

Hysteroscopic Scissors: A Useful Tool in Endoscopic Treatment of Posterior Urethral Valve: A Single Centre Experience

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ABSTRACT

Background: Posterior Urethral Valves (PUV) are the most common cause of bladder outlet obstruction in infancy that impair renal and bladder function. Endoscopic PUV ablation is however not commonly practiced in our country compared to valve avulsion using the catheter balloon. **Objective:** This study was planned to establish the use of hysteroscopic scissors in incising the posterior urethral valves endoscopically via a paediatric size cystoscope in the absence of a bugbee electrode. **Patients and methods:** This study was a prospective study of endoscopic posterior urethral valve treatments carried out in Colworths Medical Centre between November 2013 and April 2016. All the patients had a check cystoscopy with a 6.5fr cystoscope under mild sedation and local instillation of 1% lignocaine jelly. Information obtained includes age, diagnosis, procedure, duration of surgery, complications and were analysed. **Results:** During the period of study, 13 babies who were diagnosed with PUV following clinical and radiological evaluations had the endoscopic valve treatment using the hysteroscopic scissors to incise the valve at 5 and 7 O'clock positions. Ten patients had good stream at immediate post operative period and disappearance of the valve after micturating cystourethrogram. Two babies had recurrence and needed a second surgery resulting in good urinary stream with post-operative Micturating Cystourethrogram (MCU) showing complete disappearance of the valve. One child had post operative sepsis and required a suprapubic cystostomy. **Conclusion:** Endoscopic posterior valve excision using hysteroscopic scissors is a safe procedure and is regularly performed in Port Harcourt, Nigeria. This obviates the need for a diathermy using bugbee electrode and result is very satisfactory.

Keywords: Endoscopic, Hysteroscopic scissors, Endoscopic, Micturating Cystourethrogram (MCU)

INTRODUCTION

Posterior Urethral Valves (PUV) are the most common cause of bladder outlet obstruction in infancy that impair renal and bladder function. Endoscopic PUV ablation is however not commonly practiced in our country compared to valve avulsion using the catheter balloon. There is no publication using endoscopic hysteroscopic scissors in the treatment of PUV. PUV is a congenital anomaly of the posterior urethra characterized by the presence of abnormal obstructing urethral membranes, occurring in males with the attendant obstruction in the outflow of urine with varying degree of urinary tract dysfunction [1]. PUV is the commonest cause of bladder outlet obstruction in boys with

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incidence varying from 1 in 5000 to 8000 live births worldwide [2]. The exact embryology is not completely known but believed to arise from an abnormal insertion of the mesonephric duct into the primitive fetal cloaca. The presentation varies from different degrees of urinary obstruction determined by the severity and

orientation of the valves which includes poor urine stream, dribbling of urine to urinary incontinence in older children [1,3]. Generalized abdominal distension is commoner with younger age groups especially neonates alongside urinary ascites in severe cases. The incidence of palpable kidneys and hypertrophied bladder on palpation was also documented to be higher in younger children [4]. Our patient presented with palpable bladder and cystoscopic findings of the changes seen in the bladder from chronic bladder outlet obstruction such as bladder trabeculation and diverticulum as depicted in Figure 4. We demonstrated the use of an endoscopic hysteroscopic scissor in excising the valves at 5 and 7 O'clock positions with satisfactory outcomes.

Patients and Methods

This study was a prospective study of endoscopic posterior urethral valve treatments carried out in Colworths Medical Centre between November 2013 and April 2016. All the patients had a check cystoscopy with a 6.5fr cystoscope under mild sedation and local instillation of 1% lignocaine jelly. Information obtained includes age, diagnosis, procedure, duration of surgery, complications and were analysed. Intraoperatively, the patients had general anaesthesia with endotracheal intubation. The size, 6.5fr paediatric cystoscope was introduced as shown in Figure 5 and the valves clearly visualized seen in Figure 2. Thereafter, a hysteroscopic scissors was then introduced through one of the channels and advanced to the valve which was then incised at 5 and 7 O'clock positions. A bladder washout was done immediate postoperative period and an indwelling urethral Foley catheter size 6Fr was insitu for 24 hours. Figure 1 depicts the improvised hysteroscopic scissors. The hysteroscopic scissors is advanced into the urethral lumen towards the posterior urethral valves as shown in the Figure 3.



Figure 1: Hysteroscopy scissors

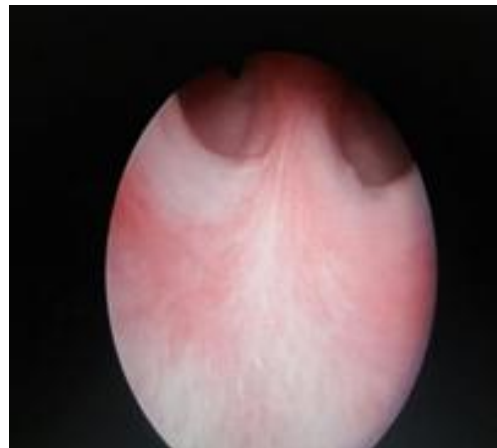


Figure 2: Posterior urethral valve



Figure 3: Hysteroscopic scissors in the urethral

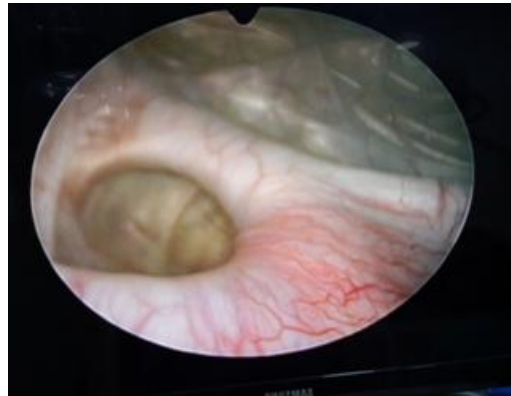


Figure 4: Bladder diverticulum seen on cystoscopy

RESULTS

Thirteen babies who had posterior urethral valve excision using hysteroscopic scissors were studied for 3 years between November 2013 and April 2016. Ten (76.9%) patients had good stream at immediate post operative period as depicted in Figure 6 and disappearance of the valve after micturating cystourethrogram. Two (15.3%) babies had recurrence and needed a second surgery resulting in good urinary stream with post operative micturating cystourethrogram (MCU) showing complete disappearance of the valve. One (7.6%) child had post operative sepsis and required a suprapubic cystostomy

DISCUSSIONS

Congenital obstruction of the urethra is one of the most devastating anomalies to occur in the urinary tract and one of the few that are life threatening in the neonatal period. These lesions usually result in lifelong disabilities with incontinence and decreased renal function despite optimal medical management. Langenbeck is credited with first reporting congenital obstruction of the prostatic urethra in 1802 (Dewan et al, 1999). It was Hugh Hampton Young, who defined the condition and named it posterior urethral valves in 1919 [5]. The term, valves, is a misnomer as it implies function. This obstructive membrane has no active function as it is simply a passive barrier to

urine flow. The embryology is speculative but may be related to the abnormal insertion of the mesonephric ducts into the fetal cloaca. The goal standard in the diagnosis of PUV is the micturating cystourethrogram which displays the dilated and elongated posterior urethra [6].

We aimed at describing the use of hysteroscopic scissors in the treatment of PUV because of the cost of laser machines, the after effect of diathermy cauterization and the avulsive effect of foley catheter. The valves are neatly incised and excised at the 5 and 7 O'clock positions with satisfactory outcomes.



Figure 5: Size 6.5fr paediatric cystoscope



Figure 6: Good urine stream immediate postoperative period

CONCLUSION

The use of hysteroscopic scissors for the treatment of posterior urethral valve is a novel technique in our centre. There has not been any literature review on its use for PUV treatment. It is a safe procedure and is regularly performed in Port Harcourt, Nigeria. The advantages include the lack of the need for a diathermy using bugbee electrode or avulsion with foley catheter which results to severe urethral injury. Our results are very satisfactory.

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