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A STUDY ON CLINICAL PRESENTATION OF POSTERIOR URETHRAL VALVE

Surgery

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ABSTRACT

INTRODUCTION : Posterior urethral valve represents the most common cause of congenital obstructive uropathy leading to childhood renal failure.The risk of renal compromise and ultimate renal failure is a potential problem for each patient. The outcome may be altered by appropriate intervention, but in most cases the renal development in utero determines the need for eventual dialysis or transplantation. The prognosis for children with urethral valves is improving and current management is gradually rewriting the historical data AIMS : To analyze the clinical presentation in our antenatally diagnosed patients. To determine the prognostic factors that predict the outcome of posterior urethral valve patients postnatally.

MATERIALS AND METHODS: Study was done as retrospective and prospective study for a period of 2 years in a tertiary care hospital In our study, we registered 52 cases of posterior urethral valves out of which 7 cases are antenatally diagnosed. The patient's initial evaluation included renal function, urine culture, urine analysis upper and lower urinary tract ultrasonography and MCUG.All the above patients were evaluated regularly throughout their follow-u.

RESULTS & CONCLUSION : Early age group (<1 month) at initial presentation is a single most prognostic indicator in our observation. Serum creatinine level at the time of diagnosis, 12 months after valve ablation and at the time of last follow-up is the main factor that indicates the outcome of the disease. The treatment modalities either primary valve ablation or diversion procedures such as vesicostomy or cutaneous ureterostomy does not affect the outcome of disease process. Absence of corticomedullary differentiation and altered cortical echos in ultrasonography predict the poor prognostic outcome. Presence of vesicoureteric reflux does not have any impact in the long term outcome

KEYWORDS

Posterior Uretharal Valve, Prognosis.

INTRODUCTION

Posterior urethral valve represents the most common cause of congenital obstructive uropathy leading to childhood renal failure. The incidence of posterior urethral valve is approximately 1:5000 to 1:8000 infant males[1]. Challenges faced by children with posterior urethral valve are multiple. Obstruction by valve is the process which involves the entire urinary system. Appropriate clinical suspicion remains the key to diagnosis which is confirmed by standard imaging technique[2]s. The risk of renal compromise and ultimate renal failure is a potential problem for each patient[3]. The outcome may be altered by appropriate intervention, but in most cases the renal development in utero determines the need for eventual dialysis or transplantation.

Early (prenatal) recognition, control of infection, appropriate and selective surgery recognition of harmful urodynamic abnormalities, modern nephrological management and eventual dialysis and transplantation all combine to increase survival now to an extent unheard of in the past. Based on this aim of our study is to analyze the various described prognostic factors, in our antenatally diagnosed patients. To determine the prognostic factors that predict the outcome of posterior urethral valve patients postnatally. To identify the significant of the each individual factor in the long term outcome.

MATERIALS AND METHODS

Study was done as retrospective and prospective study for a period of 2 years in a tertiary care hospital In our study, we registered 52 cases of posterior urethral valves out of which 7 cases are antenatally diagnosed, 24 cases were in the new born period, 13 cases were between 1 to 12 months of age group, 8 cases were between 1 to 4 years of age group. The initial diagnosis or suspicion of posterior urethral valve based on prenatal ultrasonography, UTI, or others (dehydration, electrolyte changes, palpable bladder, etc.)The patient's initial evaluation included renal function, urine culture, urine analysis upper and lower urinary tract ultrasonography and MCUG. All the above patients were evaluated regularly throughout their follow-up.

RESULTS

In our study among 52 patients new born were 13, whereas 31 patients were less than 1 year of age while rest were above one year. Seven cases were diagnosed antenatally, whereas rest were diagnosed after birth based on their complaints, most of the babies had either voiding symptoms or urinary tract infection. Four babes presented with sepsis. Initial evaluation was done in all babies, all blood and urine investigations were done followed by ultrasound. Elevated renal parameters were seen in 20 patients. On USG increased echogenicity was seen in kidney or altered CMD was seen in 12 babies.

We next evaluated the associated anaomolies in all children where ureterocel was seen in one patient and epididymo orchitis in two patients. Urachal cyst was also seen in one patient.

Associated Anomalies

Uretrocele	1
Bilateral UDT	2
Urachal Cyst	1
Seizure disorder	1
Epididymo orchitis	2

Next moving on to treatment and follow up part, most common mode of treatment was primary valve ablation which was done in 43 children followed by vesicostomy in six cases. Cutaneous ureterostomy done in three cases.

Treatment	No. of patients	Percentage
Primary valve ablation	43	82.70
Vesicostomy	6	11.54
Cutanous uretrostomy	3	5.76
Total	**52**	**100**

We followed up all the patients, where only 12 patients were fully continent on regular follow up, rest required some sort of intervention or had some complaints. Chronic renal failure was seen in ten patients, Recurrent UTI was seen in ten patients. Refulgaration was required in 6 patients. Similarly, secondary surgical procedure required in nine patients. In our study 5 babies expired due to various causes.

Follow Up

Follow up	No. of patients	Percentage
Fully continent on regular follow-up	12	23.08
Refulguration	6	11.53
Chronic renal failure	10	19.23
Recurrent UTI	10	19.23
Secondary Surgical procedures	9	17.31
Expired	5	9.62
Total	**52**	**100**

DISCUSSION

Our study included 52 patients of posterior urethral valves. Out of the 52 patients, 13 patients were in the new born period (25%) and 25 patients were infants (59%). The duration of follow ranged from 1 year to 5 years, age distribution is similar to study done by Bajpai et al[4].

Among the 38 patients with PUV, elevated serum creatinine value i.e.,

more than 0.8 mg/dl was present in 10 infants (34%) whereas in new born 6 of 13 babies had elevated serum creatinine level. In the 1 to 4 years of age group, elevated value is present in 4 out of 8 cases. The most common initial procedure after stabilization of patients with posterior urethral valve was primary cystoscopic Valve ablation which was carried out in 82% of patients. (43 cases).

The remaining patients underwent diversion procedures either vesicostomy (6 patients) or cutaneous uretrostomy (3 patients). The percentage of patients who underwent primary valve ablation was highest in the new born period. (80%).

If the patient is not fit for the primary valve ablation we went for diversion procedures. 9 cases underwent diversion procedures either vesicostomy or bilateral uretrostom[5,6]y. Among the 9 patients, 3 were below 1 year of age group, and rests of the patients were above 1 year of age group. Considering this scenario, primary valve ablation is ideal, if the diagnosis of PUV at the earlier age group.

On the initial evaluation, 20 out of 52 patients, had elevated f serum creatinine (>1.2 mg/dl) level. 2 patients had expired due to urosepsis and chronic renal failure. 8 patients had renal insufficiency in the regular follow up. Among the 8 patients, 4 of them had vesico uretric reflux and renal scars in DMSA scan. Considering this, serum creatinine value at the initial evaluation, at the age of 1 year and the final follow up in an individual prognostic factor[7] that determines the outcome of the PUV in our group.

So early age at presentation is another good prognostic indicator in our observation. Out of 9 patients who underwent diversion procedures initially,6 patients had improved and their renal function regained to normal in 2 years follow-up, So the treatment modalities either primary valve ablation or diversion procedure does not affect the outcome of disease process in our study group.

During the initial evaluation with ultra-sonogram, 11 patients had sonographically identifiable abnormalities in kidneys and bladder (absence of cortico medullary differentiation, increased echogenecity of kidney and thickened bladder). Out of the 11 patients 7 had chronic renal failure in the follow-up period, 3 of them expired, 1 patient had lost to follow-up, probably expired. So increased echogenecity of kidneys comparing with adjacent liver or spleen and absence of cartico medullary differentiation is a bad prognostic indicator in our observation[8].

Similarly, presence of vesico uretric reflux (18 patients) also did not affect the long term outcome.

Considering all these observations only 18 of our patients (34%) had good continence and no renal insufficiency in the 5 years follow-up and had a good quality of life. In our study, only less number of patients are turned up antenatally. So the antenatal assessment of prognosis is difficult[9,10]. So most of the patients were assessed postnatally with available investigations and clinical examinations.

CONCLUSION

Early age group (<1 month) at initial presentation is a single most prognostic indicator in our observation. Serum creatinine level at the time of diagnosis, 12 months after valve ablation and at the time of last follow-up is the main factor that indicates the outcome of the disease.The treatment modalities either primary valve ablation or diversion procedures such as vesicostomy or cutaneous ureterostomy does not affect the outcome of disease process.Absence of corticomedullary differentiation and altered cortical echos in ultrasonography predict the poor prognostic outcome. Presence of vesicoureteric reflux does not have any impact in the long term outcome.. Only 34% of our patients had good quality of life without renal insufficiency in the 5 year follow-up.

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