol 2011;186:660-6
 - Matched cohort study
 - Median age: 38.5 years
 - LUT symptoms: 32.4% PUV (15.8% controls)
 - Urgency incontinence and stress incontinence increased 3-fold in patients with PUV compare to controls

The bladder of PUV- Clinical series



The bladder of PUV- Guidelines

- Bladder and kidney impairments are linked and related to the severity of the prenatal obstruction
- Alteration of compliance
 - is rare
 - occurs in children with CKD
 - is very severe for the kidneys
- Polyuria is constant in children with CKD and is a major factor of bladder dysfunction
- Aggravation of the dilatation of the upper urinary tract is related to the bladder dysfunction
- VUR is the consequence of the prenatal infra-vesical obstruction and is not a disease by itself

The bladder of PUV- Guidelines

- Bladder of PUV is not a neurogenic bladder
- It often improves with time and cyclisation is necessary for that
- Management as conservative as possible, if the bladder is not dangerous for the kidneys
- Difficult period of management before 3 years of age
 - Recurrent UTI
 - Persistent dilatation of the UUT
 - UDS not reliable

The bladder of PUV

	Valve bladder	Neurogenic bladder
Etiology	Prenatal obstruction	Abnormal innervation
At birth	Severely abnormal	Normal
Evolution	Improves	Stable or deteriorate
Management	Conservative if the kidneys are protected	Proactive (CIC and anticholinergics)

The bladder of PUV- How I manage it ?

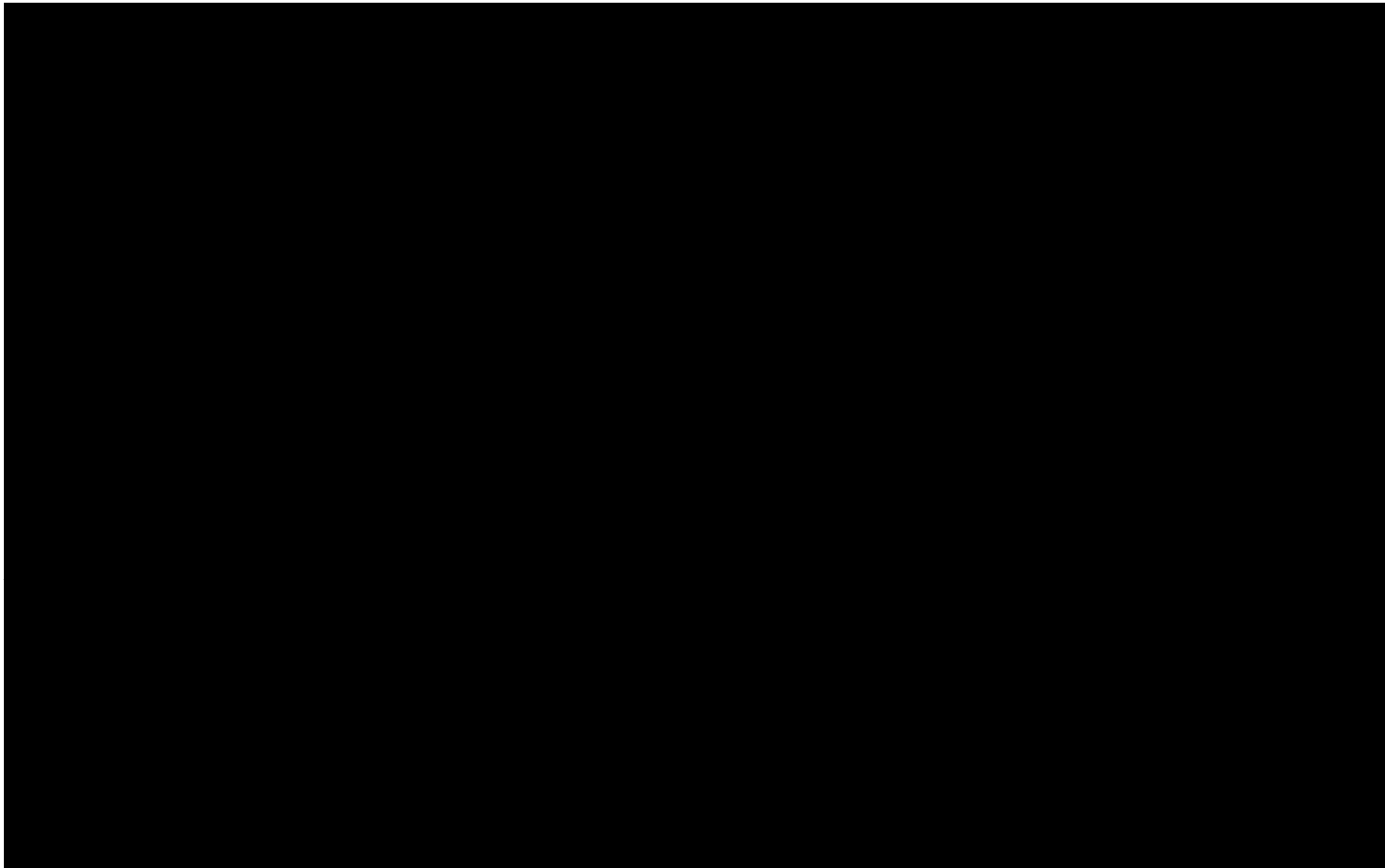
- Goals

- Suppression of the infra-vesical obstruction: section of the valves
- Preservation of the renal function
 - Nephrologic management
 - Detection and treatment of hypocompliant bladder
 - Prevention of UTI
- Management of the continence disorders

The bladder of PUV- How I manage it ?

- Section of the valves
 - neonatal section of the valves (circumcision ?)
 - ideally, no drainage of the bladder before or after endoscopic section
 - advantages: cycling of the bladder, decreases post obstruction diuresis and perhaps the risk of infection
 - second endoscopy at 3 months of age to check the neonatal procedure?

Tiny membrane



The bladder of PUV- How I manage it ?

- Detection and treatment of hypocompliant bladder
 - Young children with CKD
 - Symptoms: progressive increase of the ureterohydronephrosis and deterioration of the renal function (improvement with a temporary drainage by a bladder catheter)
 - Management
 - Infants: vesicostomy initially with secondary reconstruction (bladder augmentation and Mitrofanoff)

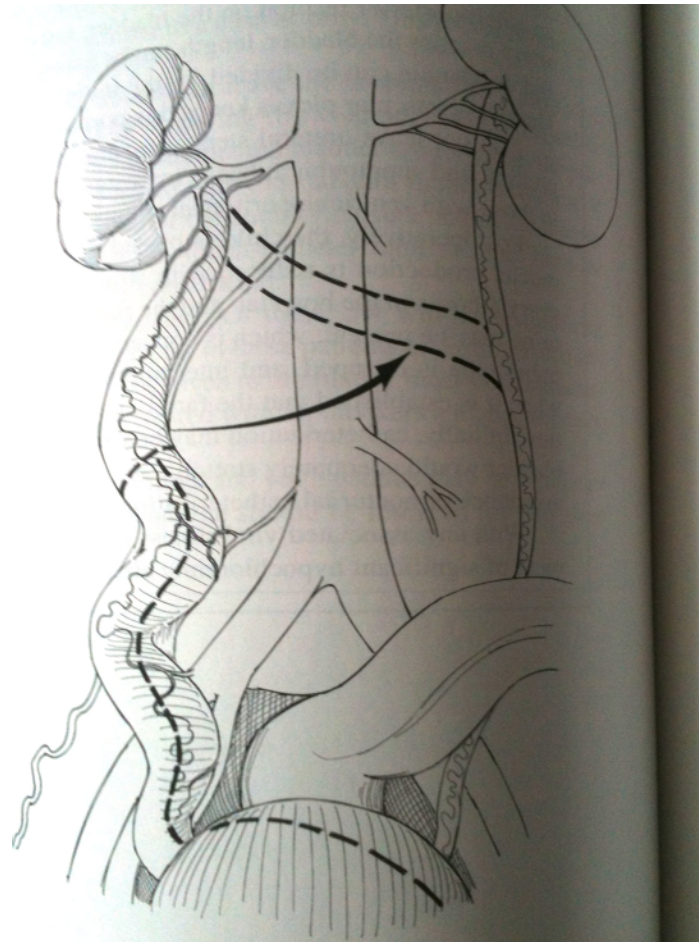
The bladder of PUV- How I manage it ?

- Vesicostomy
 - Good access to the bladder in infants and young children
 - Type depends on the situation
 - Complete drainage if large (protects the kidneys)
 - Partial drainage associated with CIC if narrow (CIC per urethra?)

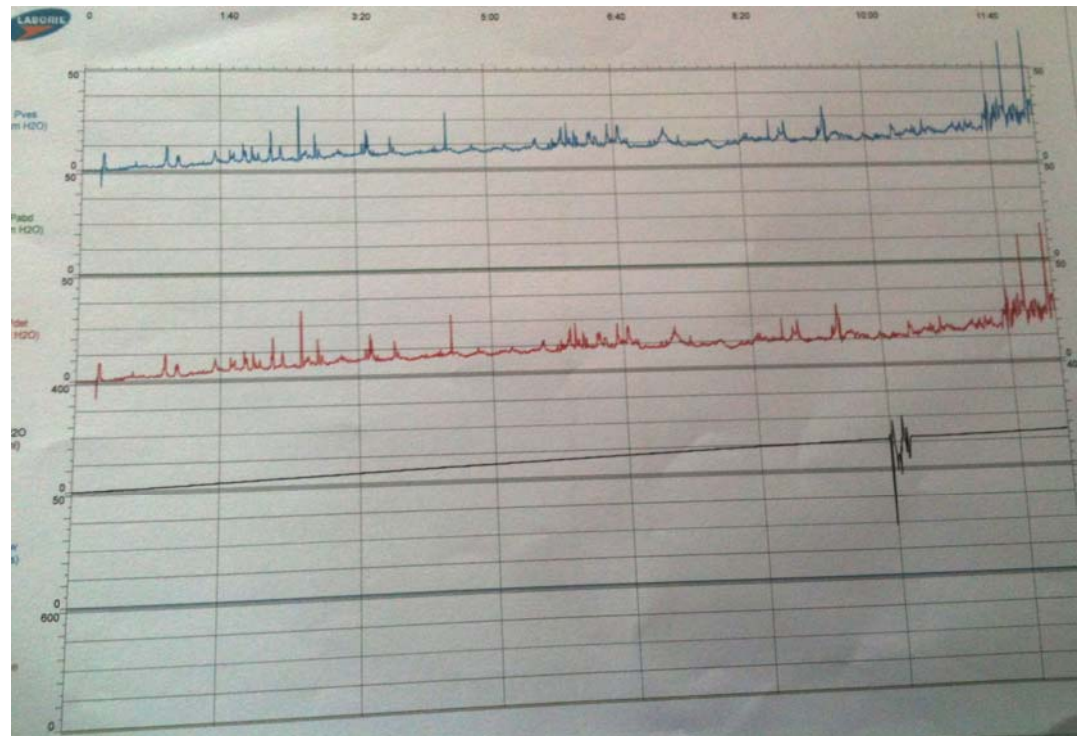


The bladder of PUV- How I manage it ?

- Bladder augmentation and PUV
 - Indications are rare
 - Always associated with a Mitrofanoff
 - Ureter is often a good solution as they are large



The bladder of PUV- How I manage it ?

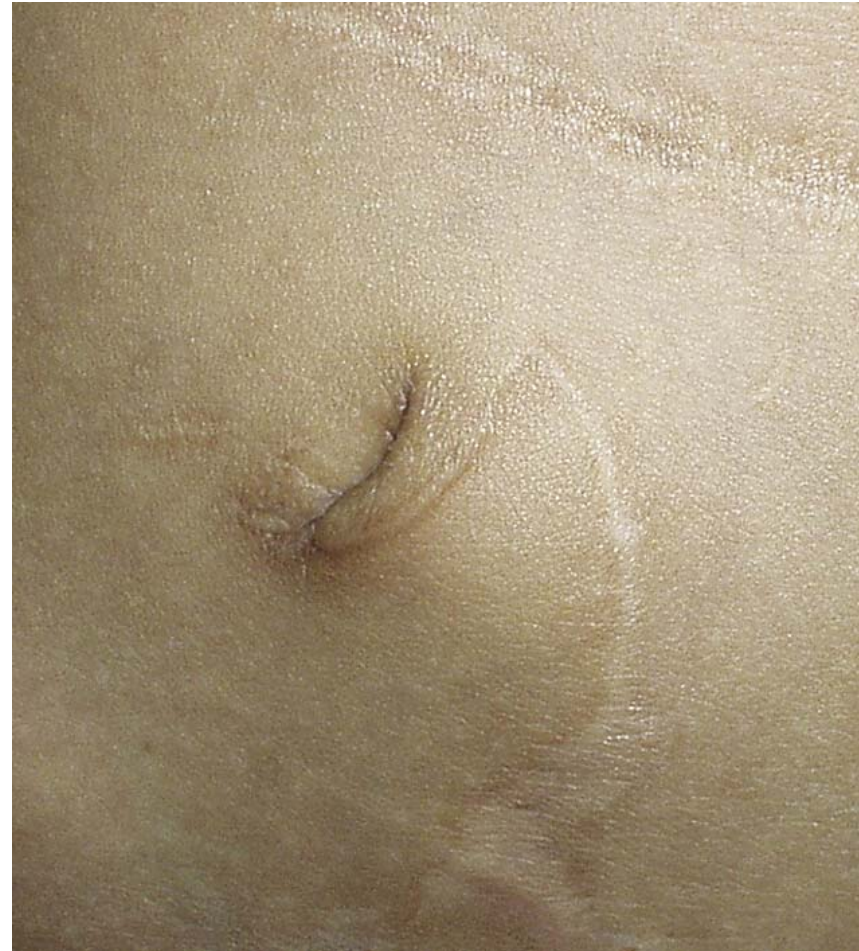


The bladder of PUV- How I manage it ?

- Prevention of UTI
 - Circumcision: reduces the risk of UTI by 10-fold
 - Antibioprophylaxis if VUR and/or ureterohydronephrosis
 - Recurrent pyelonephritis related to poor bladder emptying
 - Vesicostomy in young children
 - CIC after 2-3 years (Mitrofanoff as sensible urethra and difficult catheterization)

The bladder of PUV- How I manage it ?

- Mitrofanoff and PUV
 - Indications: CIC after bladder augmentation or recurrent pyelonephritis
 - Long-term incidence of complications : 60%
 - Most common
 - Stenosis
 - Leakage



The bladder of PUV- How I manage it ?

- Management of continence disorders
 - Parents informed very early
 - Etiology
 - Overactivity with small functional bladder capacity
 - Poor bladder emptying
 - Polyuria (nocturnal enuresis)

The bladder of PUV- How I manage it ?

- Management of continence disorders
 - Evaluation
 - Frequency/volume diary
 - Uroflowmetry and bladder scan
 - Cystomanometry if
 - continence disorders after 5 to 8 years (social consequences)
 - Earlier if suspicion of hypocompliance and/or recurrent UTI

The bladder of PUV- How I manage it ?

- Management of continence disorders
 - Treatment
 - OAB: low doses of anticholinergics if good bladder emptying
 - Poor bladder emptying: biofeedback; alpha-blockers
 - Nocturnal enuresis: desmopressine

Difficult as the factors of incontinence are intricated

Conservative management as long as the social consequences are limited

Conclusion

- PUV: such a tiny membrane?
- Good analysis of the outcome after the first year of life (renal function, UTI)
- The priority is always to protect the kidneys
- Aggressive management if suspicion of renal deterioration
- Conservative management in cases of isolated continence disorders