Original Research Article

DOI: http://dx.doi.org/10.18203/2349-2902.isj20171022

Clinical study and management of bladder outlet obstruction

Pradeep Katakwar, Rahul Thakur*

Department of Surgery, NKP Salve Institute of Medical Sciences, Nagpur, Maharashtra, India

Received: 21 February 2017 **Accepted:** 10 March 2017

*Correspondence: Dr. Rahul Thakur,

E-mail: rahulrini2007@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: The incidence of bladder outlet obstruction is different and varied in both age and gender. Hence this study was conducted to assess the incidence, etiology and management of bladder outlet obstruction in patients above 18 years of age in both sexes.

Methods: This was a tertiary care hospital based longitudinal study. A total of 100 cases were recruited during the period between 01st June 2014 to 31st May 2016 with objective evidence of bladder outlet obstruction. The subject's demographic data, incidence, etiological factors and clinical presentations of bladder outlet obstruction were recorded on data sheet and analyzed.

Results: Male preponderance was observed in the study. Maximum incidence of bladder outlet obstruction was observed in the age group of 60-69 years. The most common cause for bladder outlet obstruction in males was benign prostate hyperplasia (BPH), where as in females the major etiological factor was bladder neck stenosis. Out of 94 cases causing bladder outlet obstruction in males, 37 underwent TURP, 11 cases were treated with alpha blockers like Tamsulosin (medical management), 9 underwent cystolithotripsy, 8 underwent b/l orchidectomy, 7 underwent radical cystectomy and ileal conduit, 7 underwent VIU, 7 underwent urethroplasty, 5 underwent open prostatectomy, 3 underwent cystolithotomy whereas in female's bladder neck stenosis treated by bladder neck incision.

Conclusions: Men were the most affected with BPH, being the leading cause. Among women, bladder neck stenosis was the main cause. Initial and definitive management were varied between causes, gender and age.

Keywords: Age, Benign prostatic hyperplasia, Bladder outlet obstruction, Men

INTRODUCTION

Bladder outlet obstruction is a blockage at the base of the bladder. Bladder outlet obstruction is a common cause of lower urinary tract symptoms in men and women. The condition is common in older men. Most common cause of bladder outlet obstruction in men is benign prostatic hyperplasia.

Bladder stones and bladder cancer are also more commonly seen in men and women.³ As a man ages, the chance of developing these diseases increases dramatically. Due to increased life expectancy, there is an increased incidence of bladder outlet obstruction. Early

diagnosis is important and can often lead to a simple and effective cure. Categorizing and understanding the anatomical entities is crucial as specific diagnostic modalities may be used to fully delineate the degree of bladder outlet obstruction and any secondary issues.⁴ 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 rates, cystoscopy and selected radiologic ones.

This study is aimed to evaluate the incidence, etiology and management of bladder outlet obstruction in patients above 18 years of age.

METHODS

The present study was a tertiary care hospital based longitudinal study. A total of 100 cases were recruited during the period between 01st June 2014 to 31st May 2016 with objective evidence of bladder outlet obstruction based on inclusion and exclusion criteria after obtaining ethical clearance from Institutional ethical committee.

Inclusion criteria were patients of both the sexes with the age above 18 years and patients with urinary complaints of hesitancy, poor urinary flow, straining to void, feeling of incomplete bladder emptying, terminal or post micturition dribbling or any other symptom of LUTS (urgency & urge incontinence)

Exclusion criteria were patients below 18 years of age, patients with pelvic trauma, pelvic surgery with post-operative retention and unconscious and comatose patients with retention.

Using a pre-prepared proforma, all the demographic data, incidence, etiological factors and clinical presentations of the bladder outlet obstruction of every patient was recorded. Routine and special investigations, whichever is necessary were done as shown in Table 1 and recorded.

Table 1: Investigations performed for to diagnose bladder outlet obstruction.

Investigation	Outcome
Ultrasound	To diagnose bladder outlet obstruction.
X-ray KUB	Bladder stones
Serum PSA and prostatic biopsy	Suspected carcinoma prostate.
Cystoscopy	Suspected bladder cancer and bladder neck stenosis.
Biopsy	Bladder cancer
Digital rectal examination	Benign prostatic enlargement and carcinoma prostate.

Management

Definitive management depends upon the underlying cause of the disease. Immediate treatment consists of bladder drainage by passing a urethral catheter, whereas treatment for chronic cases should be followed as given in Table 2.

Follow up

Subsequent to the definitive procedure, patients were followed up for a period ranging from 3 to 6 months followed by every yearly. Symptom improvement, physical examination and ultrasound were the main diagnostic tool for follow up.

Table 2: Management of bladder outlet obstruction.

Cause	Management
Benign prostatic	Medical management/
enlargement (BPE)	transurethral resection of
	prostate (in severe cases)
Carcinoma prostate	Orchidectomy and anti-
	androgen
	therapy/chemoradiation (in
	severe cases)
Bladder cancer	radical cystectomy with ileal
	conduit
Vesical calculus	Bladder stone with size more
	than 3cms-Cystolithotomy
	Size less than 3 cms-
	Cystolithotripsy
Stricture urethra	VIU (Visualised Internal
	Urethrotomy) / Urethroplasty
Bladder neck stenosis	transurethral bladder neck
	incision and alpha blockers

RESULTS

Table 3 presents the demographic data of the study participants. In the present study, the mean age of the patients was 57 years. Maximum incidence of bladder outlet obstruction was observed in the age group of 60-69 years accounting for about 37% of the cases.

Table 3: Demographic data of the study participants (N=100).

Variables	No. of Patients	Percentage %
Age in years		
<20	0	0
20-29	5	5
30-39	5	5
40-49	13	13
50-59	22	22
60-69	37	37
70-79	16	16
80 and above	2	2
Sex		
Male	94	94
Female	6	6
Etiology		
Benign prostatic	53	53
hyperplasia (BPH)		
Carcinoma prostate	8	8
Carcinoma bladder	7	7
Vesical calculus	12	12
Urethral stricture	14	14
Bladder Neck Stenosis	6	

The next highest occurrence was noted in the age group of 50-59 years and 70-79 years accounting for 22% and 16% patients respectively. Of the 100 patients 94 (94%) were males and rest 6 (6%) were females. There was

male preponderance. The most common cause of bladder outlet obstruction was benign prostatic hyperplasia (BPH) followed by urethral stricture, vesical calculus, carcinoma prostate, carcinoma bladder and bladder neck stenosis.

Table 4: Etiological factors affecting the study participants (N=100).

Etiological factors	No. of patients
In males	
Benign prostatic hyperplasia	53
Carcinoma prostate	8
Carcinoma bladder	7
Vesical calculus	12
Urethral stricture	14
In females	
Bladder neck stenosis	6

Table 4 presents the etiological factors of bladder outlet obstruction in male and female patients distinctly. The most common cause for bladder outlet obstruction in males was BPH, followed by urethral stricture, vesical calculus, carcinoma prostate and carcinoma bladder where as in females the only cause noticed was bladder neck stenosis.

Table 5: Management of bladder outlet obstruction.

Management	No. of patients
In males	
TURP	37
Medical management of BPH	11
Open prostatectomy	5
B/l orchidectomy	8
Urethroplasty	7
VIU	7
Radical cystectomy and ileal	7
conduit	
Cystolithotomy	3
Cystolithotripsy	9
In females	
Bladder neck incision	6

Management of bladder outlet obstruction for the study participants was given in Table 5. Out of 94 cases causing bladder outlet obstruction in males, 37 underwent TURP, 11 cases were treated with alpha blockers like Tamsulosin (medical management), 9 underwent cystolithotripsy, 8 underwent b/l orchidectomy, 7 underwent radical cystectomy and ileal conduit, 7 underwent VIU, 7 underwent urethroplasty, 5 underwent open prostatectomy, 3 underwent cystolithotomy whereas in female's bladder neck stenosis treated by bladder neck incision.

DISCUSSION

According to Victor Nitti bladder outlet obstruction as radiographic evidence of obstruction between the bladder

neck and the distal urethra in the presence of a sustained detrusor contraction of any magnitude, which is usually associated with a reduced or delayed urinary flow rate.⁵ Bladder outlet obstruction is a common cause of lower urinary tract symptoms in men and women. The condition is common in older men. Most common cause of bladder outlet obstruction in men is benign prostatic hyperplasia. Bladder stones and bladder cancer are also more commonly seen in men and women.⁶ The causes of obstruction in women vary greatly from anatomic (pelvic prolapse, pelvic masses, iatrogenic obstruction after stress incontinence) to functional (dysfunctional voiding, primary bladder neck obstruction) without one predominant diagnosis.⁷

Benign prostatic hyperplasia (BPH), urethra stricture and carcinoma of the prostate (CaP) are the primary causes of bladder outlet obstruction.^{2,3} Of them BPH is the most common etiological factor of bladder outlet obstruction in men older than 50 years of age. In the present study, the male preponderance (94%) was observed with the high incidence of BPH (53%). Maximum incidence of bladder outlet obstruction was observed in males at 7th decade accounting for about 35% of the cases followed by 6th (20%) and 8th decade (16%). These observations are similar with the studies of Udoh et al.⁸

The availability and increased use of various treatment modalities, as well as new imaging techniques, have recently revived the clinical awareness and interest in bladder outlet obstruction.9 Treatment of BPH primarily involves the use of alpha blockers like Tamsulosin and a Finesteride. This combination usually reduces acute urinary retention in men. If medical management fails then patients were subjected to TURP which is the gold standard technique for BPH Surgery. 10 In our study, patients with less than 80 cc prostates, who were unfit for surgery and were not willing for surgery, alpha blockers like Tamsulosin 0.4 mg HS were given. Transurethral resection of prostate (TURP) was done using Storz Iglesias Resectoscope with 30-degree telescope. 3-way urethral catheter was removed after 5-7 days. 5 patients out of 37 complained of poor urinary stream, which gradually improved within 1 week and had no surgical intervention. Rest of the patients had no complications and followed up regularly. For open prostatectomy, Freyer's procedure was done as described in literature. After 14 days, suprapubic catheter was clamped and 3 way urethral catheter was removed. If patient had no voiding difficulties, suprapubic catheter was removed after 1 day. Most of the patients had no major postoperative complications. Similar management was of BPH was observed in the previous studies of Udoh et al.⁸

In our study, urethral stricture (14%) ranked second among the causes of bladder outlet obstruction. Treatment option was based on the location, length and the co-morbid condition of the patients. For stricture size more than 2 cms, urethroplasty was done and in cases of stricture less than 2 cms, VIU was done. In this study, 7

underwent VIU, 7 underwent urethroplasty. Similar treatment was observed in the studies of Udoh et al.⁸ Cases of bladder stone with size more than 3cms were treated by cystolithotomy and size less than 3 cms were removed by cystolithotripsy.¹¹ In this study, 9 underwent cystolithotripsy and 3 underwent cystolithotomy. Symptoms of bladder outlet obstruction might be due to bladder cancers. In such cases, radical cystectomy with ileal conduit was done.⁹ In this study, 7 cases underwent radical cystectomy and ileal conduit.

Carcinoma of prostate is very common among older men and may result in bladder outlet obstruction.¹² Early stages of carcinoma prostate is treated with radical prostatectomy. In cases of late stage carcinoma prostate (Stage III & IV), maximum androgen blockade achieved by orchidectomy using scrotal incision and postoperative anti androgen. Those prostate refractories antiandrogen, chemoradiation was advised.¹³ In this study, 7 patient responded well to B/L orchidectomy and anti-androgen therapy. Only 1 patient had progressive elevation of serum PSA at 3 months of follow up following maximum androgen blockade. He was advised chemoradiation. Serum PSA done every 3 months for follow-up in additon to ultrasound. 5 patients underwent open prostatectomy. The exact prevalence of bladder outlet obstruction in females remains unknown.7 In our study the main etiological factor in females observed was bladder neck stenosis (6%). Age was 20-59 years. This is similar with the previous studies of Blaivas et al.¹⁴ In his study, six of 7 female patients presented with symptoms of bladder outlet obstruction managed by bladder neck incision. Similar treatment in female patients was done in our study also.

CONCLUSION

This study confirms that bladder outlet obstruction is a potentially curable illness. The key to successful treatment is in early diagnosis and treatment. Men were affected more frequently, with BPH being the prominent cause. In the female patients, bladder outlet obstruction was mainly caused by bladder neck stenosis. Initial and definitive management varied, depending on the causes, gender and age.

Funding: No funding sources Conflict of interest: None declared

Ethical approval: The study was approved by the

institutional ethics committee

REFERENCES

1. Abdur-Rahman LO, Hitchcock R. Paediatric surgery; A comprehensive text for Africa. 1st Edition. Benin City: Global Help. 2002:581-9.

- 2. Amu OC, Udeh EI, Ugochukwu AI, Dakum NK, Ramyil VM. The value of international prostate symptom scoring system in the management of BPH in Jos Nigeria. Nigerian J Clin Practice. 2013;16(3):273-8.
- 3. Ezeanyika LU, Ejike CE, Obidoa O, Elom SO. Prostate disorders in an apparently normal Nigerian population Prevalence. Biokemistri. 2012;18(2):127-32.
- 4. Selius BA, Do, Subedi R. Urinary Retention in Adults: Diagnosis and Initial Management. Am Fam Physician. 2008;77(5):643-50.
- 5. Nitti VW, Kim Y, Combs AJ. Correlation of the AUA symptom index with urodynamics in patients with suspected benign prostatic hyperplasia. Neurourol Urodyn. 1994;13:521-7.
- 6. Zeidel ML. Obstructive uropathy. In: Goldman L, Schafer AI, eds. Goldman's Cecil Medicine. 24th ed. Philadelphia, PA: Saunders Elsevier. 2011.
- 7. Dmochowski RR. Bladder Outlet Obstruction: Etiology and Evaluation. Rev Urol. 2005;7(6):3–13.
- Udoh E, Ukpong A. Causes of Bladder Outlet Obstruction in Adult Males, Relative Frequency and Mean Age at Diagnosis. SAS J Surg. 2016;2(4):156-60
- 9. Groutz A, Blaivas JG, Chaikin DC. Bladder Outlet Obstruction in Women: Definition and Characteristics. Neurourol Urodynamic. 2000;19:213-20.
- Mcconnell JD, Roehrborn CG, Bautista OM, Andriole GL, Dixon CM, Kusek JW, et al. For the medical therapy of prostate symptoms (MTOPS) Research Group. The long-term effect of doxazosm, finesteide and progression of benignm prostatic hyperplasia. N Engl J Med. 2003;349:2387-98.
- 11. Sharma R, Dill CE, Gelman DY. Urinary bladder calculi. J Emerg Med. 2011;41(2):185-6.
- 12. Yenlia EMT, Aboaha K, Gyasi-Sarponga CK, Azorliadea R, Arhina AA. Acute and chronic urine retention among adults at the urology section of the Accident and Emergency Unit of Komfo Anokye Teaching Hospital, Kumasi, Ghana. African J Urol. 2015;21(2):129-36.
- 13. Keyes M, Crook J, Morton G, Vigneault E, Usmani N, Morris WJ. Treatment options for localized prostate cancer. Can Fam Physician. 2013;59(12):1269-74.
- 14. Blaivas JG1, Flisser A, Tash JA. Treatment of primary bladder neck obstruction in women with transurethral resection of the bladder neck. J Urol. 2004;171(3):1172-5.

Cite this article as: Katakwar P, Thakur R. Clinical study and management of bladder outlet obstruction. Int Surg J 2017;4:1272-5.