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Posterior Urethral Obstructing Membrane in a Nigerian Neonate, a True presentation of posterior urethral valve- A Case Report

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Posterior urethral valve is the commonest cause of lower urinary tract obstruction in male neonates. Diagnosis can be made prenatally and in newborn males. Young classified posterior urethral valve into three types with Type I having the highest incidence of 95%. Recent findings have shown that Type III appears to actually be the commonest type before catheterization presupposing that Young's classification was done after catherization.
The commonest form of presentation therefore appears to be Type III before catheterization.

Introduction

Posterior urethral valves (PUVs) are one of the most common causes of lower urinary tract obstruction in male neonates [1]. A posterior urethral valve is an obstructing membrane in the posterior male urethral occurring as a result of abnormal in-utero development. The incidence of PUV in Nigeria is not known but its worldwide incidence is put at 1:8,000 to 1:25,000 live births[2]. The diagnosis could be made prenatally or at birth when male newborns are evaluated for poor urine stream and prenatal hydronephrosis. Diagnosis can also be made during early childhood but rarely during adolescence or adulthood.

The gold standard for postnatal diagnosis is voiding cystourethrography while pre-natal diagnosis is dependent on routine screening ultrasonography. Presentation of PUVs ranges from none to very severe urinary tract obstruction to an extent that may not be compatible with postnatal life[3]. The first clinical description of PUV was made by H.H Young in 1919 when he published a report of 36 cases. Before then PUV were observed at autopsies as far back 1515[4]. It was in his publication that he classified PUV into the various types (I, II and III).

After over 300 years of recognizing the existence of this pathology and despite the high prevalence, the few children that survive do poorly with more than one-third of them progressing to ends-stage renal disease in 10years[1,5].

Case Report

The patient was a 2 day old male neonate who was delivered at 38week gestation to a multiparous woman. Since delivery he was observed not to have passed urine with associated mild suprapubic fullness.
Results of blood investigations were:

Packed cell volume 54%
Blood biochemistry -- Sodium 146mg/d
Potassium 7.6mg/dl
Bicarbonate 18mg/dl
Urea 68mg/dl
Creatinine 2.2mg/dl

He immediately had abdominal ultrasound scan done which revealed a keyhole opening in a membranous fold in the posterior urethral. The posterior urethral was also mildly distended. The posterior urethral was enlarged for the age of the child but the wall was not thickened. There was no evidence of back pressure effect noticed in the ureters and kidneys.

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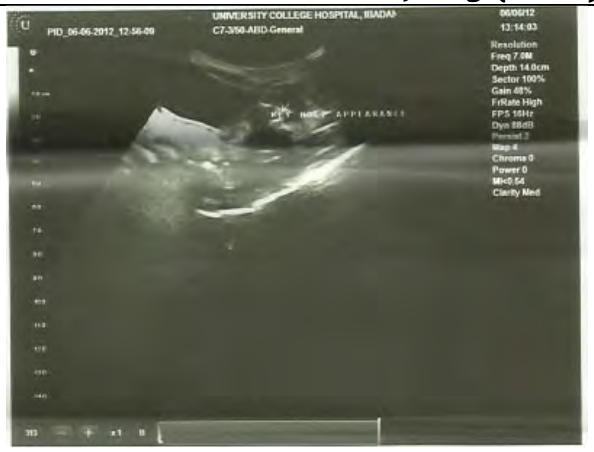

Figure 1. Showing the keyhole opening in the posterior urethral with mild dilatation

The child was subsequently cathetherized and 38mls of clear urine was emptied and the catheter removed. 12 hours later a repeat catheterization was done when it was noticed that the child wasn't still pass urine freely. This emptied another 18mls of clear urine and the catheter left in place.

An expressive cystourethrogram was done which revealed moderately dilated bladder with irregular outline of the wall. The keyhole opening that was initially noticed on the ultrasound scan was not seen.

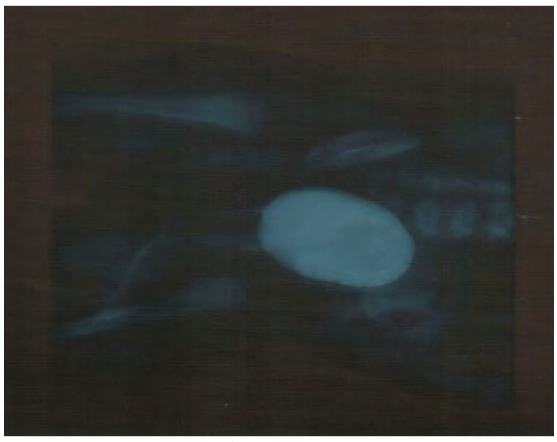

Figure 2

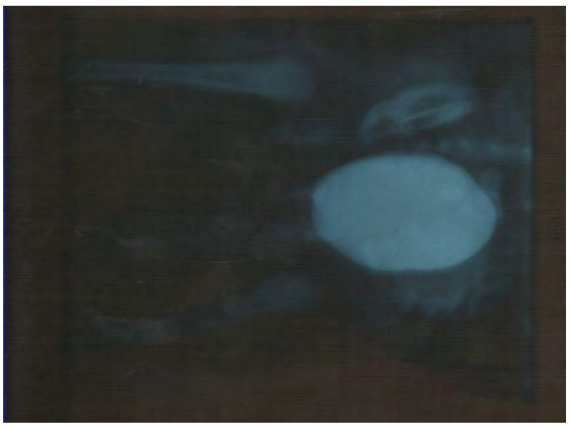

Figure 3

Figures 2 and 3 Showing the distended bladder with irregular outline and mildly distended posterior urethral

The child subsequently had a valvotomy using the Mohan's valvotome.It was observed that the urinary stream was good and he was discharged home on the third postoperative day.He had been seen twice in the outpatient clinic.His condition is satisfactory.

Discussion

The normal male urethral extends from the bladder neck to the external urethral meatus. The prostatic portion extends from the base to the tip of the prostate and is the widest and most distensible part. The classic form of PUV is in the prostatic urethral, below or after the veromontanum[1]. Young described three types of PUV[4]. Types I and II involve valves of mucosal folds that are seen to be attached to the

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veromontanum while Type 3 are a form of mucosal web or membrane. Type 1 was described as the commonest (95%), Type III (5%) while Type II is rarely seen.

The French scientist Jarjavay was the first to define this third type of PUV in 1856. Kajbafzadeh et al showed that 80% of PUVs are actually the membranous type and the other 20% were initially membranous but ruptured during catherization. This was noticed to be true in this case report, where the child had an obstructing membrane in the posterior urethral with a keyhole opening before catheterization, therefore giving credence to the work by Kajbafzadeh et al. this also presupposes that the original Young classification was done after catheterization of the patients used causing a rupture of the membrane leading to a higher occurrence of the Type I. It is also assumed that in some children, although catheterized one may still observe an unruptured membranous valve Type III.
Our singular finding intensifies the present belief that all PUVs are initially of the membranous obstructing type (Type III) which convert into Type 1 after the passage of a catheter. Robertson et al in 1969 found out from autopsies on children who died from PUV that the biscuspid valves were not anatomically correct[1,6].

There is therefore an increasing consensus that the natural form of presentation of PUV are in form of a congenital posterior urethral obstructing membrane.

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