

Clinicopathological Study Of Bladder Outlet Obstruction In Tertiary Care Center –A Prospective Observational Study

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Abstract:

Background: The term bladder outlet obstruction (BOO) denotes any anatomical or functional failure of the bladder to empty itself due to obstruction at its outlet. Bladder outlet obstruction is a common cause of lower urinary tract symptoms in men and women. BOO results from a variety of etiologies, which may be functional or anatomic. (eg: bladder stone, benign or malignant prostate enlargement, phimosis, meatal stenosis, urethral stricture, urinary bladder neoplasm or intravesicalurethrocele which involve bladder neck or bladder outlet, impacted stone in urethra, bladder neck stenosis, neurogenic bladder etc.) BOO often produces lower urinary tract symptoms (LUTS), although the degree of botheration by LUTS is highly variable and not predictable on the basis of the specific inciting etiology. When BOO is not prevented, timely treated or neglected may lead to acute or chronic renal insufficiency or overt kidney failure.

Therefore, adopting a stepwise approach in the evaluation of bladder Outflow Obstruction (BOO) patients is important to initiate efficient management. Hence, the classic initial step is to study the pattern of presentation, commonly found causes, observe the pathological changes due to Bladder Outflow Obstruction and to study the treatment outcome is of immense importance now a days

Materials And Methods: This was a prospective, hospital-based, observational study performed to establish the diagnosis along with identification of pathological changes in the urinary tract. A 300 Patients with Bladder Outflow Obstruction attended in Department of Urology, RIMS Imphal, were enrolled in this study. The study was conducted during the period between April 2021 to march 2023. All consecutive diagnosed patients of Bladder Outflow Obstruction (BOO) attended RIMS Imphal during the study period are included. In each case detail history was taken and relevant routine and special investigations like USG of KUB, prostate, PVR, MCC, Uroflowmetry, S.PSA, Urodynamic study was carried out. All information's were recorded in preformed structured data collection sheet. All data transferred to IBM SPSS Version 21. Results were aggregated; mean and percentage were calculated and presented in charts, tables and diagrams.

Results: The age of the patient in this study ranges from 6 year to 93 years, while the peak age of incidence of BOO was seen in the in 6th decade (51-60 years). Majority of the patient were male (97%). Maximum number of cases of bladder outlet obstruction were due to Bladder stone (26.33%) followed by BPE (21.66%). Maximum number of the patients had difficulty in passing urine (93.33%) followed by retention of urine (62.33%) all the cases of BOO according to the standard guideline of management.

Conclusion: Bladder outlet obstruction is a clinical entity of diverse etiology is a potentially curable illness if diagnosed early and treated according to the standard guideline of management. Our findings of pathological changes in urinary tract due to this type of obstruction reflect the serious consequences. Therefore, careful assessment, prompt diagnosis and early treatment is essential to prevent complications and morbidities.

Key Word: Bladder outlet obstruction, Lower urinary tract symptoms

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I. Introduction

The term bladder outlet obstruction (BOO) denotes any anatomical or functional failure of the bladder to empty itself due to obstruction at its outlet [1]. Bladder outlet obstruction is a common cause of lower urinary tract symptoms in men and women. BOO results from a variety of etiologies, which may be functional or anatomic. (eg: bladder stone, benign or malignant prostate enlargement, phimosis, meatal stenosis, urethral stricture, urinary bladder neoplasm or intravesicalurethrocele which involve bladder neck or bladder outlet, impacted stone in urethra, bladder neck stenosis, neurogenic bladder etc.) BOO often produces lower urinary tract symptoms

(LUTS), although the degree of botheration by LUTS is highly variable and not predictable on the basis of the specific inciting etiology. Induced lower urinary tract symptoms may be predominantly obstructive, irritative, or often a combination of both. Typically, obstructive symptoms include hesitancy, sensation of incomplete bladder emptying, diminished urinary stream, and post voiding urinary dribbling. Irritative complaints include urinary urgency, frequency of urination, occasional dysuria, and nocturia [1]. Anatomic obstruction in men results most commonly from benign prostatic enlargement (BPE) or urethral stricture. In women, anatomic obstruction most commonly arises from Incontinence procedures[2]. Bladder storage abnormality is often an underappreciated sequelae of BOO, and is associated with substantive symptomatic and physiologic effect. Although urodynamic evaluation and pressure flow evaluation is the gold standard diagnostic tool, other modalities may also be used, including post void residual analysis, urinary flow rate, cystoscopy, and selected radiologic procedures. Patient self-appraisal of symptoms using various inventories such as the American Urologic Association Symptom Index or the International Prostate Symptom Score is relevant to the initial assessment and subsequent follow up[1]. When BOO is not prevented, timely treated or neglected may lead to acute or chronic renal insufficiency or overt kidney failure. Obstruction may lead to a salt-losing nephropathy and urinary concentrating defects, renal tubular acidosis (RTA) type IV, hyperkalemia, hypomagnesaemia, and hypophosphatemia are common sequelae of chronic obstruction. Although acute or chronic obstruction may cause urinary tract infection (UTI), other sequelae such as renal calculi, hypertension, and polycythemia are associated with chronic retention[2,3]. Therefore, adopting a stepwise approach in the evaluation of bladder Outflow Obstruction (BOO) patients is important to initiate efficient management. Hence, the classic initial step is to study the pattern of presentation, commonly found causes, observe the pathological changes due to Bladder Outflow Obstruction and to study the treatment outcome is of immense importance now a day[4]. In our institution a tertiary care hospital BOO is a common condition. It comprises various etiology and various options available in the management of each disease. This study aims at studying the incidence of disease, clinicopathological assessment, etiology and management in patients with BOO.

II. Material And Methods

This was a prospective, Longitudinal study performed to establish the diagnosis along with identification of pathological changes in the urinary tract. A 300 Patients with Bladder Outflow Obstruction attended in Department of Urology, RIMS Imphal, were included in this study. The study was conducted during the period between April 2021 to March 2023. In each case detail history was taken and relevant routine and special investigations like USG of KUB, prostate, PVR, MCC, Uroflowmetry, S.PSA, Urodynamic study was carried out. All information's were recorded in preformed structured data collection sheet. All data transferred to IBM SPSS Version 21. Results were aggregated; mean and percentage were calculated and presented in charts, tables and diagrams.

All patients gave written informed consent. Institutional ethical committee clearance was obtained before starting the study (Ref no.A/206/REB Comm (SP)RIMS/2015/800/142/2021).

Inclusion Criteria:All the patients who attended the department of urology, RIMS Imphal with suspected bladder outlet obstruction.

Exclusion Criteria:Patients of neurogenic bladder, Patients with post-operative urinary retention. Unconscious and comatose patients with urinary retention. Refusal to participate in study

Procedure methodology:We included, all the patients who attended department of urology, RIMS Imphal with suspected bladder outlet obstruction from April 2021 to March 2023. All the patients were evaluated with detailed clinical history and presenting illness (particularly pain, fever, burning micturition, frequency, urgency, nocturia, hesitancy, sensation of incomplete bladder emptying, diminished urinary stream and post voiding urinary dribbling, urinary retention, nausea, vomiting, oliguria, anuria and oedema), approx duration of illness and history of previous diseases and surgeries. Complete general and physical examination including systemic, abdominal, perineal, digital rectal examination in male and vaginal examination in female and relevant investigations were done as per the protocol of the study.

Laboratory Studies:Blood for CBC, routine Urine microscopy, urine culture and sensitivities, serum urea and creatinine, Serum electrolytes, RBS, HbA1c, serum PSA (In patients with BPH, Carcinoma of prostate), urine cytology, prostate biopsy (in suspected prostatic carcinoma), histopathology of any tissue biopsy and operative specimen.

Imaging Studies: X-ray KUB, USG KUB, NCCT-KUB / CT-Urogram/ IVP Uroflowmetry, RGU/MCU, Urethroscopy/ Cystoscopy

Treatment options were discussed with patient and his/her relatives with a detailed explanation of involved procedure and complications as well as the available other alternative. Informed written consent was obtained.

Treatment options were provided according to the clinical history, presentation and diagnosis of the disease. All the procedures were conducted as per the general routine protocol of our department and routine follow-up with relevant investigations were advised as per the protocol of the study.

Statistical analysis: Statistical analysis was done by using IBM SPSS Version 21 for windows. Descriptive statistics as mean, proportion, percentage was used to present results. Chi square test was used as a test of significance for comparing the outcome variables. P-value <0.05 was taken as statistically significant.

III. Result

Table-1: Age wise distribution of the patients (n=300)

Sl.no.	Age groups in years	No. of patients	Percentage (%)
1.	≤20	13	4.3
2.	21-30	8	2.7
3.	31-40	29	9.7
4.	41-50	25	8.3
5.	51-60	157	52.3
6.	61-70	47	15.7
7.	71-80	17	5.7
8.	81 and above	4	1.3

A total of 300 cases of bladder outlet obstruction were eligible according to inclusion criteria and included in study.

The peak age of incidence of bladder outlet obstruction was belonged to 51 to 60 years of the patients, followed by 61 to 70 years. The mean age is 53.49 ± 14.71 years with a range of 6 years to 93 years.

Table 2: Gender wise distribution of patients (n=300)

Gender	No. of patients (n=300)	Percentage
Male	291	97%
Female	9	3%

Most of the patients were males with 97% (291) and remaining 3% (9) females.

Table-3: Clinical presentation of bladder outlet obstruction (n=300)

Symptoms	Number of patient (n=300)	Percentage (%)
Difficulty in passing urine	280	93.33%
Retention of urine	187	62.33%
Supra pubic pain	122	40.66%
Poor stream	89	29.66%
Hematuria	45	15%

The most common symptom was difficulty in passing urine 280 (93.3%) followed by retention of urine (62.33%).

Table-4: Clinical signs of Bladder outlet obstruction (n=300)

Sl.no.	Signs	Number of patient (n=300)	Percentage (%)
1.	Distended bladder	187	62.33%
2.	Pus discharge	13	4.33%

3.	Pinhole meatus	25	8.33%
4.	Palpable stone in urethra	10	3.33%
5.	Tight fore skin	39	13%
6.	Palpable stricture in urethra	8	2.66%
7.	Anemia	31	10.33%
8.	Edema	7	2.33%
9.	Enlarged prostate	65	21.66%
10.	Enlarged prostate with nodularity	29	9.66%

All 300 patients had more than one positive signs.

Table-5: Laboratory findings of different patients

Sl. No.	Investigation	Result	Number of patients	Percentage (%)
1.	Haemoglobin gm % (n=300)	≥10	269	89.66 %
		<10	31	10.33 %
2.	Serum creatinine (n=300)	<1.6	263	87.66%
		≥1.6	37	12.33%
3.	Serum urea (n=300)	<50	264	88%
		≥50	36	12%
4.	Serum K+mmol/dl (n=300)	>5	20	6.66 %
		3.5-5	280	93.33 %
5.	Serum Na+mmol/dl (n=300)	<130	10	3.33 %
		130-150	290	96.66 %
6.	RBS mg/dl(n=300)	<140	267	89.00 %
		≥140	33	11.00 %
7.	HbA1c (n=33)	6-6.5	6	18.16 %
		>6.5	27	81.81 %
8.	Urine REM (n=300) Significant PUS cells	Present	66	22.00 %
		Absent	234	78.00 %
9.	Urine culture report (n=300)	E.coli	33	11.00 %
		Klebsiella pneumoniae	8	2.66 %
		Proteus	5	1.66 %
		No growth	254	84.66 %
10.	Serum PSA ng/ml (n=94)	1-4	60	63.82 %
		>4	34	36.17%
11.	Urine cytology (n=3)	Paris-3	1	33.33%
		NAD	2	66.66%

12.	Uroflowmetry (Qmax ml/s) (n=130)	<10	120	92.31%
		≥10	10	7.69%

In this study, Serum creatinine, Blood urea, Urine R/M/E, Urine C/S, Hemoglobin, USG of KUB, Prostate, PVR done routinely. Other investigations were done according to the physical symptoms and routine investigation findings.

Serum PSA was done in 94 and Uroflowmetry done in 130 patients. 10.33% patient was anemic and around 12% patient was having raised Urea and Creatinine level and 15% had hematuria. 22% patient was found to have features of UTI in urine R/M/E whereas 11% of the sample, E. coli growth was seen.

Table-8: Imaging study results (n=300)

Imaging study	Findings	Number of patient	Percentage (%)
USG KUB findings (n=300)	B/L HUDN	12	4%
	Bladder stone	79	26.33%
	Enlarged prostate	86	28.66%
	Enlarged prostate with bladder stone	8	2.66%
	Soft tissue mass in bladder involving bladder neck	3	1%
	Impacted stone in urethra	10	6.66%
	Left large intravesical Ureterocele	1	0.33%
	NAD	110	36.66%
Plain X-ray KUB findings (n=122)	Radio-opaque shadow in bladder	87	71.31%
	Radio-opaque shadow in urethra	20	16.39%
	NAD	15	12.29%
RGU/MCU findings (n=48)	urethral stricture	36	75%
	NAD	12	25%

Many patients had more than one radiological findings and few had no abnormality detected on imaging study. Only positive findings are shown in this table.

Table-15: Etiology of bladder outlet obstruction (n=300)

Sl.no.	Etiology	Total population	Percentage (%)
1.	Bladder stone	79	26.33%
2.	BPE	65	21.66%
3.	BPE with Bladder stone	8	2.66%
4.	Carcinoma of Prostate	18	6%
5.	Carcinoma of Prostate with metastasis	3	1%
6.	Urinary bladder neoplasm	3	1%
7.	Phimosis	39	13%
8.	Meatal stenosis	25	8.33%
9.	Impacted stone in urethra	20	6.66%

10.	Urethral stricture	36	12%
11.	Bladder neck stenosis	3	1%
12.	Intra vesical Ureterocele	1	0.33%
13.	Total	300	100%

After clinicopathologically evaluation of all the suspected BOO patients confirmed that the most of the patient had Bladder stone (26.33%) followed by benign prostate enlargement (BPE) (21.66%), Phimosis (13%) and urethral stricture (12%). Few patients had bladder neck stenosis (1%), urinary bladder neoplasm involving bladder neck (1%) and large intra-vesical ureterocele (1%) which causing bladder outlet obstruction.

Table -16: Management of bladder outlet obstruction (n=300)

Etiology	Number of cases (n=300)	Percent	Management
Bladder stone	79	67 (84.8%)	Cystolithotripsy (CLT)
		6 (7.59%)	Percutaneous cystolithotripsy (PC-CLT)
		6 (7.59%)	Open cystolithotomy
BPE	65	18 (27.6%)	TURP
		5 (7.6%)	Open suprapubic prostatectomy
		42 (64.6%)	Conservative management
BPE with Bladder stone	8	4 (50%)	TURP + CLT
		4 (50%)	Open suprapubic prostatectomy with cystolithotomy
Carcinoma of Prostate	18	1 (5.6%)	B/L subcapsular orchidectomy (Surgical-ADT) with channel TURP f/b RT/CT/HT
		8 (44.4%)	B/L subcapsular orchidectomy f/b RT/CT/HT
		9 (50%)	Conservative management (Medical-ADT) f/b RT/CT/HT
Carcinoma of Prostate with metastasis	3	3 (100%)	Conservative management (Medical-ADT) f/b RT/CT/HT
Urinary bladder neoplasm	3	3 (100%)	TURBT f/b intravesical BCG
Phimosis	39	29 (74.5%)	Circumcision
		10 (25.5%)	Preputioplasty
Meatal stenosis	25	25 (100%)	Meatotomy
Impacted stone in urethra	20	20 (100%)	Cystolithotripsy
Urethral stricture	36	21 (58.3%)	Visual internal urethrotomy (VIU)
		8 (22.2%)	Urethral dilatation
		2 (5.6%)	Progressive perineal urethroplasty (PPU)
		4 (11.2%)	Perineal urethrostomy
		1 (2.8%)	Buccal Mucosal Graft (BMG) urethroplasty

Etiology	Number of cases (n=300)	Percent	Management
Bladder stone	79	67 (84.8%)	Cystolithotripsy (CLT)
		6 (7.59%)	Percutaneous cystolithotripsy (PC-CLT)
		6 (7.59%)	Open cystolithotomy
BPE	65	18 (27.6%)	TURP
Bladder neck stenosis	3	3 (100%)	Bladder neck incision
Intravesicalureterocele	1	1 (100%)	Transurethral incision (TUI)

Among 300 patients of bladder outlet obstruction, a total 79 patients had bladder stone, most of the cases (84.8%) were managed by Cystolithotripsy (CLT), 7.5% cases by PC-CLT and rest of cases (8.8%) managed by open cystolithotomy.

There was a total 65 patients of BPE, maximum cases were managed conservatively (64.6%) followed by TURP (27.6%) and rest of cases (7.6%) managed by open suprapubic prostatectomy. There was a total 8 cases of BPE with bladder stone, half of cases were managed by TURP with CLT (50%) and rest half managed by open suprapubic prostatectomy with cystolithotomy (50%). There was a total 18 cases of carcinoma of prostate, half of the patients were managed conservatively (Medical -ADT) f/b RT/CT/HT (50%), 44.4% were treated with B/L subcapsularorchidectomy (Surgical -ADT) f/b RT/CT/HT and 5.6% cases managed by B/L subcapsularorchidectomy (Surgical -ADT) with channel TURP f/b RT/CT/HT. There was a total 3 cases of carcinoma of prostate with metastasis, all cases were managed by conservatively (Medical-ADT) f/b RT/CT/HT. There was a total 3 Patients of urinary bladder neoplasm present with the bladder outlet obstruction, all cases were managed by TURBT f/b intravesical BCG therapy. There was a total 39 Patients of phimosis, Circumcision (74.5%) was done for maximum cases of phimosis followed by preputioplasty (25.5%). There was a total 20 Patients of impacted stone in urethra, all cases managed by Cystolithotripsy(100%). There was a total 36 Patients of urethral stricture, Visual internal urethrotomy (VIU) was done for maximum cases (58.3%), followed by urethral dilatation (22.2%), 11.1 % cases managed by perinealurethrostomy, 5.6% cases by progressive perinealurethroplasty (PPU) and 2.8% cases managed by BMG urethroplasty. There was a total 3 cases of bladder neck stenosis, for all 3 cases, bladder neck incision (100%) were done. There was a single case of large intravesicalureterocele which present with the bladder outlet obstruction, managed with transurethral incision (TUI).

IV. DISCUSSION

300 patients of suspected Bladder Outlet Obstruction, who attended department of urology RIMS Imphal were included in our study. The age of the patient in this study ranges from 6 year to 93 years, while the peak age of incidence of BOO was seen in the in 6th decade (51-60 years) with 52.3% followed by 7th decade (61-70 years) with 15.7% and 4th decade (31-40 years) with 9.7%. The mean age of presentation was 53.49 ± 14.71 years. This study finding was similar to a study by Rakib MAet al [13] where the peak incidence was recorded among the 5th decade with 27% followed by 6th decade with 18%. Similarly another study by Katakwar P et al[27] showed maximum cases in the 7th decade with 37% followed by 6th decade with 22%. Udoh Eet al[28] also reported in their study that the peak age of presentation for bladder outlet obstruction was in the 7th decade followed by 6th decade. Thus, maximum of the cases with Bladder Outlet Obstruction is seen among the older aged group. In this study majority of the patient were male with 97% of the study population which is very similar to a study by Rakib MAet al[13], they also reported 95% study population to be male. Another similar study by Katakwar P et al[27] also reported 94% of the study population to be male. Thus male gender was seen more commonly affected with Bladder Outlet Obstruction. This may be due to the fact that most of the causes for BOO is associated with prostate organ and phimosis which has anatomical variation from females. In this study maximum number of cases of bladder outlet obstruction were due to Bladder stone (26.33%) followed by BPE (21.66%), Phimosis (13%) and urethral stricture (12%). Few patients had bladder neck stenosis (1%) and intra-vesicalureterocele (0.33%). Similarly, in a study by Rakib MAet al[13], BPH was reported to be the commonest cause for BOO followed by stricture urethra (26%) and ruptured urethra (13%) respectively. Another study by Katakwar P et al[27] reported BPH to be the commonest cause with 53% followed by urethral stricture (14%) and bladder stones (12%). DmochowskiRR[1] also reported benign prostatic obstruction/enlargement (BPE) to be one of the commonest

cause for BOO. Similarly in a study by Udoh Eet al [28], maximum causes were due to BPH (51.9%) followed by Ca prostate (32.7%) and urethral stricture (15.4%). In this study, maximum number of the patients had difficulty in passing urine (93.33%) followed by retention of urine (62.33%) and supra pubic pain (40.67%). Poor stream (29.67%) and haematuria (15%) were also common symptoms presented by few patients. Rakib MAet al [13] also reported difficulty in micturition (96%) to be the commonest symptoms followed by retention of urine (79%) which is similar to this study finding. They also reported poor stream and haematuria to be among the symptoms. In this study on digital rectal examination out of 94 patients, around 21.6% (65) of the patients had enlarged prostate and 9.66% (29) had enlarged prostate with nodularity. Rakib MAet al [13] also reported in their study that 31% had enlarged firm prostate and 4% had enlarged nodular prostate. Majority of the patient (89.66%) had haemoglobin >10gm%. Similarly, Among 300 patients, 87.66% patients had serum creatinine <1.6 mg/dl and 12.33% had ≥ 1.6 mg/dl and 88% patients had serum urea <50 mg/dl and 12% had ≥ 50 mg/dl. 93.3% patients had serum potassium 3.5 – 5 mmol/dl, 96.66% patients had serum sodium 130 – 150 mmol/dl and 89% of the patients had RBS < 140 mg/dl. Among 33 patients, 81.81% had HbA1c > 6.5 and among 84 patients, 63.82% had serum PSA between 1 – 4 ng/ml. On routine examination of urine, significant pus cell was seen in 22% of the patients and on urine culture, maximum (84.6%) of the sample had no growth but in 11% of the sample, E. coli growth was seen. Among 3 patients of urine cytology, only 1 patients showed Paris grade-3 (atypical urothelial cells), Among 130 patients Qmax <10 ml/s was found in 120 patients (92.31%) and Qmax ≥ 10 ml/s in 10 (7.69%) patients. In USG KUB, maximum patient in this study could not be detected with any obvious abnormality (36.66%) followed by patient with enlarged prostate (28.66%) and bladder stone (26.33%). Soft tissue mass involved the bladder neck (1%), Impacted stone in the urethra (6.67%) and bilateral hydroureteronephrosis (4%) were also detected in this study. Rakib MAet al [13] also reported enlarged prostate (35%), bilateral hydroureteronephrosis (7%) and impacted stone in urethra (6%) in USG KUB. In plain X-ray KUB among 122 patients, majority (71.31%) of them showed radio-opaque shadow in the bladder and radio-opaque shadow in urethra (16.39%). No obvious abnormality was detected in 15 (12.29%) patients. In a study by Rakib MAet al [13], out of 30 patients who underwent plain X ray KUB all of them had radio-opaque shadow in the urethra but only in 9 of them had radio-opaque shadow in the bladder. Among 48 patients with retrograde urethrogram (RGU) and micturating cystourethrogram (MCU), urethral stricture was seen in 75% of them. Similarly in a study by Rakib MAet al [13], out of 87 patients who underwent RGU/MCU, 89.65% of them had stricture urethra and PUV with proximal dilatation was reported in 10.35% of the patient. In this study, most of the cases (84.8%) with bladder stones were managed by Cystolithotripsy (CLT) and rest of other by open suprapubic cystolithotomy (8.8%) or PC-CLT (8.8%). This is supported by study of NameirakpamSet al [30], Karami H et al [31] and Kara C et al [32]. In this study maximum cases with BPE were managed conservatively with pharmacotherapy (64.6%) followed by TURP (32.7%) and rest of cases (9.1%) managed by open suprapubic prostatectomy. BPE with bladder stone were managed by TURP with CLT (50%) and open suprapubic prostatectomy with cystolithotomy (50%), Half of the patients with Carcinoma of Prostate were managed conservatively (Medical ADT) f/b RT/CT/HT (50%) and others were treated with B/L subcapsular orchidectomy (Surgical ADT) f/b RT/CT/HT (44.4%) and B/L subcapsular orchidectomy with channel TURP f/b RT/CT/HT (5.6%). There was a total 3 cases of carcinoma of prostate with metastasis, all the cases were managed by conservatively (Medical ADT) f/b RT/CT/HT. There was a total 3 Patients of Urinary bladder neoplasm came with bladder outlet obstruction, all the cases were treated by TURBT f/b intravesical BCG. For all cases of impacted stone in the urethra, Cystolithotripsy (100%) was done. Circumcision (74.5%) was done for maximum cases of phimosis followed by preputioplasty (25.5%). Similarly all cases of meatal stenosis were treated with meatotomy. Visual internal urethrotomy (VIU) was done for maximum cases (58.3%) of urethral stricture followed by urethral dilatation (22.2%), perinealurethrostomy (11.2%), progressive perinealurethroplasty (PPU) (5.6%) and Buccalmucosal graft (BMG) urethroplasty in 2.8% cases. All the cases of Bladderneckstenosis were treated with transurethral bladderneck incision. A case of intravesical ureterocele treated with transurethral incision of ureterocele.

V. CONCLUSION

This study on bladder outlet obstruction represents the experience of 300 cases during the period of April 2021 to March 2023.

Bladder outlet obstruction is a clinical entity of diverse etiology is a potentially curable illness if diagnosed early and treated according to the standard guideline of management. In our study, all the cases of bladder outlet obstruction were managed according to standard guideline. Among the 300 patients under study, males were found to be the predominant sufferer and older persons were commonly affected with bladder outlet obstruction. The commonest cause of bladder outflow obstruction was bladder stone followed by BPE, phimosis, urethral stricture and rarely large intravesical ureterocele. Our findings of pathological changes in urinary tract due to this type of obstruction reflect the serious consequences. Therefore, careful assessment, prompt diagnosis and early treatment is essential to prevent complications and morbidities.

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