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Valve of the Posterior Urethra in Girls: A Case Report from the Gavardo Hospital in Mali

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Abstract **Case Report**

This is a prospective study of a single case of posterior urethral valve in a 2-year-old girl in the Gabriel Toure Urology Department. Posterior urethral valves (PUV) are congenital obstructive membranous folds that represent the main cause of congenital subvesical obstruction and dysuria in children and infants [1]. Their aetiology remains unknown, and is probably related to poor positioning of the orifices of the Wolffian ducts leading into the urethra [2]. Abdominal and pelvic ultrasound combined with Uroscanner revealed bilateral ureterohydronephrosis with repercussions on the upper urinary tract. Suprapubic cystography showed stenosis of the membranous urethra with dilatation of the posterior urethra upstream of the valve and diverticular bladder. The procedure consisted of ureterovesical reimplantation plus intubation via an external ureteral drain, which was removed at$_{10}$ postoperatively, and stripping followed by ureterovesical catheterisation. The post-operative course was straightforward.

Keywords: Girl, Female, Posterior urethral valve.

INTRODUCTION

Posterior urethral valves (PUVs) are congenital obstructive membrane folds that represent the main cause of congenital subvesical obstruction and dysuria in children and infants [1]. Their aetiology remains unknown, and is probably related to malpositioning of the orifices of the Wolffian ducts leading into the urethra [2]. In the light of a better understanding of their pathophysiology, the classification of UPVs has changed from Young's classic description to the clinically more appropriate Congenital Obstructing Posterior Urethral Membrane (COPUM). Its long- term prognosis depends on the severity of the obstruction and its impact on bladder and kidney function, ranging from non-viability of the foetus in utero to persistent incontinence in adulthood, via more or less severe kidney failure. In order to preserve renal function and allow an adequate social life, the management of these children, and in particular the bladder problem, must be aggressive, accompanied by close monitoring of renal function. This implies long-term multidisciplinary follow-up. The incidence of UPV is estimated at between 1 in 4,000 and 1 in 8,000 male births, and is certainly much higher if we include non-viable or aborted foetuses and adults presenting late with micturition difficulties. They account for 63% of congenital subvesical obstructions [2].

They are generally discovered *in utero*: 50% are discovered at the routine second-trimester ultrasound scan and 80% are known after the 28th week of amenorrhoea [4] However, this antenatal detection depends on the number of ultrasounds performed and their quality. A significant number of patients are only diagnosed later, in paediatric or even adult life, usually with symptoms of recurrent urinary tract infections or incontinence [5]. Thanks to the evolution and development of technology, antenatal diagnosis and

improved management of these children are now possible, and mortality has fallen from 50% in the 1960s to less than 5% today. Unfortunately, this very favourable trend means that a growing number of boys are exposed to the long-term sequelae of bladder dysfunction, which is closely linked to this diagnosis. This results in impaired renal function and urinary incontinence, with serious social repercussions. The result is the need for meticulous follow-up in the context of a multidisciplinary consultation [6-8].

Our study is the first of its kind in our country. Of all the literature reviews that we have used to carry out this work, we have never come across a case of a posterior urethral valve in a woman in any of the other authors who have published extensively on posterior urethral valves in boys. We therefore set ourselves the objective of studying posterior urethral valves in women.

PATIENTS AND METHODS

This is a prospective study of a single case of urethral valve in a 2-year-old girl in the Gabriel Toure Urology Department.

The following parameters were studied: age, declared sex, reasons for consultation, physical examination, complementary examinations, surgical treatment and post-operative follow-up.

Clinical cases

OBSERVATION

We report the observation of a patient named KT, aged 2 years, with no particular medical or surgical history. She was the youngest of three siblings and was consulted in November 2022 for dysuria.

Clinical examination revealed a fever of 38°C and a dull hypogastric curve, very painful on palpation, convex towards the umbilicus (bladder globe). In addition, the female sex was declared at birth by the parents.

Clinical examination revealed well-developed female external genitalia with no other associated congenital anomalies.

Abdominal and pelvic ultrasound revealed bilateral ureterohydronephrosis with repercussions on the upper urinary tract.

Suprapubic cystography showed stenosis of the membranous urethra with dilatation of the posterior urethra upstream of the valve and diverticular bladder. Urine cystobacteriology plus antibiotic susceptibility test revealed a urinary tract infection with E. Coli infection

Creatinine levels were slightly elevated at the borderline of normal, while blood glucose levels were normal.

The procedure consisted of ureterovesical reimplantation plus intubation via an exteriorised ureteral drain, which was removed at d_{10} postoperatively, and stripping followed by ureterovesical catheterisation. The post-operative course was straightforward.

COMMENT AND DISCUSSION

Long considered an exclusively male condition, UPV is the main cause of end-stage renal disease in children. The incidence of newborns diagnosed with ESRD has risen considerably over the last twenty years, thanks in part to advances in antenatal ultrasound. The degree of obstruction plays a part in the long-term prognosis of the bladder and kidneys.

This is because the increase in bladder pressure is reflected intra-renally and leads to a cascade of cellular events secondary to tubular dilation. The result is interstitial fibrosis and glomerular sclerosis, leading to a reduction in the number of nephrons.) Progression to end-stage renal failure varies in patients from 13 to 20% [13-15].

In the course of our study, we recorded 5 cases of VUP, including a single case in a woman, which is very rare if not exceptional, and which prompted us to review the literature on VUP in women.

Anatomically, there are 3 types according to Young's classification [15, 16].

Type I: Persistence of the urethro-genital mucosal folds in an anterior sub-montanal position. This is the most common

Type II: Existence of supramontaneous valves,

Type III: Persistence of the urogenital membrane, creating a diaphragm with a central hole in the submontaneous zone.

Our patient was 2 years old, the same constant is made by Hunald FA *et al*., [3] whose two cases were diagnosed at the age of 7 years and their mode of discovery corresponded to the data of the literature which affirmed that the observation of these elements should lead to the prescription of radiological examinations in search of VUP. This explains the delay in consultation and diagnosis despite the various therapeutic means available today for making the diagnosis in antenatal care, often associated with the parents' precarious socio-economic conditions.

The male sex was almost exclusively maintained by numerous authors who did several literature reviews on VUP, this discovery in our department was a first in girls the valve of the posterior urethra, which after clinical and paraclinical examinations we maintained this diagnosis despite the non documentation of VUP in women.

In the literature, the reason for consultation varies from one patient to another. In our case, the reason for consultation was dysuria accompanied by urinary urgency and urinary burning according to the parents, In the Hunald *et al*., [3] series, the reason for consultation was essentially acute retention of urine, whereas in the Makosso *et al*., [4] series, the reason for consultation was dominated by urinary incontinence and acute retention of urine on the one hand, and urinary incontinence and recurrent urinary infection on the other. This explains the highly polymorphic nature of UPV, which varies from one patient to another. Physical examination is poor, and in general the most reliable sign is palpation of an abnormally hard, painful, kidney-shaped hypogastric curve, convex towards the umbilicus, associated with micturition by overflow.

General signs predominate, in particular fever, vomiting and often chills. The presence of ascites and/or pneumothorax may be the only signs pointing to the diagnosis of UPV.

A urine cytobacteriological examination plus antibiotic susceptibility test was requested, which revealed a urinary tract infection with E. Coli infection and its follow-up. Therapeutically, the aim was to remove the urethral obstruction, prevent urinary tract infections and preserve bladder function. Abdominal and pelvic ultrasound revealed bilateral ureterohydronephrosis with repercussions on the upper urinary tract.

Retrograde mictional urethrocystography (RMUC) showed stenosis of the membranous urethra with dilatation of the posterior urethra upstream of the valve and diverticular bladder. Surgical treatment and post-operative follow-up.

At present, the standard treatment for valves of the posterior urethra is endoscopic resection from birth. This technique has the advantage of avoiding complications, but it is expensive.

The Foley catheter stripping technique is therefore perfectly accessible to patients and paediatric urologists who do not have modern endoscopic equipment, with a success rate as high as that of endoscopy. However, the protocol must be followed to avoid any risk of urethral rupture [6].

The procedure consisted of ureterovesical reimplantation plus intubation via an external ureteral drain, which was removed at$_{10}$ postoperatively, and stripping followed by ureterovesical catheterisation. The post-operative course was straightforward.

CONCLUSION

Valves of the posterior urethra (VUP) are congenital pathologies characterised by obstructive membranous folds that represent the main cause of congenital subvesical obstruction and dysuria in children and infants. Ante-natal diagnosis is possible using ultrasound. The diagnosis of certainty is made by a combination of ultrasound and permictional cystography. Long- and short-term prognosis depends on the severity and appropriate management of UPV.

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