

Outcome of Late Presentation of Posterior Urethral Valves

Ashish Kharadi¹, Harshad Patel², Vikas Makwana³, Unnati Asari^{4*}

¹Associate Professor, Department of Surgery, GMERS Medical College, Vadnagar, Gujarat, India

²Professor, Department of Surgery, GMERS Medical College, Vadnagar, Gujarat, India

³Assistant Professor, Department of Surgery, GMERS Medical College, Vadnagar, Gujarat, India

⁴Assistant Professor, Department of Pediatrics, AMC MET Medical College, Ahmedabad, Gujarat, India

Received: 09-11-2021 / Revised: 28-12-2021 / Accepted: 14-01-2022

Abstract

Background: Posterior urethral valves (PUVs) are one of the most common structural causes of lower urinary tract obstruction in male infants. The present study conducted to assess the outcome of Late Presentation of Posterior Urethral Valves. **Material and methods:** This is a retrospective descriptive study conducted to assess the outcome of Late Presentation of Posterior Urethral Valves. Data such as age at presentation, symptoms and duration of symptoms, complications, investigation, and initial management were collated. Data was analyzed using Statistical Package for the Social Sciences version 20.0. **Results:** There were 30 boy patients. Clinical findings at presentation include voiding anomaly (100%); recurrent fever (86.66%); ballotable kidneys (80%); palpable bladder (83.33%); failure to thrive (33.33%); other symptoms like urinary incontinence, polyuria, and enuresis (33.33%). Renal failure occurs in 70% patients. Of these, 60% required renal replacement therapy but only 16.66% were able to receive the therapy during the study period. **Conclusion:** The present study concluded that clinical findings at late presentation include voiding anomaly (100%); recurrent fever (86.66%); ballotable kidneys (80%); palpable bladder (83.33%); failure to thrive (33.33%); other symptoms like urinary incontinence, polyuria, and enuresis (33.33%). Renal failure occurs in 70% patients. Of these, 60% required renal replacement therapy but only 16.66% were able to receive the therapy during the study period.

Keywords: Posterior Urethral Valves, Late Presentation, urinary tract obstruction.

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

Posterior urethral valves (PUVs) are one of the most common structural causes of lower urinary tract obstruction in male infants[1-3]. It is the most common type of obstructive uropathy leading to childhood renal failure. Prolonged and unrelieved lower urinary tract obstruction leads to back pressure effects on the kidneys resulting in obstructive uropathy with renal impairment[4]. This disease was first described by Morgagni in 1717 and later by Langenbeck in 1802[5,6]. PUV has detrimental and wide-ranging effects on the global development of the kidney, bladder and the entire urinary system. This result from persistent and unrelieved pressure on the bladder leading to bladder diverticular, hydronephrosis and chronic to end-stage renal diseases (ESRD). The anomaly is associated with high mortality and morbidity including urosepsis, overflow urinary incontinence, chronic kidney diseases (CKD), hypertension, chronic anaemia, failure to thrive, poor quality of life and even death[7,8]. Early diagnosis and prompt commencement of treatment is therefore germane to the overall outcome of these patients[9,10]. The present study conducted to assess the outcome of Late Presentation of Posterior Urethral Valves.

Material and methods

This is a retrospective descriptive study conducted to assess the outcome of Late Presentation of Posterior Urethral Valves.

Before the commencement of the study ethical approval was taken from the ethical committee of the institute and informed consent was taken from the patient. All patients who had radiological diagnosis of PUV with voiding cystourethrogram and renal ultrasound. Late presentation is defined in this study as patients presenting to the centre four or more weeks after the onset of symptoms. Data such as age at presentation, symptoms and duration of symptoms, complications, investigation, and initial management were collated. Patients were managed between the pediatric nephrology and pediatric surgical units. Data was analyzed using Statistical Package for the Social Sciences version 20.0.

Results

There were 30 boy patients. Clinical findings at presentation include voiding anomaly (100%); recurrent fever (86.66%); ballotable kidneys (80%); palpable bladder (83.33%); failure to thrive (33.33%); other symptoms like urinary incontinence, polyuria, and enuresis (33.33%). Renal failure occurs in 70% patients. Of these, 60% required renal replacement therapy but only 16.66% were able to receive the therapy during the study period.

*Correspondence

Dr. Unnati Asari

Assistant Professor, Department of Pediatrics, AMC MET Medical College, Ahmedabad, Gujarat, India.

E-mail: uasari.ashish@gmail.com

Table 1: Age distribution of patients and clinical features at presentation

| Age group | N(%) | Voiding abnormality | Recurrent fever | Ballotable kidney | Palpable bladder | Failure to thrive | Others |
|---------------|-----------|---------------------|-----------------|-------------------|------------------|-------------------|-----------|
| <1month | 4(13.33) | 4(13.33) | 0(0) | 2(6.66) | 2(6.66) | 0(0) | 0(0) |
| 1month-1 year | 11(36.66) | 11(36.66) | 11(36.66) | 7(23.33) | 8(26.66) | 0(0) | 0(0) |
| 1-5 years | 9(30) | 9(30) | 9(30) | 9(30) | 9(30) | 5(16.66) | 8(26.66) |
| >5 years | 6(20) | 6(20) | 6(20) | 6(20) | 6(20) | 5(16.66) | 6(20) |
| Total | 30(100) | 30(100) | 26(86.66) | 24(80) | 25(83.33) | 10(33.33) | 14(46.66) |

Table 2: Patients with severe renal failure and required renal replacement therapy (RRT) at presentation

| Variables | N(%) |
|--|----------|
| Total no. of patients with renal failure | 20(70) |
| No. of patients requiring with RRT | 18(60) |
| No. of patients that received RRT | 5(16.66) |

Discussion

PUVs is a congenital obstruction of the urethra which is one of the most devastating anomalies in urinary tract and one of the few that are life-threatening in the neonatal period. When detrusor hypertrophy overcomes the obstruction, PUVs may remain silent until later life. Around 10% of posterior urethral valve present late, the usual presentation is prenatal or at birth. Poor or weak stream, dribbling at voiding, repeated urinary tract infection hematuria and chronic renal failure are the most common clinical pictures in adolescents and adult[11]. There were 30 boy patients. Clinical findings at presentation include voiding anomaly (100%); recurrent fever (86.66%); ballotable kidneys (80%); palpable bladder (83.33%); failure to thrive (33.33%); other symptoms like urinary incontinence, polyuria, and enuresis (33.33%). Renal failure occurs in 70% patients. Of these, 60% required renal replacement therapy but only 16.66% were able to receive the therapy during the study period.

Tejani et al noted a worse outcome in children in whom diagnosis was delayed beyond age 2 years with 6 of 7 cases progressing to renal failure[12].

Thomas and Gordon reported that 10% of patients with prenatal hydronephrosis detected by ultrasound had posterior urethral valves[13]. Early presentation in a setting enables early diagnosis and intervention. This reduces the incidence of complications. Several studies have shown better preservation of renal function with early intervention and relief of obstruction[14,15].

Conclusion

The present study concluded that clinical findings at late presentation include voiding anomaly (100%); recurrent fever (86.66%); ballotable kidneys (80%); palpable bladder (83.33%); failure to thrive (33.33%); other symptoms like urinary incontinence, polyuria, and enuresis (33.33%). Renal failure occurs in 70% patients. Of these, 60% required renal replacement therapy but only 16.66% were able to receive the therapy during the study period.

References

- Nasir AA, Ameh EA, Abdur-Rahman LO, Adeniran JO, Abraham MK. Posterior urethral valve. *World J Pediatr* 2011;7:205-16.
- Imaji R, Dewan PA. The clinical and radiological findings in boys with endoscopically severe congenital posterior urethral obstruction. *BJU Int* 2001;88:263-7.

- Atwell JD. Posterior urethral valves in the British Isles: A multicenter B.A.P.S. review. *J Pediatr Surg* 1983;18:70-4.
- Elder JS. Management of antenatally detected hydronephrosis. In: Puri P, editor. *Newborn Surgery*. London, UK: Hodder Arnold; 2003. p. 793-808.
- Morgagni G, Alexander B. The seats and causes of diseases investigated by anatomy; in five books, containing a great variety of dissections, with remarks. To which are added ... copious indexes. London: A. Millar; and T. Cadell, his successor [etc.]; 1769. p. 796. [cited 2016 Jan 20]. Available from: <http://archive.org/details/seatscausesofdis02morg>.
- Nasir AA, Ameh EA, Abdur-Rahman LO, Adeniran JO, Abraham MK. Posterior urethral valve. *World J Pediatr*. 2011;7(3):205-16.
- Desai D. A review of urodynamic evaluation in children and its role in the management of boys with posterior urethral valves. *Indian J Urol*. 2007;23(4):435.
- Mirshemirani A, Khaleghnejad A, Rouzrokh M, Sadeghi A, Mohajerzadeh L, Sharifian M. Posterior urethral valves; a single center experience. *Iran J Pediatr*. 2013;23(5):531-5.
- Anochie I, Eke F. Obstructive uropathy in childhood, as seen in University of Port Harcourt Teaching Hospital, Nigeria. *Nigerian Journal of Medicine*. 2004;13(2):136-139.
- Woolf AS, Thiruchelvam N. Congenital obstructive uropathy: its origin and contribution to end-stage renal disease in children. *Advances in Renal Replacement Therapy*. 2001; 8(3):157-163.
- Bomalaski MD, Anema JG, Coplen DE, Koo HP, Rozanski T, Bloom DA. Delayed presentation of posterior urethral valves: a not so benign condition. *J Urol* 1999; 162:2130-2.
- Tejani, A., Butt, K., Glassberg, K., Price, A. and Gurumurthy, K.: Predictors of eventual end stage renal disease in children with posterior urethral valves. *J. Urol.*, 136: 857, 1986.
- Thomas, D. F. M. and Gordon, A. C.: Management of prenatally diagnosed uropathies. *Arch. Dis. Child.*, 64: 58, 1989.
- Chowdhary SK, Wilcox DT, Ransley PG. Posterior urethral valves: antenatal diagnosis and management. *Journal of Indian Association of Paediatric Surgeon*. 2003;8(3):163-168.
- Ylinen E, Ala-Houhala M, Wikström S. Prognostic factors of posterior urethral valves and the role of antenatal detection. *Pediatric Nephrology*. 2004;19(8):874-879.

Conflict of Interest: Nil Source of support: Nil